AMERICAN SOAP JOURNAL
AND
MANUFACTURING CHEMIST.

Vol. XI. Milwaukee, Wis., September 1, 1900.

Established 1873.

M.L.BARRETT&CO.,
INCORPORATED,
Importers of and Dealers in
ESSENTIAL OILS,
CAUSTIC SODA,
COCOA NUT OIL,

Guaranteed Superior to any and Equal to the Natural.

RHODINOL II
OIL OF ROSE
(Synthetic) $4.00 per oz.

NOTICE.

All pages missing from this volume are those of Advertisements only, and a specimen of each advertisement published in the volume will be found in the issues of Jan. and April

The attention of our readers is called to the column of

"WANTED" AND "FOR SALE"

advertisements on another page. Manufacturing firms looking for intelligent up-to-date help, or who have second-hand machinery they wish to dispose of, and practical men experienced in any branch of manufacturing chemistry looking for employment, can mutually profit by using this column.

SOLE CLAYTON ROCKHILL, AGENT
NEW YORK.

"Used by Largest Soap Makers,
81014 Must be a reason for it."
Guaranteed Superior to any Equal to the Natural

RHODINOL II

OIL OF ROSE $4.00 per oz.

(Synthetic)

HELiotropine Crystals

NERoline

VANILLIN

COUMARIN

Oil Wintergreen

Amandol (Bitter Almond)

Cinnamon (Ceylon Odor).

COLORS: Green, Red, Brown, Yellow.

Can be used in Alkaline or Alcoholic Solutions.

Send for Samples and Pamphlet concerning Synthetics.

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SOLE CLAYTON ROCKHILL, AGENT
NEW YORK.

"Used by Largest Soap Makers, 81014 Must be a reason for it."
THE PREPARATION OF

Caustic Lye
from Soda Ash, by means of

STRUNZ PATENT LYE APPARATUS
AND CONVERTING KETTLES

reduces the process to a very simple and profitable operation. The expense for labor, fuel, and lime being less than by any other process now available, for the following reasons:

The entire process is completed in a single operation.

No Driving Machinery. No Vacuum Pumps.

No Air Pumps to operate by my method.

F. B. STRUNZ,
708-716 BINGHAM ST., PITTSBURGH, PA.
KNIVES FOR BOX WORK.
Special Prices for All Grades and Sizes.

Loring Coes & Co.

FARRELL & REMPE CO.
Manufacturers of Wrought Iron
PIPE COILS
...FOR...
SOAP MAKERS.

Pipe Welding by Electricity.

Coils of all descriptions for Ice Machinery Heaters, &c.
Sacramento and Carroll Aves.,
CHICAGO.

NEW EDITION OF
AMERICAN
SOAPS...

Now Ready!
Price, $15.00, Post-paid.

ADDRESS:
AMERICAN SOAP JOURNAL,
322 Windsor Place, Milwaukee, Wis., U. S. A.
WHITELAW BROTHERS,
409-411 North Second St., St. Louis, Mo.
Importers, Jobbers and Commission.
All kinds of Materials for
SOAP MANUFACTURERS,
REPRESENTING
Wing & Evans for Solvay Process Company's Products,
Philadelphia Quartz Company's Silicate Soda,
Importers of Greenbanks Specialties, Cocoanut and Palm Oils.

QUOTATIONS FOR
Caustic, Silicate, and Sal Soda, Soda Ash, Rosin, Cotton Seed Oil, Silex, and Talc,
F. O. B. or delivered in car lots to any point on or west of Mississippi River.

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THE MILWAUKEE BLANK
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BLANK BOOKS,
MEMORANDUM BOOKS,
STOCK SHIPPERS' RECORDS,
VEST POCKET DIARIES,
CARD CASES,
COIN PURSES,
MATCH CASES,
CURRENCY CASES,
AND
ENVELOPES.

218 and 220 THIRD STREET,
MILWAUKEE, WIS.

Say you saw the Ad. IN THIS PAPER
To Our Old Subscribers!

Subscribers who have been in the habit—many of them for over ten years—of receiving the American Soap Journal every month, have kept us pretty busy of late, writing that their papers had failed to arrive, and that they were missing it greatly. In the meantime we have been so extremely busy arranging our new plans, that it was at times impossible to reply as fully to these enquiries as we should like to have answered at the time and we therefore take this present opportunity to tell them more fully about the cause of the delay. We merely state the case briefly as it is, believing that perfect frankness with our subscribers, which had made this paper successful for ten years, will do the same in the future.

The facts, in only a few words, are these: There is nobody in the trade but is aware that large firms have commenced the manufacture of soap more or less recently and by engaging in fierce competition with the older houses in the business, have not only made the trade as a whole still more unsatisfactory than it was, at least for the time being, but have also caused a reduced activity in a number of smaller plants. In a field so limited as the soap trade—which prior to the advent of the Soap Journal had never supported a trade paper for over a year or so at a time, though numerous enough attempts had been made—in so narrow a field there is hardly a satisfactory amount of room for a trade paper devoting itself exclusively to that one industry. When we make this assertion, we have reference of course to a publication that limits itself strictly to the legitimate pursuits of a legitimate newspaper and not to the many catch-penny devices that parade as newspapers, “seeking whom they may devour.” A paper may or may not prosper financially when conducted on the latter plan, but we want to publish this paper on its merits, or none.

What then? There is only one natural conse-
quence; we must follow the trend of the trade and "branch out." And this is what we have prepared for and which has caused the delay. This is far from all that we might have to say on the subject, but let the paper speak for itself for the rest.

The removal to Milwaukee was incidental to the new arrangements required for branching out into additional chemical manufacturing fields; our extensive connection with correspondents in other cities makes us practically independent of location otherwise. For the rest, we are glad to be talking once more to our old friends, and commend to them for details of our further course, the article following below, and more especially the Journal in general itself.

To Old and New Readers.

Among those manufactures that can properly be classified as being essentially of a "chemical" nature, there are, it is true, a few isolated branches that have trade papers of their own, (brewers, glass, paper, leather manufacturers), but taken as a whole the manufacturing chemical industry in America is probably the only industry of considerable size that has not at least one trade paper of its own. As a result we find in a large number of factories of very diverse products certain publications—mostly one or the other druggists' papers and English and other foreign chemical journals—that are subscribed for by these manufacturers merely for want of some newspaper that comes nearer their actual requirements.

To cover these requirements more fully and more directly than can a miscellaneous collection of papers such as described, is the aim of the Manufacturing Chemist branch of this publication.

The paper now before you was originally established a little over ten years ago, as the American Soap Journal, and as such has been universally acknowledged for these ten years as a most useful means of communication between soap manufacturers, not only in this but in all English speaking countries of the world. It now undertakes to extend this service further, into additional branches of chemical industry, and to provide the means of communication and obtaining information which are so valuable to any industry—indispensable, we should have said, but for the fact that so far the various industries concerned did get along with only the miscellaneous papers referred to above.

Such, in short, is our purpose. How well we shall succeed will depend, next to our own efforts, on the manner in which our prospective readers make use of the opportunity. A trade paper can be made immensely beneficial to individual readers as well as to the trade as a whole, and nothing contributes so much to this end as the active interest of the subscribers in such a paper. Infinitely varied though the details of manufacture may be in regards to the different articles comprised in the name "Chemical industry", there is an equally great variety of common interests, so there need be no fear that this paper will ever be uninteresting or superfluous so long as the readers are alive to their interests.

We may not succeed in making one, and especially the first, issue, a complete picture of what the paper will be, and no doubt there will soon be found room for improvement (which we shall promptly take advantage of,) but in the meantime the useful services of this paper in the past make us feel confident that in its present enlarged sphere it will not fail to soon become a power for good and a friend and welcome monthly visitor in the office of our manufacturing chemists.

The Annual Subscription

for this paper for the United States, Canada, and Mexico is $2.00, payable with the order. All other countries $2.50 (£10s 6d.) Intending subscribers are requested to order early, to ensure receiving the complete volume.

A Brand Protection.

There has been registered, by Hill, Dickenson & Co. of Liverpool, the 'Northern Soap Makers' Trade Mark Protection Association, Ltd.' with an unlimited number of members, each liable for £5 in the event of winding up. Object: to protect the legal rights of members with reference to trade marks, trade names, and designs as applied to soaps, &c. The management is vested in a committee.

How much good the association will accomplish remains to be seen, and will depend largely on the the management, no doubt, for there seems to be at all times a sufficiency of trademark infringements in English soap circles to keep the interest awake.

On another page, under the heading: Special Information In Our Exchanges, we inaugurate a feature that is unique in trade papers. We trust it will prove helpful to our readers, and should like to know their opinion on it.
Soap and Perfume at the Paris Exposition.

Written for this paper by Emile Fabre.

Visitors to the exposition who are interested chiefly in the various toilet articles are of one accord in declaring the goods shown to be in many instances extremely attractive and beautiful, and artistically displayed, but they also declare that there is a decided lack of actual novelty. But is it not natural in an industry so old and well settled and in which for generations the world has essayed to contrive something new, that novelties should be few and far between at the fin du siècle, and is not the one great aim of manufacturers of this class of goods to excel in the attractiveness and quality of their wares?

At any rate, much that is displayed here has been seen at other, less pretentious, expositions before, but many exhibitors were late in finishing the installation of their displays, so that the early visitors failed to witness a considerable number of beautiful displays installed after the opening of the exposition; but it seems it could not be helped.

Among other things it is noticeable that the German brethren of our craft who have been accorded one of the best places in the whole section, have come to the front and shown toilet goods (no laundry soaps are shown by them, strange to say), that tell of the great advances made by them in this field, although their most elegant preparations could hardly be compared with the best shown by the leading Paris firms. It has been urged that some of the latter have produced goods for the exposition purposes only, or, saying it in other words, simply and solely for advertising themselves, and not in the hope of obtaining the high prices for their articles which would have to be paid to cover only their cost of production—not to mention a profit at all. However that may be, if the goods advertise the makers one of the chief aims of exhibiting them will have been fulfilled, I take it.

The British section is scarcely doing that country justice, the space occupied by it not only being too small, but not well arranged either, so that the combined effect of the several exhibits is
American Soap in Germany.

U. S. Consul Harris at Mannheim writes to the State Department to say that so far as he knows no American soap is sold in and about Mannheim, and intimates that there would be a good field for the same. It is but fair, however, in printing his communication below, to call attention to the fact also that not only is there the newly built factory of the Sunlight Soap company in opposition, to say nothing of other local factories, but there is an increasing active hostility — naturally sharpest on the part of local manufacturers — against foreign soaps of which at present the Sunlight comes in for the lion share, as notice the report on another page of a suit brought against that company for "unfair competition." Needless to say that the local manufacturers are behind the suit. The "Association for the Protection of the German Soap Industry," moreover, is widely advertising in opposition a brand called "German Unity Soap" (Deutsche Einheits-Seife), made for that express purpose by about 200 German manufacturers after a uniform composition and process. That this opposition is active in fact is also shown by another move of this association, by which it has just placed at the disposition of the Minister of War fifty thousand packages of this soap, to be presented to the German soldiers engaged in East Asia.

With these preliminary remarks we now reprint our Consuls report in the following:

The Sunlight Soap Company, an English concern, has completed a large plant at Rheinau, a suburb of this city, for the manufacture of laundry and other soaps for domestic and other use. The building is about 600 feet long, and is well equipped with machinery for soap making and with printing offices and other facilities for preparing advertising matter. The company is one of the largest advertisers in this locality and has for some time practically controlled the soap trade in the surrounding towns and villages. No American soap is sold here, so far as I know. As Mannheim and its suburban villages have a population of almost or quite 225,000, largely engaged in manufacturing and railroading, the district would seem to offer a good field for our own trade in this line. Mannheim is a center of distribution for petroleum and many other products. The fact also that this locality exports very largely to the United States removes much of the hostility that might otherwise exist against our goods.

Enlarging Chemical Works at Niagara.

The plant of the Castner Electrolytic Alkali Co., or rather that of the Mathieson Alkali Works at Niagara Falls — is to be greatly enlarged, according to the plans of the Castner-Kellner Co., Ltd. This latter company has announced that it is authorized to receive subscriptions for £200,000 first mortgage sterling debentures of the Castner Electrolytic Alkali Company of the United States. This company has been formed, with a share capital of two million dollars, to acquire the property and the buildings, plant, and machinery recently erected at Niagara Falls, and the Castner patents for the United States and Canada, and to carry on the business of manufacturers of caustic soda and bleaching powder under the Castner electrolytic process. The purchase price to be paid by the company to the Mathieson Works (the vendor) is $2,000,000, to be satisfied by the allotment of the whole of the ordinary share capital. The purchase price includes the stock-in-trade and the good-will. The present issue is made to provide funds to erect further plant and increase the works from their present capacity of 2,000 e. h. p. to at least 6,000, which, it is estimated will cost £150,000, leaving a margin for ample working capital. The debentures will be secured by a trust deed covering the company's land, works, buildings, and plant at Niagara Falls, and other assets of the company. The price of issue is £90 per cent.

Dandruff Pomade.

Benzoated Lard 1,200 parts
Precipitated Sulphur 50 parts
Lanolin 200 parts
Alcohol, 90 per cent. 200 parts
Salicylic acid 10 parts
Oil of rose geranium 10 parts
Rose Water 600 parts
Soluble Wash Bluing.

The following makes one of the best wash bluings known, and when prepared in quantity is very cheap: Dissolve 217 parts of potassium ferrocyanide in 750 parts of distilled water, and to the solution add sufficient water to make, in all, 1000 parts. In another vessel dissolve 100 parts of ferric chloride in sufficient distilled water, and bring the solution up to 1,000 parts, as before. Make a cold saturated solution of sodium sulphate in distilled water, and of the solution add 2,000 parts to each of the two iron solutions (making 3,000 parts of each). Now add the chloride solution to the ferrocyanide, little by little, under constant stirring. After the last of the ferric chloride is added, continue the stirring for some time. Filter off the liquid and wash the residue on the filter with distilled water until the wash water comes off a deep blue color. After washing, spread the mass out to dry, either at ordinary temperature or by artificial heat. When dry, a lump of this substance, which is soluble Prussian blue breaks with a fine bronze-color fracture. It is completely and easily soluble in hot or cold water. With the addition of a little mucilage it makes, when dissolved in water, a beautiful blue ink, and may also be used for hand-stamp ink. As a laundry bluing it leaves nothing to be desired either in cost or quality.

Applying Science to Manufactures.

The world moves; manufacturing processes in their forward strides move as rapidly as does the rest of the world; science progresses at an ever increasing rate. As systematic research and experimentation uncover new truths, industry takes advantage of these and develops accordingly. There is a veritable race between the civilized countries of the world as to who shall dominate its markets and it is becoming clear that the measure in which manufacturers—large and small—avail themselves of the results of scientific investigation is also largely the measure of their success. There is nothing so startlingly new in these remarks, but it seems worth while of saying it over and over again, for in spite of all there are thousands and thousands of manufacturing establishments languishing for the want of the application of those scientific attainments on which other enterprises thrive.

The enormous advances of German trade that have been brought about largely by these factors are matter of common knowledge, and so is it also well known that English industries suffered and are now suffering severely by this German competition and the demand for closer application of science to manufacturing processes is becoming louder and louder.

How is it in the United States in this respect? It is not so many years ago when, to say the least, we were no better off than they were in England, and most manufacturing industries of a chemical nature were conducted on rule-of-thumb rather than on scientific principles. But with the desire of conquering foreign markets has also come a great change in this respect, and with characteristic energy America has forged ahead and applied the achievements of science to its work with such success that once more the world is surprised at the giant strides of this country. Nor is this an empty boast such as Americans have sometimes been accused to be fond of, for the facts are realized and admitted by those of our competitors who have reasons for knowing. At the recent annual dinner of the Society of Chemical Industry in London, Mr. Jesse Collins drew attention to "a fact which had been forcibly brought home to him during a recent visit across the Atlantic, viz., that America was immensely ahead of them in the application of science to industrial purposes." And, by the way, of the 3,500 members of the society 800 are Americans and the meeting was presided over by an American, Prof. C. F. Chandler of Columbia University, who has been the president of the society for the past year.

As bearing on the same subject, the Report of the Council says:

It has been felt for some time that it would tend to the advancement of applied chemistry if the Society were to encourage manufacturers to bring their problems and difficulties under the notice of men of skill and experience, such as may be found in works, technical laboratories, universities and colleges. The Council accordingly announced that it was prepared to consider applications from manufacturers and industrial associations who desired to avail themselves of such assistance. The first to make application under this scheme was the Scottish Papermakers' Association, which offered prizes to the value of 500 dollars for solutions of certain problems connected with their industries.

The old-time disregard in which scientific men were often held by those who prided themselves on being entirely practical is fast passing away, and every available means of adapting scientific discoveries to the needs of industry is now greeted with a warm welcome.

Coining Cognomens for Specialties.

To invent suitable and telling titles for the innumerable special articles which are constantly being poured upon the market must give their spon-
New Source of Borax and of Boracic Acid.

The Chemical Trade Journal of England reports that a new combination is on the verge of formation between those refiners in England have hitherto declined to fall in line with their amalgamated brethren. A Bolivian deposit of borate of lime has already been acquired a cost of £125,000.

This mine is already sending borate to Europe to the extent of 10,000 tons per annum. Refiners have been forced for mutual protection to their present step by the scarcity and inflated price of raw material. The majority of that sold on the open market this year has been Iquique borate of a miserable quality and unworkable to a degree. As a sequence, deliveries of refined borax and boracic acid have been very backward this year outside the combine.

The new undertaking has received strong financial support from the Mincting Lane brokers, who are the most important dealers in borax. Lancashire and Cheshire refiners are well represented, together with several London refineries. The opening up and general developement of this borate deposit has given an immense impetus to trade in Liverpool. At the present moment, two new borax refineries are in course of erection in the Widnes district, capable of producing jointly 7,000 tons of crystal borax per annum. So conservative an act is borax refining deemed that only three fresh plants have been erected in England during the last ten years.

Americen Coal Production,

In the year 1899 America became the largest producer of coal in the world, as set forth fully and clearly in a publication sent out from the Treasury Department, which considers that the significance of the fact that for the first time the United States figures show a larger production than the British figures for the same period cannot be overestimated and goes on to remark that for the first time the United States shows a larger production than the British for the same period. Coal is now more than ever the material energy of a country, the universal aid, the factor in everything we do. The relative abundance or scarcity of coal therfore is the truest index of a country's position among its industrial rivals. According to recent information steamers have been chartered to carry coal from America to St. Petersburg and Stockholm, as well as to Italian French and German ports. While these exports may be due mainly to the present abnormal conditions of the British coal market, there is no doubt that in time this country will be called upon to supply an even larger part of the coal needed by
foreign industrial nations which until recently have been drawing upon the British output. This
is the more probable since cost of production and
prices of coal show a falling tendency for this coun-
try, whereas the opposite holds true of European
coal-producing countries. The production of coal
is chiefly in the hands of three nations—the Ameri-
cans, the British, and the Germans. During the
last thirty years, and even earlier, the combined
production of these three countries has averaged
year for year about five-sixths of the world's total
output. Possessing but about 10 per cent of the
world's population, they have produced about 83
per cent. of the mineral fuel, while the remaining
90 per cent. of the world's inhabitants have produ-
ced only about 17 per cent. of the coal, and even if
the savage and semi-barbarous nations be disre-
garded, the immense preponderance of coal produc-
tion in these countries must be conceded. To this group
might be added Belgium, which produces and con-
sumes more coal per capita than any other country
except the United Kingdom, but for the fact of its
small population placing it in the second rank of
coal-producing countries. While the continued out-
put of these three countries has kept pace with the
production of the rest of the world, their relative
position has been much altered. According to the
Department 'statistics clearly show that the Uni-
ted Kingdom is rapidly losing its former prece-
dence as a coal-producing power, and that while its production is increasing rapidly its absolute in-
crease is less than that of the United States, and
its relative increase considerably less than that of
either the United States or Germany.

Getting Customers.
You may know in your line, but remember
there are always new concerns springing into exis-
tence, as well as old ones re-building, re-equip-
ing, buying out plants or moving or re-establishing addi-
tional works in other localities. The well-informed
man secures such people for customers and when
Mr. Knowitall eventually discovers that a probable
customer is on earth, he is told "We are satisfied
and do not wish to change." An advertisement
reaches many people whom you would never think
of, but who anytime may buy such goods as you
produce. Are you educating the embryo buyer in
your interest, are you making capital of your name
for future trade, are you cultivating the man who
satisfied at present may any day suddenly desire
to buy of another? Advertise continuously if you
want to expand and recruit your customers.

In writing to any of our advertisers please
mention the American Soap Jnl. & Mfg. Chemist.

A Unique Communication.
We are in receipt, from A. M. Shukoff of St.
Petersburg, of a 52-page booklet published by this
house in explanation of its exhibits at the Paris ex-
position. This book, which is published in the
French language, gives a list of the articles shown
which number just 75, embracing glycerine, soap,
fatty acids and oils, vaseline, lubricants, apparatus
for testing tallow and oleic acid, candles etc. Next
follows a very brief description of the firm which
shows it to be not only the largest soap factory in
Russia (making 18 million pounds of soap annually
but also of considerable importance in other chemi-
products, employing in all over eight-hundred men.
There are seven chemists in the works.

This house, by the way, also had an interesting
exhibit at the Chicago World's Fair and many of
readers will recall with pleasure the young Mr.
Shukoff who attended the Fair at the time.

Next in the book follows a brief resume of the
industries of Russia in general so far as soaps, fats,
oils and petroleum are concerned, and then a de-
scription of the native fats and oils.

Finally there is a Resume of the Work of the
Central Chemical Laboratory of the Works A. M.
Shukoff, in which are treated the analysis of fats,
title of tallow, determination of unsaponifiable
matter in fats and oils, examination of seeds, ana-
lysis of oils, percentage of paraffin in petroleum,
chlorine in glycerine, fatty acids, etc.

Impure Soap and Congress.
If our esteemed contemporary, the National
Provisioner, is correctly informed, the soap makers
of Kansas City have "about decided to call the at-
tention of Congress to the dangerous soaps which
are annually put up by the unscrupulous manufac-
turers of this toilet and laundry article."

With all due respect to the opinion of our con-
temporary, which seems to be in favor of such a
move, we do not believe that any good could pos-
sibly come from it, unless it be the indirect advan-
tage derived from drawing public attention to the
unsatisfactory character of the cheap soaps. That
there are on the market many very trashy soaps is
but too true, but that there is so much danger in
them as advertisement and newspaper writers are
prone to claim, we doubt very seriously. With the
exception of soap chapping the skin by reason of
free alkali or irritating perfumes, and of possibly
aggravating an already existing skin disease,
(which even the best of soaps may do under given
circumstances), we know of no well-authenticated
case where evil results to health have been traced
to the use of a poor quality of soap. There are soaps that are veritable abominations and it is a mystery that in our days the public can be enticed into buying them—often at an extra high price even—and it would be a blessing if they could be driven out of existence, but low grade for good money is not a subject concerning Congress.

So far as affecting the health is concerned, if such cases do occur, it must be due to either the fat or the alkali, or the filling.

We know of no special filling used in the cheap soaps that is of a dangerous character; alkali can be deleterious only if present in marked excess, but surely Congress cannot be expected to make laws against soaps containing free alkali. The last possibility is that which our Kansas City friends most likely had in mind (always supposing that they are correctly reported), i.e. impure fats, and especially fats from animals dead of some disease. Soaps made from such fats by boiling with lye are entirely unable to do any harm, but we can conceive the possibility at least that a poorly saponified fat may contain disease germs where in the cold process the latter escape both the lye and the boiling process; but considering that soap itself is one of the very best antiseptics known, this possibility is at least very remote. Should Congress then forbid the use of fat from diseased animals? We doubt that Congress could do this; we doubt still more that Congress would do it; and it is still more doubtful if any attention would be paid to such a law after it were passed.

Another great question would be whether fat coming from the rendering tank ever does contain living germs at all. And if not, what is there about a poor quality soap to make it dangerous to health? Much as we should like to see the irresponsible manufacturers of equally bad soap driven out of the market, and glad as we should be of an opportunity to assist in any plan calculated to bring about such a result, we cannot see any hopeful feature in the Kansas City plan.

As intimated above, the cry of dangerous soap is raised chiefly for advertising purposes, although to be sure, there are honest manufacturers who, knowing of the purity of their materials and of the care exercised in making them into soap, are convinced that soap made with less care must be less safe to use and argue accordingly. They are fully entitled to their opinion. But we do not believe in appealing to Congress nor in going the length of the following article which originated with the "American Journal of Health" and was quoted in connection with the report from Kansas City above referred to. In fact we rather incline to the suspicion that the article was prepared for the purpose of following it up with some such statement as:

"Only the purest, reliable soaps should be used, such as are made exclusively by Greasem & Co." However that may be, we conclude in printing the article, as giving an idea how not to advertise:

"We are frequently asked why the American Journal of Health insists so strongly upon the purity of the laundry soap used in the households of its readers, the questioner implying in most cases that it makes very little difference what kind of soap is employed for such purposes. No greater mistake could be made, for there is no feature in the domestic economy fraught with greater importance than is the matter of laundry soap used. Strange to say, the very persons who are critical and exacting in every detail of their toilet, and who would not, under any circumstances, allow any save the finest of soaps in their bathrooms or upon their dressing tables, seem to be utterly oblivious to the uncleanness inseparable from the employment of impure laundry soaps, to say nothing of the dangers of skin diseases which are apt to follow the use of such deleterious articles. Yet the writer does not hesitate to declare—and his statement will be borne out by the experience of every physician of extended practice—that more cutaneous disorders have their origin in the use of inferior laundry soaps than are caused by the employment of low grade toilet soaps.

"If it were impossible to obtain pure laundry soaps the carelessness in this regard would be excusable but where highest grade goods are easily procurable there does not exist the slightest reason for ignoring one of the most important features in the prevention of disease.

"Scientists who realize the grave dangers that follow the wearing of articles of clothing to which cling minute particles of irritating substances, that are incorporated into laundry soaps to increase the weight or the bulk of the same will appreciate the truth of the statement that pure laundry soaps furnish the housekeeper an absolute protection from the dangers of this nature, which otherwise would be incurred.

"The pure clean soaps of reputable makers give the entire family a safeguard against the dangers which follow the use of laundry soaps composed of impure materials and manufactured without the slightest regard to the health of the user."

You probably have about your factory some machine that you no longer want—nearly everybody has. Advertise it For Sale in this paper and turn it into cash.

Mention this paper when writing advertisers.
A Practical Beneficence.

Of all the ways in which the rich can spend or devise their money, there is none in which greater benefits can accrue to humanity than in the endowment of technical schools, and in furnishing means of practical education to the young. This is especially true of prosperous manufacturers in any and every line of human industry. Schools at which youths are taught not merely the theory, but the practical details of a trade or calling, or those in which the practical work is supplemented by the scientific knowledge upon which the trade or art is based, are those which appeal most to the sympathies of such manufacturers, and vast sums have been given in late years toward founding such institutions.

There is another way in which manufacturers or manufacturing houses may show their interest in scientific or technical education, and one the more feasible since the cost is moderate—and, we might add, it can be accomplished during the lifetime of the benefactor. This is the establishment of scholarships at institutions already amply endowed otherwise, whereby needy young men who have shown special aptitude in certain technical directions, or toward certain learned pursuits, may be helped to attain a complete education.

For a specimen of this kind of practical beneficence we may quote a recent newspaper item from Ann Arbor, Mich., in which Prof. A. B. Stevens of the University faculty announces that Nelson, Baker and Co. of Detroit, have presented $500 to the University for the support of a fellowship in pharmacy during the coming year. The line of research to which the fellowship is to be devoted has not yet been determined upon, but will probably be decided at the September meeting of the Regents.

An Old Soap Problem.

A subscriber (not long enough a subscriber, though, to have followed this subject in some of the earlier issues of the Soap Journal,) writes as follows:

"— — Will you also kindly give me some information in regard to figuring cost of soap. I differ with our soapmaker on this point. For instance: A clean kettle is stocked with soap material, and the soap drawn off, leaving the nigger; this remains in the kettle and fresh soap material is added to it, and the soap again drawn off, still leaving a residue. This performance is repeated until finally the whole contents of the kettle are drawn off in the shape of a cheap soap. Now the question at issue is how to handle and apportion this nigger in determining the exact cost of each batch of merchantable soap. Can you tell me the method used by soap makers generally? If so, you will confer a favor on — —."

The subject of our correspondent's enquiry is one that has been ventilated in a way rather thoroughly when, some years ago, the question of soap yield from a given amount of stock was under discussion and brought forth some exceedingly interesting letters, the chief points of which have since been reprinted in the book "American Soaps" to which we must refer those not having our older issues. The final conclusion reached that time was that it is impossible to calculate the exact yield of soap obtained from a given amount of stock, the main difficulty arising from this very nigger to which our correspondent refers, so that his problem is practically identical with that concerning the calculation of yield.

Furthermore, as different factories have different methods of working up their niggers, they obviously could not well follow the same methods of calculating their values. Even the most system-atically managed factories cannot overcome entirely the difficulty arising from the passing of the nigger into successive batches of gradually decreasing grades of soap, and accordingly each factory deals with the problem as best it can. Where the grades of soap turned out by a factory are such as to allow of such a method of calculation, it is feasible to keep account of the stock of various grades that enters the kettles in a given period of time—extending over several months at least—and likewise taking note of the total amounts of soap of each grade turned out in the same time, and basing the calculation on these figures. Perhaps as reliable results may be obtained in other cases, by estimating the amount of nigger left from the original fresh batch, placing a fair valuation upon it (considering it a lower grade soap simply) and crediting the amount so determined to the original batch, on the other hand charging it to the next kettle as if it were so much low grade stock.

Of course these methods are rather crude and do not give entirely definite results, but they are probably as near as one can come to the facts by more elaborate systems of calculation—unless, indeed, it should be possible to get nearer the truth by basing the calculations on the chemical analysis (especially as to the fatty acid percentage) of the nigger, but even this would be more theoretically than practically correct, for in the end the actual value of the nigger must depend largely upon the relative selling prices of the several grades of soap obtained.

If any of our readers have any observations to add to the foregoing remarks, we shall be pleased to hear from them.
Pushing the Sale of Soap.

Why it should be necessary in order to obtain a wide popularity for any particular brand of soap to attach a system of present giving is by no means clear. The system has probably arisen to a considerable extent, from the keen competition which exists among soap manufacturers as well as from the fact that one or two manufacturers having succeeded very well with the system, other makers have thought that they would do equally well by adopting some such plan of operation. Thus speaking of conditions in England (though it might as well have been written for the United States) says our contemporary: Oils, Colors and Dysalteries.

Now the system of giving away so-called presents in order to induce sales is radically wrong from a mercantile point of view. It is true enough that a manufacturer may reason that in order to popularise a new brand it will be necessary to spend a considerable sum of money in advertising, and that he might suppose that it would ultimately pay better to spend the money in giving presents to purchasers. The reason is good as far as it goes, but a most essential point is overlooked, and that is that just as soon as the presents are withdrawn the sales will to a great extent stop, while if the money were spent on advertising the popularity would remain a good many years after the advertisements are withdrawn, provided that the soap were of good quality and sold at a fair price. No better example of this could be had than Pear's Soap, which, as is well known, is not now advertised to anything like the extent it was formerly.

The grocers, who are fortunate enough in having a strong Assotiation, have lately taken this matter up, and at the last meeting of the Northern Grocers' Council the following resolution was carried: "That the Northern Council be asked to make representations to Messrs. Crosfield & Sons to the effect that retail grocers deprecate their methods of giving toilet soap and other goods to customers returning 'Perfection' soap wrappers, and respectfully ask them to discontinue this mode of using retail tradesmen as advertising mediums between themselves and the public, as in the opinion of this Committee it is conducive to a method of trading which is most objectionable. The Committee is of the opinion that the ends Messrs. Crosfield and others who adopt these methods have in view would be better served by cooperating with the retail dealer to secure the goods being sold at reasonable profit, as this course would ensure the good will of all dealers in the article, while the course now being adopted is leading to friction between manufacturers and retailers."

The discussion which followed the introduction of the resolution rendered it clear that the members of the Council were heartily in favor of the objection stated, and the resolution was adopted by a unanimous vote.

Messrs. Joseph Crosfield & Sons our contemporary concludes are by no means alone in this system of present giving; indeed, they themselves have a large number of most popular brands of soap, which they sell on their merits and without any question of giving bonuses in any form. We trust that they and other manufacturers may soon abandon the objectionable present giving system entirely.

"We think that they must sooner or later realise the harm that such a system of trading must do."

About Toilet soaps,

(Adapted from the Seifenfabrikant)

As in all other articles of manufacture, so in soap there are good and bad on the market, which partly is owing to local conditions and partly to insufficient experience of the maker, as no special concession is required to make only certain kinds of toilet soap, every lay man may readily take up their manufacture and this is still further facilitated by offers to teach their manufacture in connection with offers of the necessary apparatus. If in such a case the producer accidentally succeeds to turn out a good article for once, the desire to become a manufacturer arises and later he finds that after all the thing is not so simple and requires to be learned. Thus appear on the market soaps that defy description.

In making toilet soap, redoubled care should be exercised, inasmuch as they are to be used on the face and body; for laundry purposes toilet soap is not used for financial reasons—consumers are not yet sufficiently educated to give due heed to a better and consequently dearer kind.

Of the better grades it is justly demanded that they be neutral, i. e. free from excess of alkali. But even the cheaper, filled grades should not affect the skin detrimentally, and need not do so if the additions are not excessive. With exact manipulation and correct composition a soap of two to four-fold yield can be made that a lay man cannot tell the quality of.

The usual fats for the purpose are cocoanut oil, tallow, and castor oil, and these demand much attention, as on their proper condition depends the successful turning out of the soap. Soaps made from fresh oil and fat keep longer and the perfume is retained for a long time in a properly prepared soap. For filled soap it is still more important that the stock be fresh, for old, rancid stock accepts less filling and thereby is the cause of loss. But, if
nevertheless it is attempted to force the usual yield, there will be more trouble than the lower yield would amount to; if the time lost in pressing alone be considered, it will be found that with old rancid cocoanut oil it is advisable not to lay too much stress on the highest possible yield, especially if the soap takes up only a few pounds of filling less than usual. By forcing the yield in such a case there results a short soap which fails to take on the desired lustre in pressing and which, in winter, tends greatly to whitewashing. It is well, therefore, to make a small trial with each lot of oil, and if this is not satisfactory in its result, to refine the oil before use by boiling it on water and clarifying with 6 to 8 per cent salt and perhaps a few per cent of soda solution; or by boiling with a little strong caustic lye and then clarifying with salt.

Where the oil is steamed out of the containers, not only time and labor are saved, but the steaming acts like a washing and requires only clarification by a few per cent of salt. This clarification is almost a necessity for the better tallow soaps. It also happens that oils and fats were insufficiently purified at the factory and contain acid, as shown by the effect on litmus paper.

To have always uniform goods, exact weighing of lye and oil must be insisted on and should be entrusted to reliable workmen only. Then the cleanliness of all the utensils should be watched, and that no undissolved colors—particles that may be unnoticeable to the naked eye—get into the soap, whether the color be soluble in water or oil. To avoid this, the color should be strained through a hair sieve or cloth. Among the colors there are many that dissolve with much difficulty only and require the help of alcohol and lye to obtain an uniform solution. Quite generally the cheaper grades of 200 pounds and more yield are given a loud color, corresponding to the name given them; the unfilled soaps are colored more agreeably. The milled kinds with fancy odors are given fancy, indefinite shades.

In the erection or remodeling of a factory too little attention is commonly given to the need of having a closed place that can be properly heated. I mean a room that is not being continuously entered by workmen. When the weather turns gradually cooler through autumn and toward winter the manufacturing process becomes not only more difficult, but even the most expert cannot always turn out uniform goods. This refers of course only to cold-made soaps, and especially to those with silicate filling. With too low a temperature in the factory that of the oil must be raised, and, instead of an emulsion—which is all that is permissible in the cold process—spontaneous heating occurs in the crutcher already, so that the silicate crystalizes; this does not show itself much usually at first unless the heat was very high in the crutcher. But the fault becomes apparent in cutting less smoothly, and soon turning as rough as a pumice-stone when taken into use. The larger the batch worked, the sooner and the stronger is the heat generated, so that what with a 100 lb. batch would be passable yet, would in a 1000 lb. batch require the greatest haste in framing to save the soap.

As to the filling this also requires practice, a faulty soap often arising from the filling itself, or its composition. The filling most used are silicate of soda and the so-called sugar solution consisting of potash, sugar and salt or potassium chloride. The latter is chiefly used for transparent soap; for the cheaper grades it is too expensive and therefore made by substituting soda for part or all of the potash. In many places a hard soap is demanded, one into which the fingernail cannot be pressed readily and for this purpose silicate is most suitable besides being cheapest. Filled halfboiled soap with 300 lb. yield and over are most readily made with solution of potash or soda and salt water and can be quickly produced by open steam but it is then necessary to be on guard against an unexpectedly rapid union and a boiling over, for which event the filling solution should be handy.

The cold process has been described too often to more than touch upon it here. The filled kinds can be made in two ways. The oil at 140° and the lye may be crutched together and the filling added when the saponification has set in; so made, the soap dries out less but cuts wavy and loses its shape in stock; with old rancid cocoanut oil this method is to be recommended as the oil can be used without subjecting it to any manipulation and any desired yield can be obtained. The other, more usual, method consists in crutching the lye and filling at about 85° F. (according to season and stock) into the oil. When iron frames are used of a kind that cannot be taken apart, they must have a conical shape to let the hardened soap out readily, and it is well to prepare the bottom and sides before each use by rubbing them well with vaseline or chalk. Unfilled soap is best framed in wooden frames.

Transparent soaps give rise to many disagreeable experiences through careless working, especially where cleanliness and exactness are wanting. The raw materials must undergo thorough clarification, performed by melting and resting a number of hours. Too high temperature of the materials is to be avoided, the more so when light soaps are wanded. Sugar solutions and other fillings are to be filtered to get the best results. Most, however, depends on the proper finish and thorough saponifi-
Soap Advertising.

There are thousands or more brands of soap, yet there are but few persons who could name more than five or six, and those are the brands that are best advertised. In the proportion that these brands are known they are sold. Every soap must be known to some extent, especially in the locality where it is being manufactured, but its sales amount to little or nothing outside the locality where it is known or advertised. What is true of soap is also true of other lines. In fact, every branch of trade might be summarized the same way.—Exchange.

Inspection and Explosions.

Explosions of boilers occur as a rule from mistakes or incapacity on the part of the attendant, undue pressure, low water, &c., and inspection, however rigid, cannot overcome these. But at the same time explosions are more frequent in uninspected boilers than in those inspected by a competent person. This is the conclusion of a committee of the House of Commons appointed to inquire into the advisability of legislation securing regular inspection.

Soap Works Celebrate.

The annual Trade Dinner of the well-known company of Edward Cook & Co., Ltd., (East London Soap Works), was held at the Holborn Restaurant on the 7th ult. Our correspondent writes:

Invitations were issued to the clerks, heads of departments and travellers, and although many representatives were unable to attend, nearly 100 gentlemen responded and a very happy evening was spent.

The gathering was presided over by Mr. William Cook who was supported by Messrs. Samuel Hall, T. Alex Cook, E. Miall Cook, S. Godfrey Hall and Martyn Cook. After the loyal toast had been duly honored, the chairman in the course of his remarks referred to the kindly feeling which existed between the directors and the staff and he felt sure that each individual would do his best to make the present year a successful one. The fragrant weed was then introduced, and songs, recitations, etc., were beautifully rendered during the evening between the various toasts. Mr. G. A. Briance sang with much effect ‘There’s a Land’ and ‘A Soldier’s Song’ and Mr. H. Morey Attwell contributed one of his humorous songs rendered in fine style.

Between the songs there were the usual trade toasts, and after a most pleasant evening ‘Auld Lang Syne’ was heartily rendered and the company dispersed about 11 o’clock to enable the gentlemen residing in the suburbs to catch their trains home.
The Duties of a Fireman.

From Steam Engineering.

A low water alarm is all right in principle, but the fireman should never depend on it in the slightest degree. I do not mean to imply that the alarm is liable to be unreliable, but that it is very much better for him to know, with his own eyes, where his water level is than it is to trust to some automatic device to inform him. If he has a low-water alarm, the best thing for him to do is to see that it never has a chance to work. Let him fear the alarm, and take particular care that his boss never hears it blow, and then the alarm is all right, and fulfills the purpose for which it was doubtless designed.

I am inclined to the opinion that every boiler should be provided with a fusible plug. These plugs are demanded by law in some states and the best builders of boilers recognize their value, as a rule, and put them upon all new work. On a common horizontal tuular boiler the fusible plug should be upon the back head, about three inches above the tubes. On a boiler of the locomotive type it should be on the crown sheet, projecting upward, so that the fusible part will be uncovered when the water level falls to within two or three inches of the crown sheet. On other types of boilers the fusible plug must be located always with the idea that it will become uncovered, and so melt out, before any of the sheets or other surfaces exposed to the fire, and which are normally covered with water, can become dry. The fireman’s duty, so far as the fusible plug is concerned, is merely to see that it is refilled, at proper intervals, with fusible metal. Once in two years will probably be often to attend to this. Fusible plugs should never be filled with anything but pure tin. An alloy (or mixture of metals) when exposed to heat for a year or so is almost certain to lose its character and become converted into a mass which either will not melt at all, or which if it does melt will do so only at a temperature which is high enough to injure the boiler. Some firemen have a fashion of filling their fusible plugs with chunks of copper, so that they cannot melt at all; but a fusible plug is really a good thing, and care should be taken to have it in good order.

Years ago the old-fashioned lever safety valves were the only kind in use; but the pop-valve has been steadily growing in favor, and it is now very common. Either kind of valve, if it is to be really a safety valve, should be tried every day to make sure that it is free and in good order. The lever valve is best tried by raising the lever a little. There is no need of blowing off a lot of steam, as the object in view is just as well attained by easing the valve from its seat the least bit. This is so little trouble that one would suppose that a fireman would always attend to it religiously, and after his attention had once been called to its importance; but I am sorry to say that he does not always do so. I have several times heard a fireman declare that he had blown the valve “the night before,” or on some other recent occasion, when the condition of the valve itself showed that it had not been disturbed for weeks. Once, in a case of this kind, I found the disc of the valve corroded to the seat so solidly that a pressure of a thousand pounds to the square inch would hardly have budged it, and in the escape pipe was a swallow’s nest with little ones in it. A cord and pulley can be easily arranged so that the lever of the valve can be raised by a pull on the cord; and a rigging of this kind is well worth putting in, as it enables one to test the valve from the boiler room floor. Just a mere pull on the cord on the cord once in a while—at least once a day—will be all that is necessary, to show that the valve is in good condition.

The best way to test a pop valve is to run the pressure up until the valve blows by the natural process. This will show that the valve is in good order, and incidentally it will afford a good test of the accuracy of the steam gauge, if the reading of the same is noted each time. The pop-valve ought to close promptly as soon as the pressure has run down by a couple of pounds; and hence such a test of it as I have described does not involve any material loss of steam. A lever valve, on the other hand when it blows from steam pressure alone will sometimes let the steam run down 10 or 15 pounds before closing properly, and even after that it is likely to leak and fizzle for a long time, so that the fireman may have to go up on the boiler and tinker with it. This is the reason that I recommend the fireman to test the pop-valve by direct pressures, but to test the lever valve by easing it from its seat a little with a cord and pulley when the pressure is considerably below the blowing point.

So far as the setting of the valve is concerned, so that it may blow off at a certain pressure I would advise the fireman to let his pop-valve alone. Probably it is locked up anyway, but even if it is not he had better let the contract of setting it (when it needs setting) out to somebody who knows a good deal about such valves. The lever valve can be set by calculation, I suppose, though I think very few lever valves are set in this way in real practice. The fireman ought to learn how to calculate the position that the weight must have on the lever in order that the valve may blow at a certain pressure; but the advantage of this calculation is largely
educational, in my opinion, and its chief value lies in the fact that it shows up the principle on which the valve works.

Lever valves are set, in practice, for the most part, by the process known as weighing steam. To carry out this process the pressure is run up to the point at which the valve is desired to blow off, and the weight is then adjusted on the lever until it just balances the steam pressure. Two men can go through with this operation better than one, and it should be done with a great deal of care, especially if the required position of the weight proves to be near the end of the lever. Every valve lever ought to have a hook or stop of some kind on the end, so that the weight cannot be slipped off from the lever without some trouble; but they are not all provided with such stops, and it must be borne in mind that to allow the weight to fall off unexpectedly might be a serious thing when the boiler is under steam, especially if the valve discharges directly into the boiler room.

Automatic hamper regulators are now very common, and they are valuable things. They are to be set so as to close when the pressure has risen to within about three pounds of the blowing point.

American Trade-Marks in Brazil.

U. S. Minister Bryan writes from Petropolis, that he has protested against the Brazilian law enacted last November, forbidding the importation of manufactures that carry labels or trade-marks in Portuguese, or partly in that language. The 1st of July was named as the date for putting the law into effect, but Mr. Bryan has obtained a postponement until October 1st, and hopes that Congress will repeal the law. Mr. Bryan argues that labels are a part of trade marks, and that consequently the law is in violation of the convention of 1878 between the United States and Brazil. He advises all American importers to conform to the requirements of that agreement, by registering their marks in Brazil.

Duty on Tallow.

W. B. Summer & Co. importe at San Francisco a certain kind of tallow. A portion of the importation was returned by the local appraiser as 'grease fit only for soap making,' and free of duty under paragraph 568 of the act of 1897. The remainder of the importation was returned by the local appraiser as 'tallow,' and assessed for duty as such at the rate of 3/4 c a lb.

The importers claimed that this portion of the merchandise is also entitled to free entry under the same paragraph above quoted. The board in its decision says:

"The basis of the action of the Collector in assessing different rates of duty on the two kinds of tallow does not clearly appear, inasmuch as all of the merchandise in the importation is tallow, and it is well settled that the designation of an article by name and without words of limitation in a tariff act includes that article in all forms."

"We find that the merchandise in question is tallow and dutiable as such under paragraph 279 at three-quarter cent a pound. The protest is accordingly overruled and the decision of the Collector affirmed."

Good and Bad Soaps.

There seems to exist the very widest diversity of ideal as to what constitutes a good and what constitutes a bad soap. While this is true it is evident that in a process of manufacture such as that which has to do with textile fabrics there should be no hesitation whatsoever as to what qualities are essential in a soap that completely fulfills its purpose and as to the qualities that by their absence cause the soap that is employed, to work to the detriment of the goods rather than to their advantage.

It is absolutely necessary, especially in the finishing and in all the wet processes of manufacture, that the manager should understand the requirements of his soaps, and should also be thoroughly familiar with the extent to which they meet or fail to meet them.

The work that a soap is expected to accomplish in the finishing of woollen goods is very largely two-fold. It is expected to aid, first, in the loosening up or softening of the foreign materials that are present in the wool fibres, and second, it is expected to materially add to the ease and thoroughness with which these foreign materials can be finally removed. In a very large measure these two actions are practically co-ordinated, and really depend largely upon each other.

A soap that for any reason whatsoever is not calculated to soften the materials that are to be expelled cannot be very energetic in the actual expulsion of the material; and a soap that could remove the foreign materials with the greatest ease would be of little service if it were not capable, first, of loosening them from the fibres.

The other effects which follow the use of a soap such as the softening of the fibre itself, the change in its feel, and the brightening of its natural appearance, are all the results of these two fundamental actions, and not the results of any direct influence of the soap upon the fibre.
If the soap is a success in the matter of loosening and removing foreign materials, the features above referred to will practically look after themselves, and will depend upon the nature of the stock and the way it is handled.

A soap that is to fulfill the requirements of most any case in ordinary practice must possess one property at least, and that is, a body of sufficient strength and potency to hold together until the action of the soap is completed.

If the soap constituents begin to separate before the work that the soap has to do is finished, it is evident that the work is going to be unsatisfactory and incomplete. It may be possible, by resorting to certain details of method, to reunite these constituents after they have commenced to separate, but it can only be done at the expense of the final appearance and value of the goods.

A soap must absolutely be of sufficient consistence and body to hold itself together until its work is done. Just at this point, perhaps, is where one of the great differences between a good and a bad soap appears.

When the finisher makes up his mind to secure a soap of the above description, he generally makes up his mind at the same time that he will have to make it himself, if he is going to keep within the range of economy. This is a natural conclusion, yet the facts of the case are that it is by no means a wise or a prudent move for the finisher to imagine that the soap that he makes himself is necessarily going to fill the conditions at a lower price than the one he buys. In order to make a cheap soap it is usually necessary to buy cheap materials, and it is here where the finisher's danger lies; he imagine that because he knows what he is putting into the soap, the soap will necessarily be what he wants, and yet perhaps in three cases out of four he is not getting what he wants after all.

If the actual figures could be determined, if he could find out for example exactly what it costs him to make his soap, counting time, materials, labor, power, and then if he could determine exactly, how much of this home-made soap is required to do a certain definite amount of work, and to do it exactly right. If, after he has done this he should take a much higher priced commercial soap, that has its own standard of purity and strength, and determine how much of this soap it takes to do the same work and to do it just as well, he might be much surprised to find that there was a very appreciable difference in favor of the commercial article.

If a man starts out to make his own soap, he may proceed something as follows: He will take, for example, as his basis for operations, a gallon of saponified red oil and with this he will make perhaps thirty gallons of soap that will work alright for an hour or an hour and a half in a fulling mill. The cost of this soap, without mentioning the other ingredients, or the expense of making, will amount to about, say, a cent a gallon. Now, if he were to purchase a first-class palm-oil soap at about five and a half cents, he could make a gallon of soap of about the same quality as that which he has made himself out of about two ounces of it. The cost of this can easily be determined, and he will find if he figures it out that by buying his soap he saves about one-third of a cent on every gallon that he uses, and this, too, without counting the expense of the alkalis employed and the labor of the soap making. These, of course, are merely figures in the rough, and yet they are near enough to accuracy to give an indication as to the facts which we wish to bring out.—Wm. H. Davis, in the Textile Co-
orist.

**Around the Soap Factories.**

News items sent us by our readers will find prompt attention in this column.

The Brown Soap Co., of Manitowoc, Wis., has recently been organized.

The annual convention of the Laundrymen's National Association will be held at Buffalo, Sep. 10 to 12, and a large attendance is expected.

C. Ludy's Sons tallow works at Philadelphia have suffered from fire to the extent of $7,000.

The Penn Tallow & Oil Co., of Camden, N. J., is a new corporation, to deal in lard, tallow, etc.

The Sunlight Soap Works at Mannheim, Germany, (an offspring of the English factory), has been brought into court on the charge of unfairness in competition ("Unlauterer Wettbewerb.") The trial has been postponed till the 22d inst., owing to the inability to be present on the part of an expert who is to testify concerning the claim that the soap cleans "ever so dirty linen without boiling and scalding." If that sort of thing were to be introduced into this country, what fun it would be to be an expert on washing and comparing practical results with claims on the wrappers.

The Farmers' Cotton Oil Co. has been incorporated at Stanton, S. C.

For its exhibit of oil, stearin, soap, soap powder, etc., the American Cotton Oil Co. has been awarded the Grand Prix d'Honneur of the Paris exposition.

In the twelve months ending June 30, 1900, the United States imported 808,309 lbs. of toilet soap, (against 793,940 lbs. the year before), and of other soap we imported to the value of $291,398 (against
$248,266 the year before.) During the same time our exports were as follows: Toilet or fancy soap $493,253, (against $314,326 the year before.) All other soap 36,042.193 lbs. (against 32,529,003 lbs. the year before.) While in the matter of soap the increase of our exports is proportionately greater than the increase in our imports, our exports of tallow and rosin have fallen off about 15 per cent as compared with the previous year.

The Fels Naphtha Soap Works, Philadelphia, have been badly damaged by fire which destroyed property estimated at $15,000.

The main building of the E. J. Whitman Rendering Works at Lowell, Mass., has been destroyed by fire. Loss estimated at $3,500.

Fire last month destroyed the soap factory of Thorner & Schulenberg of St. Louis. Loss estimated at $5,000.

The Procter & Gamble Co. has won the suit brought against it by an English firm seeking to stop the defendants from selling Ivory soap in England, as it was alleged to infringe the rights of Ivy soap. The decision is based on the evidence showing that the American soap was sold in England before the Ivy brand was made.

Michael Donahue, an old tallow dealer of New York, who had retired from active business in 1884, died last month, 88 years of age.

An interesting brand of soap has been placed on the English market by an old subscriber of this Journal, J. C. & J. Field, Ltd., of Lambeth, namely the "Khaki Toilet Soap." The boxes are made of Khaki-colored fabric and bear a label in red, white, blue and gold, showing the portraits of the prominent English officers in the South African war. As is particularly appropriate with such a brand, the manufacturers have agreed to contribute for each box of this soap sold, 1 d to the Transvaal war fund.

We learn that A. Hoefner, Buffalo, N. Y., has made extensive improvements in his soap plant, having built a new boiler house, added a large water tube boiler and new engine which more than doubles his power capacity. He has enlarged his dry kilns and put in a Detroit automatic power press which is capable of handling 800 boxes (80,000 cakes) of soap per day. He also made several minor improvements which places his plant in first-class condition and enables him to turn out his products more rapidly and with better satisfaction.

The Chicago Fertilizer Co. of Chicago has been incorporated. Incorporators: Ellis P. Moore, Jr., Frank A. Whitney, Henry Horner, and others. Capital $100,000.

Rumor has it that the sum of $400,000 has been set aside for one year's advertising of Babbit's soap. (This item in itself is quite an advertisement.)

The soap factory of S. Britz, San Bernardino, Cal. has been destroyed by fire; it is to be rebuilt.

The Capital Soap Works at Salem, Oreg., is in operation again.

Jacob Gross, secretary of the Gross Soap Mnf'g Co., of Milwaukee, was found with a bullet hole in his head and a revolver on his desk, the other day. The exact circumstances of the unfortunate occurrence are not as yet known.

A New York contractor recently furnished 36 lbs. of castile (?) soap to the Kings County Penitentiary, but before he could collect the account it had "shrunken" to 27 lbs. Almost anything will shrink from the penitentiary, but a shrinkage of exactly 25 per cent for Castile soap is rather remarkable.

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.

651,954. Soap Cake. Leopold S. Samuel, Newark, N. J.
654,740. Soap. Herman J. Lease, assignor to L. M. Lease, Madisonville, Ohio.

LABELS.

7,700. Title: "Purgo." For a washing compound. Oliver W. Gollings, Chicago, III.
7,689. Title: "Physicians', Surgeons' and Dentists' Toilet Disinfecting Soap." Disinfective Co., Canton, Ohio.

PRINTS.

None.

TRADE-MARKS.

Notes for the Manufacturing Chemists.

INTERNATIONAL CONGRESS OF CHEMISTRY.

The International Congress of Chemistry was held in Paris from July 17th to 23d. It was not a very large gathering, no doubt partly owing to the terrific heat from which Paris was at that time suffering. M. Berthelot, President of the Congress, was forced by ill-health to be absent. There were present, however, many eminent chemists from numerous foreign countries. The time was employed largely with the subject of an international chemical nomenclature; lectures were delivered on 'The Combustible Gases of the Air,' 'Metallic Carbides,' and 'The Chemical Teaching of Cryoscopy and Tonometry.' Visits to the chemical exhibits of the Exposition, Pasteur Institute, Sorbonne Laboratories, &c., concluded the Congress.

PURE FOOD AND DRUG CONGRESS GOES COLLECTING.

The Corresponding Secretary of the Pure Food and Drug Congress has sent out an urgent appeal for funds with which to press the Brosius Bill through passage by Congress, declaring that in spite of an immense amount of work done by the 'Congress,' the results have not been altogether satisfactory.——There are those, however, who believe that this country is not so badly off that a bill providing for purity in food, drink, and medicine, introduced by a Senator in good standing, and favorably reported on by a special Senate Committee, should fail to pass for want of funds to maintain a special lobby.

NON-EXPLOSIVE OILS.

Patents have been secured by the Bagnall Oil Co., of Manchester, England, for improving the illuminating power of petroleum and paraffine oils, making them non-explosive and odorless. Works are to be erected on the banks of the Manchester ship canal to work the invention.

ARGENTINE BORAX.

In the province of Jujuy, Argentine Republic, there are sixteen mines containing borate deposit, at present unworked. The mines are situated about ninety miles from the railroad, which is what prevented their development so far.

CHEMICAL FOODS.

Chemists are becoming more and more anxious to find new sources of nitrogenous foods, and the artificial food industry has developed widely, especially in Germany, and chiefly in the large works which supply dyestuffs, for which albumen is an important material. The following on this subject is from U. S. Consul Hughes, at Coburg, whence he writes:

The artificial foods are mostly mixtures of more or less secret composition. Thus the tropon of Prof. Finkler of Bonn, whose works are at Muehlheim, consists of one-third of animal, and two-thirds of vegetable albumen. Albumenose is a frequent constituent of those foods. By albumenose is understood a preparation which, as regards solubility, occupies a position intermediate between the original albumen and its peptone.

The managers of the Elberfeld Farbwerke have made a hit with their somatose, which is such an albumenose, and have quite recently brought out the more economical tannin and milk somatose, which may become a very important food for the masses. This latter preparation utilizes the casein of the milk. The nutrose of the dyeworks at Hoechst, the eukasins of Salkowsky, the sanatogen of Bauer & Co., contain the casein compounds with sodium or ammonium.

NEW USE FOR WASTE PRODUCT.

For several years scientists and chemists have endeavored to discover a means of utilizing immense heaps of spent sand and glass, discarded as refuse by plate glass manufacturers. Pilkinton Bros., probably the largest glass manufacturers in Great Britain, have an accumulation of 1,500,000 tons of this residue, at their works at St. Helen, in Lancashire, and over 1,200 tons are added to this huge pile every week. Now Dr. Ormondy has discovered a means of converting this refuse into serviceable bricks. He has submitted some of the bricks that he made from this material to very severe tests. The experiments proved eminently successful, and bricks made from this waste will soon be placed on the market; they are said to be of the highest quality, and particularly adapted for certain operations besides ordinary building purposes, for which bricks have not hitherto proved serviceable.

AN INVENTION OFFERED FREE OF CHARGE.

The following letter was sent for publication to the editor of "engineering".

Sir,—The fire at the Standard Oil Works, New York, U.S.A., and the recent case of men being killed by lightning igniting the vapor of naphtha in the hold of the vessel which the men were unloading at Thames Haven, emphasise the terrible nature of the risks attending the conveyance, shipment, and storage of inflammable fluids. In the general interest of humanity at large, I make the following public in the hope that someone will take up the invention and work it with a view to minimising the risks attendant upon the storage of such volatile and inflammable fluids as naphtha, benzine,
petroleum, ether, turpentine, carbon-bisulphide. The way I should advocate the compound being used is as a paint, to be applied to the inside or outside, or both, of the vessels containing any of the above volatile fluids, so that the vapor given off by this should not escape. By using this compound as a paint, either alone or mixed with lamp-black or graphite, the flexible paint so formed dries on any surface to a tough elastic skin, which is perfectly insoluble in any of the fluids named above, and is also not chemically acted on by them. The longer this skin of paint is exposed to the air, the more impermeable it becomes; but unfortunately the compound is not insoluble in water, and is also softened by heat. By making due allowance for these defects, the compound could be used as a most efficient paint for preventing inflammable vapor escaping from any of the above fluids.

To prepare the compound proceed as follows: Soak good glue or gelatine—common glue will not do—in twice its weight of water for 10 hours; then melt the glue by heating in a common glue pot until it boils, and pour out the hot glue into a suitable vessel to allow it to become cold to a jelly. When firm enough turn it out of the vessel and expose it to dry air for a few days, so as to become tough or stiffer in consistence.

The next step is to prepare a shellac solution to act as a “drier.” Thus put one quart of water in a vessel and make it boil, and while boiling add half a fluid ounce of strong liquid ammonia (880 strength) and stir the fluid, and immediately afterwards add 1 oz. of shellac and boil the fluid until the shellac has dissolved (only ammonia should be used to effect the solution of shellac, because any other alkali, such as soda, borax, etc., will prevent the glue from setting or drying). Now for every 16 ozs. of glue jelly made boiling hot in a glue pot without the addition of water, add half or three-quarter ounce of the above solution of shellac, and keep the mixture boiling while preparing the following sugar component. For every 16 ozs. of the glue jelly, put 2 ozs. of raw brown sugar (Demerara, not Tate’s brown cube sugar, there is too much water in the latter), into a sauce pan and set it over a fire until it melts and turns brown. Do not add any water to it, but allow it to become so hot that it ignites; allow it to catch alight and burn for half a minute, and while in this molten state pour the boiling sugar into the glue compound and allow it to boil up for 10 to 15 minutes, then pour it out into water, or else use as it is, or mix lampblack with the hot mixture, and use the mixture as a paint on the surface of whatever material or vessel you wish to render impenetrable by the volatile fluid alluded to. If turned out into moulds, the compound should be removed from the moulds when it is solid, and allowed to dry and harden in the warm, dry air, otherwise it will become mouldy. When thus dried it requires to be reheated in a glue pot to become soft and fluid again, but it does not require any water or diluent.

Some reader may not unnaturally be sceptical as to the virtue claimed for this compound, as he would consider it very foolish on my part not to exploit the invention for my own benefit. Alas, I have had sufficient experience in inventions, both patentee and otherwise, to know that the trouble, worry, and possibility of being fleeced out of the invention by some wily sharper of a “business man” to care to waste further time on the matter but as this compound would, if put in operation, greatly minimise the risk of conveyance etc. of inflammable fluids, I make the invention pro bono publico.—Yours truly,


Special Articles in our Exchanges

Among recent articles appearing in our Exchanges, which are of interest to some of our readers, but which for various reasons we do not reprint, we recommend the following to the attention of those interested in the matters dealt with in those articles.


Composition and Manufacture of Lakes.—A serial article, begun June 23, in the Chemical Trade Jnl. Manchester, England.


Varnishes for Photographers.—Same as last.

Health in the Workshop.—A 40-page paper, written by J. D. Sutcliffe, engineer; copies may be had from the Sutcliffe Ventilating & Drying Co., Fennel St., Manchester, England. The paper deals with ventilation, warming, dust removal, lead poisoning, testing for carbonic acid, etc.


Commercial Absorbent Cotton.—By R. W. Johnson, National Druggist, St. Louis, August issue.


Salts for Dyeing and other Purposes, found in the Philippines.—Oil, Paint & Drug Reporter, New York, Aug. 6.
Soapmaker Wanted.
Dr. Henry Gathmann,
Editor American Soap Journal.

Dear Sir:—We have recently received an inquiry from a large soap concern in Nicaragua, saying that for a number of years their works have been in charge of an American soapmaker, who is desirous of returning home. They want to secure another man and want some information as to what basis of terms would be required.

Thinking that possibly you might give us some information and that a matter of this kind would be of interest to your readers we therefore communicate with you.

Any information you can send us will be appreciated. Very respectfully yours, — —

[The above reaching us on the eve of mailing this paper, we thought it the most practical to print it for the benefit of those it may interest. We purposely omit the name of our correspondent, (in order to keep employment agents from intermeddling and bleeding our readers), but we will furnish the name and address to any subscriber on request, or forward to the right party any applications sent in our care. Ed. A.S.J.]

The Michigan Alkali Co. at Wyandotte, Mich., is making a fine reputation for its Portland Cement made from clay and carbonate of lime free from all such impurities as found in cement from marl.

Merck & Co., of New York have opened a complete branch house in Chicago, at 227 Randolph St.

The Fertilizer Manufacturers' Association of the West had their annual meeting in Cleveland last month.

Robert H. Foerderer of Philadelphia, reputed to be the largest tanner in this country, has completed the erection of a glue factory.

The Baltimore Chrome Works lost their prussiate of potash factory by fire on August 1.

The Lange-Ross Co., Chicago, contemplate the erection of a chemical laboratory at Joliet, Ill.


The ancient industry of kelp-burning, once very flourishing along the coasts of Scotland and Ireland, but now almost extinct, has recently been taken up at Farsund, Norway. The ashes are sold to iodine manufacturers.

On thirteen per cent of the Russian railroads the locomotives are run with petroleum residue as fuel, 5 tons being carried under the water tank.

Among the unique features of Parke, Davis & Co.'s establishment at Detroit, is their Laboratory Reading Association, an organization of employees. Nearly 1500 volumes have been provided for the use of the association to which belong about 400 of the 1700 men employed in the works.

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Nottaul, Notland Soap Co.,

Nottaul, Notland Soap Co.,

White Queen, Green Bay (Wi) Soap Co.

World's Best, Green Bay (Wi) Soap Co.

C. O. D., Chan. W. T. Davies, N. Y.

Purgo, O. W. Gillettes, Chicago


Sunsud, National Soap Wars

Tiltonville, Pa.
SUPPLEMENTARY LIST OF THE BRANDS OF SOAP MANUFACTURED IN THE UNITED STATES Including also the Brands of Foreign Manufacture Registered as Trade-Marks in this Country.

NOTE: This list is compiled with the greatest possible care, but the publisher does not assume any responsibility other than to correct and to complete the list according to data obtained from official sources or furnished by the trade. Brands registered in the patent office as trademark or labels are given with the name of the party registering same. Brands or marks marked * are those found to be under the name of one firm or the owner of which could not be ascertained.

See that all your Brands are entered in your name.
The Scientific American, a paper known probably to every one of our subscribers, in a recent issue, says:

"The first edition of 'American Soaps' appeared in print seven years ago and was well received, and since that time the author has continually added all the necessary and useful information that could assist in making a later edition of the book more complete, and the author has the benefit of the experience of many of the original purchaser of the book.

There is an extensive literature upon soap making, but most of them are adapted from foreign practice or deal with antiquated methods. The present book cannot be placed in this category. It is an excellent and valuable guide to technical and practical soap making, which is thoroughly understood modern american soap making and is in no sense a compilation. To those who are looking for a thoroughly practical book on soap making, with special reference to modern practice, we can heartily recommend this book. It is freely illustrated, and the number of formulas for soaps of various kinds is large. The section devoted to the actual processes used in the manufacture of soaps of all kinds occupies three quarters of the volume. It is an admirable book."

If you have a second-hand machine for which you have no use, or expect to buy a new one if you can dispose of a smaller one now in use, or any similar need, remember that an advertisement in our 'For Sale' column will convey that information to one or more looking for just such opportunity—if there is any use for such apparatus at all.

An Australian subscriber to the Soap Journal and purchaser of the work 'American Soaps,' writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file, in black and white.
Advertisements under this head will be inserted at the following rates, strictly payable with the order in every case:

**SITUATION WANTED:** $1.00 the first time, and 50 cents for each subsequent insertion.

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**SITUATION WANTED,** by experienced toilet and laundry soap maker; all processes, including soap for export. Address: F. C. 100, care of this paper.

**FOR SALE:** The old established Soap works of R. W. Bell & Co., Buffalo, N. Y., with trade marks and business. The plant is in operation and in good condition and the business can easily be increased and made very profitable. Good opportunity for right party. Price low and terms easy. Wm. J. Gunnell, 317 Main St., Buffalo, N.Y.

**WANTED,** A practical man, familiar with the manufacture of inks and blacking. Address with particulars and salary expected; H. E. 110, care of this paper.

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**SITUATION WANTED,** Experienced soap maker and business manager desires to change his present position. Make full line laundry and toilet, also soap powder. Capable of taking full charge of business. Could invest small amount. Best references, Address: G. D. 105, care of this paper.

**FOR SALE:**
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2. Crosby-Coram Soap Press,
3. Meyer Box Printing Machine,
4. Hersey Steam Soap Presses,
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The latest complete edition of our

**LIST OF SOAP BRANDS.**

having been entirely sold out, we are not prepared to fill any orders for it at present. A new edition will not appear until a sufficient number of new brands will have accumulated in our Supplementary list now published in this paper.
Just a Few Words.

We cannot let this issue go to press without a few brief words of acknowledgment to our old friends who have greeted the reappearance of this Journal with such warm words of welcome and encouragement.

The almost affectionate regard with which this paper has always been considered by members of the trade had never been more clearly demonstrated than in the solicitous letters enquiring into the cause of delay in the appearance of the paper, while the thoroughness with which the Journal had penetrated into the remotest corners of the trade was fairly well reflected in our September issue, whose contents bristled with evidences of our many valuable connections. So, also, since the appearance of our last month's issue, have we been gratified to receive unmistakable evidences of these favorable conditions, which enable us to now place before our readers the present paper which, as to variety of contents, interesting, clean and valuable character, and general all around usefulness, is not excelled by any trade paper no matter what may be its field.

At the same time we acknowledge the receipt of some useful suggestions and helpful hints looking to further improvements of the Journal's services, all of which have due consideration and some of which we have put into effect already. This live interest on the part of our readers is the greatest ally we have in the prosecution of our work, and we trust it will always continue; our aim is to keep it alive by furnishing in return the best paper that can be produced.

Finally, we are pleased to state that we have had, among the manufacturing chemists, all the success which our modest beginning in the field warranted us to hope for. In the measure as our subscription list extends in that field, we shall enlarge the paper, in order that full justice may be done to all branches.
How Can the Conditions of the Soap Trade be Improved?

By Geo. A. Schmidt, Chicago.

"Form an Association," has been the advice given. As this course has been ably advocated, I will not say anything for or against it, will however state as my firm conviction that if any class of men combine for the purpose of furthering their own interest only, leaving the welfare of the community out of consideration, they will make a miserable failure sooner or later. The proper way is to combine and aid each other for the purpose of advancing and improving our great and important profession, that of making "ways and means for proper skin culture." There are still too many soap manufacturers who think of nothing else but to make money and yet there are few other callings which offer such opportunities for an interesting and profitable exchange of ideas, the progress made by individuals or firms, in regard to new discoveries, processes, etc., that it is surprising that so few of our colleagues avail themselves of this Journal where they can come together and have a friendly chat by writing similar papers as this one. As many readers know, the writer has made it a practice for the past quarter of a century to write now and then an essay for one or another of the various Soap Journals in this country as well as in Europe; whenever a new idea presents itself which is apt to improve those products of the soapmaker which are calculated to make ourselves and our surroundings cleaner, and in consequence thereof healthier, of better appearance and happier in every way. The result usually is an article written for the Soap Journal.

The immediate cause for this letter is the fact that lately in quite a number of hospitals in this country and more so in Europe where it originated, a new soap preparation is being used. (Its preparation and the principles upon which it does its work are fully described in Schleich's "Neue Methoden der Wundheilung," by Dr. Schleich, Springer, Berlin). Wonderful results are reported from its use. It is claimed that the hands of physicians are made aseptic by it; that would mean in other words, that all germs and microbes which are the cause of nearly all skin and other diseases are rendered harmless, that our skin could be cleaned in a manner we have never experienced before.

As it is quite interesting to view in connection herewith the science of proper skin culture from its beginning in order to understand the latest discovery made in the art, we will review the subject from the time in which history first mentioned it. Our readers are, no doubt, familiar with the fact that the first soap making was an accident. The fat running from a juicy steak being roasted by some of our ancestors in the forest mixed with a lye, leached by the rain out of the ashes of former fires, and the smeary product had been used as a kind of pomade, especially by the ancient Germans. Our "oldest citizens" still remember the original crude dark-looking German soap made largely from wood ash lye.

How soaps have been improved since need hardly be repeated here; it is to be regretted, however, that most improvements have been made with a view to improve the appearance, increase the bulk, and to lessen the cost. The great majority of soap makers have directed their energies in this direction; I will follow another road and speak only about real improvement made with the object and for the purpose of rendering the products of the soap manufacturer more effective. Strange as it may sound, yet it is true that comparatively few soap makers realize fully the great influence the proper use of good, pure, well-made soap exerts on the welfare of mankind, but in order to be able to judge properly the real value of improvements we must understand the principles upon which soap does its work. In a former essay I quoted some lines from Schiller's great poem, The Bell, which it would be well for some people to remember, so I will repeat them here:

A thoughtful mind may well befit
The task we every day prepare;
When goodly ideas hallow it
The labor flows on gladly there.

Let us observe with careful eyes
The daily work our hand creates,
The thoughtless man we must despise
Who disregards the thing he shapes.

This forms a man's chief attribute,
And reason is to him assigned,
That what his hand may execute,
Within his heart, too, he should find. Etc.

Or in another version:

Our deepest thought we need in casting,
Reflection will great aid supply;
To toil is time and labor wasting
Unless the mind its might supply.

The reason that our nature graces
There kindled with the skies we claim,
Free in itself the mind it traces,
Whatever the hand shall fitly frame.

And well it stamps our human race,
And hence the gift to understand,
That man within his heart should trace
Whatever he fashions with his hand.

That man who does his work thoughtfully, usually does it well, and those who understand the aims and purposes of their calling more thoroughly
than the superficial ones whose sole aim is to get through with their work quickly, are patronized and supported when the latter class have long gone out of existence.

The action of soaps is in many ways the same as that of a number of articles used to prolong the life, the existence of things. It is not alone "time" which is destructive to ourselves and surroundings, but other influences are at work and although they have come into disrepute of late, because they are used so often, yet I cannot find better words to designate same than by calling them germs, microbes, and bacilli. These are present everywhere, trying to exist and multiply at the expense of the thing or being upon which they happen to settle; the human skin on account of its warmth, its many cavities and depressions, forms a favorable lodging place for numberless kinds and varieties.

Most people have the same wrong impression in regard to the use of spices, salt, heat, etc., as they have in regard to soaps; they do not realize that it is the fact that their action as a germicide is what makes their use so desirable and agreeable. Very much remains to be done in that direction, much good may be accomplished, profitable employment for many intelligent people will result if they take up and follow the hints here given. No "trust" or combines can monopolize this kind of work; it is more like the duties of educated honorable lawyers, doctors, etc., who in order to render good service must individualize, and cannot do things in a superficial, wholesale way.

We will mention only a few more examples, how by planing off the rough surfaces of wood, by filling in and closing its pores by paint, by polishing metal surfaces and thereby removing "something" which attacks even metals, the "life" of things is greatly prolonged. None of the many processes employed for preserving other things can be applied to that delicate, complicated structure, the human skin.

Observation through centuries has shown us that good, well-made soap is the best thing so far discovered, which acts energetically enough and yet without injury to the skin or fabric, etc., as a germicide and as a loosening and dissolving agent for all those matters which do not properly belong there. As said before, the human skin is a tender, delicate, and complicated structure, varying in different individuals and even in the same individual in a different state of health, season of the year, age, etc., and soaps must be made to suit these conditions, thus giving a wide range of usefulness to scientifically educated Soapmakers and Distributors.

It is well known how the various oils and fats, saponified with soda or potash or mixtures of them, result in a great variety of soaps, the number of which is further increased by more or less perfect or imperfect processes employed in their manufacture; it is also understood by experienced soapmakers how the addition of many medical ingredients makes them more effective, how the room, whether in a hard or in soft, jelly or paste and liquid state, influences its action; making hard soap porous (floating) makes them more effective, more soluble because they then present a much larger surface to the action of the water. It has also been known long ago that a mechanical scouring action increases the usefulness of soaps in certain ways and Sand soaps, Pumice, etc. soaps are well known to most readers. But the latest improvement, which has first been suggested by German doctors, (see book mentioned above) and improved through American energy, far excels anything heretofore produced. A vehicle, stone-like, gritty substances divided in small, even-sized grains in such a manner that each grain presents a multitude of finest points, (these latter being covered with any of the soaps above mentioned), carry the soap way down into the numberless depressions and cavities wherefrom it is so difficult to remove germs and secretions.

The mixture above described is of entirely different appearance from anything heretofore offered; it is not a fancy soap by any means; in order to do the best work possible it must be used in a granulated state; it is of the appearance of brown granulated sugar. If you will take a piece of damp hard soap, put on a few grains of sand, and wash your face with this, you will feel the grains scratching, and injuring tender skin. That will tell you why gritty soap should not be in cake form. If the grit is held firmly it acts like a file. The single grains must be loose, so that they can roll over the body and penetrate with their points way down into the skin and exert their beneficial influences of loosening the germs in their hiding places. Those who have seen the enlarged picture of the passages with which the human skin abounds, their nooks and corners, can readily understand why the chemical actions of soaps while destroying the life of germs, of detaching and dissolving waste products, must be aided by mechanical means which knead and squeeze and force everything detrimental out of the winding passages, the narrow cracks and crevices of our epidermis.

Besides the many other good points already mentioned the new mixture will also act as a kind of skin massage and stimulate the action of the finest blood vessels and nerve ends, and it is those which are first to suffer in declining health. The
many advertisements of "flesh-brushes," "health rollers," etc., one meets everywhere, are a proof that the necessity of stimulation of those "outposts" has been recognized, but an examination under the same microscope of your skin and of the ends of the bristles of the brushes &c. &c. recommended for the purpose, will show you that nothing else is fine enough and suitable to reach down to the places which need cultivation most, excepting the finest points of the "grit" described above. It is hardly necessary to mention that fine sand, for example, would not answer for the purpose at all, as this is nothing but very small pebbles, ground roundish by the action of water. It is essential that the finest points (which are formed by a peculiar structure of certain stones and the way of crushing them,) are preserved and not worn off by grinding. It is also absolutely necessary that the proportion of soapy matter, grit and other substances are nicely adjusted, as their actions are almost instantaneous, in strong contrast to the comparatively slow and tedious manner in which old-fashioned soaps exert their influence. Soap finely divided by covering the grains mentioned, and these latter rolling over the skin, presents the largest surface to the action of the water, in other words, soap in no other shape acts so quickly as it does in this new preparation.

The use of these new preparations differs somewhat from that of ordinary soaps. Always moisten your hands first, then take a lump the size of a nut, rubbing this in your hands (perhaps with a few drops of water); this will change the crumbling mass into a soapy paste; rub plenty of it into the parts most affected (these betray themselves by eruptions, scaly skin, itching, bad smell, etc.,) keep on kneading and rubbing, the longer the better, finally wash off with clear water; in bad cases repeat at once, otherwise use the mixture as often as you find it agreeable; you will soon know and feel yourself how to proceed. It may be said that one should use the grit in as large grains as can best be borne without irritating the skin, the size of granulated sugar being the coarsest to be ever employed; if such large grains are too hard on the skin use a finer grained article.

Skin culture is somewhat like the cultivation of the soil; as the plow, harrow, hoe, rake, weeder, etc., are used on the latter, so the various grades of the new preparation for the former; the sense of sight guides one in the use and selection of tools mentioned above; so should the sense of feeling, and above all common sense, be our guide in making and using the preparations used for skin culture as well as for removing "matter out of place" from fabrics and from everything else.

Cocoanut Oil and its Purification.

By Arthur Morris.

Cocoanut oil, the industrial importance of which has much increased during the last twenty years is obtained from the seeds of Cocos nucifera, an immense palm tree which grows on the sea-coast everywhere within the tropics, especially in the islands of the Pacific ocean. The fruit encloses a large kernel, the albumen of which at an early stage is only a process of formation, the external part only being hard and the rest consisting of a white, sugary, but slightly bitter liquid. At maturity the albumen is solid and white, and contains about 50 per cent of an edible oil. This oil is colorless and liquid at the temperature of the tropics, but solid in our climate. It is obtained from the seeds by pressure. The white opaque oil has a crystalline appearance and fuses at 21 to 23° C. When fresh it has very little taste or smell, but it turns rancid very quickly. It is hardly soluble in alcohol, and with alkalis gives a white soap which is hard, dry and brittle, and very lathering. It contains at least six fatty acids—caproic, caprylic, capric, laurostearic, myristic and palmitic.

When cocoanut oil or copra arrives in the market it is nearly always rancid. Many means of purifying it have been tried, and the following, due to Messrs. Bang & Ruffin, is the latest, and has, it is said, been eminently successful in removing the products of rancidification, yielding a product absolutely free from both color and from taste. Now the rancid oil contains, 1st, all free volatile acids which may have been contained in the original fresh oil. The amount of these is very variable and may even exceed 10 per cent. It also contains traces of a neutral compound possessing a strongly marked odor. This compound results evidently from the oxidation of caprylic and caprinic glycerides, for, when saponified, they give rise to a volatile acid having a very penetrating and disagreeable smell. There are also present in the rancid oil very variable proportions of coloring matters and an alkaloidal substance of extremely evil odor and a bitter taste. It is to this last that the bad taste and smell of the oil are chiefly due.

The first step, in Bang and Ruffin's process, consists in getting rid of this alkaloidal body. The oil is stirred up, at a temperature not exceeding 100 deg. C., with water containing about one-half per cent of mineral acid, preferably oil of vitriol. The excess of acid and the salts formed are then washed away with water. When the alkaloid has been removed, the oil is already fit for many industrial for many industrial purposes, soapmaking for example; in fact for most non-comestible uses. The
AMERICAN SOAP JOURNAL AND MANUFACTURING CHEMIST

subsequent steps in the complete purification would themselves remove the alkaloid, but they would have to be unduly prolonged if that substance were not removed with acid at the outset. The alkaloid having been eliminated, the next step is to remove the free fatty acids. This is done by treatment with perfectly dry powdered quicklime. This substance does its work rapidly and efficiently, and without wasting any of the oil by saponification, as would be the case if milk of lime, or any mixture of lime with water were employed. Besides, the neutralization of the free fatty acids can be made very rapid by adding the dry quicklime to the oil previously heated to 100° C., and even then no loss by saponification takes place. Vigorous stirring with the lime still further quickens the process. The lime salts being formed in the solid state, too, their removal is perfectly easy. The final step is to remove the neutral compound above alluded to as existing in the rancid oil, as the dry quicklime bleaches the oil at the same time it removes the free fatty acids, and consists of treating the oil with a dilute solution of carbonate of soda. This, although used too weak to saponify the oil has that effect on the odoriferous compound in question, forming with it a soluble alkaline salt which is then got rid of by washing with water.

Slaked lime answers as well as quicklime for the removal of the fatty acids, and is even preferable to the anhydrous oxide, as it can be more finely powdered. The action of the lime takes a few hours only. The carbonate of soda is used of 2 per cent strength, at a temperature of 100° C., stirring constantly until all smell has vanished. The various lime and other soaps formed during the process can be used for the preparation of the fatty acids they contain by decomposing them with a dilute mineral acid. The lime salts are, of course, removed from the oil with a filter press.—OILS, COLOURS, AND DRYSalTERS.

Albuminous Soap.

A patent has been granted Wm. Schuh of Nuremberg, Germany, in the specification of which he says:

In the manufacture of cosmetic soaps it is usual to attempt to produce an article as neutral as possible, and which in use will not have a caustic action, irritating to the skin. Now, as it is scientifically established that albumen possesses the property of forming, in combination with alkalies, a noncaustic alkaline albuminate, it becomes a question of remedying the above-mentioned deleterious action in soap by converting the caustic alkalies into this compound. The alkaline albuminate appears first as a tough gelatinous mass, which can only be again liquefied by saturation with alkali or by boiling in water to render it suitable for mixing.

Now the present invention also deals with the considerations to be taken into account as to the starting point for the use of albumen, and endeavors in a complete manner to solve the problem proposed, that is to say, the premature conversion of the albumen into alkaline albuminate which takes place during the saponification, which is prevented by this improved process; and, consequently, the albumen can come into action with its natural neutralising properties when the finished soap is used. In order to attain this object the soap is made by a cold process, in contrast to the process formerly employed, so that any liquefying of the albumen in consequence of the boiling is prevented.

In order, on the other hand, during the making of the cold stirred soap to prevent the above-mentioned deleterious formation and separation of tough gelatinous alkaline albuminate, the albumen employed is treated with formalin (formaldehyde.) The entire contents of the egg (white and yolk) are in the present instance to be regarded as the albumen employed, the said formalin having, according to recent experiments, the property of preventing the conversion of the white of egg into such alkaline albuminate. The addition of formaldehyde enables a larger percentage of albumen to be added to the cold-stirred soap, which albumen also remains unaltered in its properties, and in use the soap is capable of reaction.

The following is the process employed in the manufacture of the soap:

To the necessary fat (for instance, 500 grammes of cocoa butter) for preparing the soap there is added at a suitable temperature (35 deg. to 40 deg. C.) 450 grammes of a lye (composed of 100 grammes sodium hydroxide and 350 grammes of water), and then it is immediately thoroughly mixed with 6 grammes of 40 per cent. formalin, and an addition of 200 grammes of filtered albumen is then added thereto. The whole is saponified by the cold process, the usual rules being observed, more particularly that of constant stirring. When the first stage of saponification has been reached the thick liquid soap is poured into canvas lined boxes, and is then left therein until it completely saponifies. The soap is then suitable without further treatment for being cut, pressed, and packed.

Soap made according to the simple process here- before described is free from the defects hitherto inherent in all cold-stirred soaps, especially as, in consequence of the addition of albumen, it causes no deleterious irritation when used, the said albu-
men acting as a reaction agent, and having a neutralising effect on the alkali. Consequently, the most susceptible skin remains smooth and soft, even when the soap is very frequently used, and it is rendered extremely resistant to outside influences, such as frost, heat, and moisture. As, in addition to the above mentioned cosmetic properties of albumen, its dirt-dissolving and lather-forming properties come into play, an economical use of this soap is brought about, so that by this improved process a technical advantage is obtained from this point of view also.

Owing to there being no superfluous water, alkali, or free oleic acids contained in it, this improved albumen or egg soap is capable of keeping for an unlimited length of time, and, as experiments have shown, even if kept for years, it neither evaporates, cracks, nor becomes rancid.

Screwed Joints.

A good lubricant or “dope” for the screwed joints of pipes is made by taking one part of white lead, one part of black lead or powdered graphite and four or five parts of machine oil to mix it to a fluid consistency. To a pint of the mixture add about one teaspoon full of flour emery and thoroughly mix; when using the “dope” on a joint, put a small quantity inside of the fitting and an equal amount on the thread to be screwed in. After the pipe is screwed nearly in, back it out for about one turn and then screw in snugly. The result is a perfectly tight joint, if proper care has been taken in cutting the thread, and even without this care the mixture goes a long way toward making perfect work. The flour emery polishes the parts, especially when the pipe is turned backward, and tends to make practically a ground joint on the surface of the thread.—Steam Engineering.

Iodine Number in Greases.

For a quick determination of the iodine number in greases, the author uses, in place of the well-known Von Huebl’s quicksilver iodide solution a solution of 50 grammes of iodine and 32 grammes of bromine in glacial acetic acid, or a solution of 33·5 grammes of iodine and 42·2 grammes of bromine in the same solution, saturating the liquid, which amounts to about 950 ccm., with sublimate (about 95 grammes). The solution is ready for use in two days, and is so fixed by diluting with glacial acetic acid that 1 litre of it corresponds to 100 grammes of iodine, i. e., that 5 ccm. of the bromine-iodine solution requires 39·4 ccm. of thiosulphate solution for discolorization. A solvent for the greases serves a mixture of 500 ccm. each of glacial acetic acid and chloroform, which is saturated with sublimate of 10 ccm. of potassium iodide solution (10 per cent) and enough bromine-iodine solution as is required for the liquid to remain colored a yellowish red. In executing the estimation, dissolve one gramme of grease in 20 ccm. of the chloroform-glacial acetic acid mixture until the resulting yellowish red tint remains constant for at least 5 minutes. The results are said to coincide approximately with those of the Huebl method. The computation of the iodine number is extremely simple, since one gramme of fat is used and the bromine-iodine solution contains exactly 10 per cent of iodine, or an equivalent amount of bromine. The iodine value is found by multiplying the ccm. used up of the bromine iodine solution by 10. In order that the standard of the bromine iodine solution remain constant, it is well to charge the burette by means of a pipette, and not by direct pouring in from the stationary vessel.—(J. Ballier.)

About Formulas in General.

As we have repeated on almost numberless occasions, there are comparatively few instances in which, where more or less variable qualities of raw materials are used in any manufacturing process, one can lay down exact formulas that will invariably turn out satisfactory goods. If this were not so, every lay man could on very short notice supplant the experienced practical man in the factory. Natural products which are the basis of all manufactured articles are subject to variations beyond our control, and it requires practical experience to know how to deal with these variations—no formula will overcome these difficulties. But more than that, the same formula will turn out differently in practice in the hands of several men, even though they start with the identical goods and use even the same appliances.

It is these perplexing conditions which cause poor formulas to be peddled successfully among the unwary; and which cause the experienced man to be in demand.

We are led to make these remarks by the receipt of a letter as follows: “On page 58 of your book AMERICAN SOAPS, speaking of refining cotton seed oil, you say 2% of 30 B. Caustic lye—is it not more usual to use 4 to 5% of 160 B. ? and on clarifying you say: boil up with 1% of salt; if you boiled at 212° would it not set the color; do you not mean heating to 110 to 115°?”

We have answered our correspondent personally, and wish to point out merely what we have so often repeated, i. e. that a formula is a guide only to
the average method of working and under the best of circumstances subject to changes. And in addition it must be remembered that practical manufacturing is quite unlike laboratory chemistry, and by no means an exact science, so that scarcely two men will ever agree on every detail of a formula and the manner of using it successfully.

American Soap Makers in Foreign Countries.

Last month we published a letter (from a world-renowned institution), asking for an American soap maker to go to Nicaragua, and asking also for further particulars as to the basis on which terms should be made. We had hardly time, before going to press, to print the letter in a spare corner of the paper—and by the way it speaks for the thoroughness with which the paper is read, when we say that in spite of the out-of-place location of the letter quite a lively correspondence resulted from it.

The number of replies forwarded by us to our enquirer kept reminding us of former incidents in similar connections, hence a few further remarks may not be out of place here.

We recall at this moment enquiries for American Soap makers addressed to us at various times from Mexico, South American countries, New Zealand, and South Africa. In three instances the places were filled to our knowledge, and in one of them at least the soap maker still holds his position; the third returned after giving South America about a year's trial. A fourth one accepted the position for South Africa, but when the passage money was ready for him he objected to going directly instead of via Europe, and the agreement fell through.

At various times we have also had advertisements of "Soap Makers Wanted" from various countries, but as the correspondence then passed unopened through our hands, the results are not well known to us.

Altogether we believe there are few American soap makers engaged in foreign countries. This is probably due partly to the fact that many Americans prefer staying here to going to foreign countries; but as our correspondence shows us, the number willing to go almost anywhere is not so extremely small—nor are we speaking of shiftless irresponsible men; on the contrary, some men of known ability have applied for these foreign positions. On the other hand, a better reason why more Americans are not abroad lies in the circumstance that in many foreign countries some soaps are made which are uncommon, to say the least, in this country. For this reason we see such soap makers advertised for in German soap papers more extensively than in the American Soap Journal, for the Germans as a whole are more familiar with some of the soaps to be made in foreign countries. With the growth of American exporter of soap two things may be expected to occur gradually: Foreigners will learn to appreciate American-made soaps and we shall become more familiar with what the foreigners want. When these two things come to pass more generally, more Americans will go abroad as practical soap makers.

As to the terms which our correspondent asked about, there was no uniformity whatever in the instances already cited. Each case was a case by itself, and the agreements were made by the parties as they thought best. The only uniformity we recall is that in each case the passage from here was paid by the employer. For return fare in case of non-agreement, a provision was also made in at least one case. The compensation naturally varies with the cost of living, size and kind of factory, skill of the soap maker required, etc., just as they differ very widely even within the limits of our own country.

That the American soap maker is appreciated under proper conditions is demonstrated anew by the search for another, when the first one desired to return to his native home after a number of years absence.

SELECTION FROM OUR MAIL.

Starting Soap Works Again.

Dr. Henry Gathmann.

Sir:—Please send me the Soap Journal; I am going into the soap business again and want to buy a soap press and powder mill. Have been making sal soda here for the last 3 years, and have a fire-proof building 62 by 24, two stories.

Phoenix Soap Co.
Thos. Whitney.

Where is the Pennsylvania Soap Co?

Editor American Soap Journal.

Gentlemen:—

We are glad to again be receiving your publication. Have been wondering what was the cause of our non-reception of your magazine.

On page 23, of the issue of Sept 1, under a supplementary list of brands of soaps manufactured in the United States we note that you have Scour Bright as manufactured by the Pennsylvania Soap Co., Pittsburg, Pa.

Please let us know where you got this information. We have attempted to communicate with this firm, but our mail has been returned and the Post-
office department says that no such firm exists.  
A reply at your earliest convenience will greatly oblige,

Yours respectfully,
MIAMI SOAP & CHEMICAL CO.

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Oldest Canadian Brand.

Dear Sir:— Your Card of 27th last to hand.  
We enclose you Express order for $2.00 for subscription to Soap Journal.
We understood that you had gone out of business.  Trust the Journal will continue to meet with good success.

We might say that our brand "Surprise", the soap that has been longest on the Canadian market, is still very much to the front, and that this year our sales are larger than ever; that we are doing beside the Canadian trade a good business in Newfoundland and in the British West Indies.

Yours very truly,
ST. CROIX SOAP Mnf. Co.

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As Others See Us.

My dear Mr. Gathmann:—
With genuine satisfaction your SOAP JOURNAL, now printed in Milwaukee, has been received. I had missed it, because it was edited on different principles than are some papers, and I believe yours to be the proper ones.

I always thought it best for soap manufacturers to follow the examples set by our best citizens: for instance, doctors meet, deliver lectures and discuss discoveries made, experiments tried or anything of interest to their profession, thus assisting each other and mankind in general. I have tried to do the same thing by expressing my views in various ways, and you have been kind enough to publish same in the American SOAP JOURNAL. I never thought that such publishing was worth anything to me in dollars and cents, and so I never felt as if I was obliged to you in any way. But it seems there are people who look at such matters in a different light. At the time when your paper did not appear for a while I had an article ready, and believing you intended to follow the practice of medicine in future, I forwarded the essay to the Soap 'Gazette.' That was two months ago, but up to this date I have not received a reply whether same was received or not; my letter enclosing stamps and requesting a return of the MSS., failed to bring an answer. So I send you a copy of same, leaving it to you whether you consider it an advertisement in disguise, written with a view to cheat the editor, or put on paper with the intention of having a chat with fellow soap makers;—in the former case throw it into the waste basket. But past experiences and what I know of your character will tell you that I wrote the article in the same spirit in which you have edited the SOAP JOURNAL for so many years, and I hope and expect That spirit to outlive the narrow-minded tricks and dodges employed by short-sighted people in all lines of trade.

I remain, Yours very truly
Chicago, Sept. 26, 1900.  
Geo. A. SCHMIDT.

(The article above referred to appears on another page of this paper. Mr. Schmidt's past contributions to our columns have at all times awakened such interest, that we believe further remarks from us on his aims in writing quite superfluous. We invite all our readers most cordially to contribute similarly to the live interest of our pages.)

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Cheerful News.

Dr. Henry Gathmann:

Dear Sir:—We have received your first issue of the "Journal" published in Milwaukee, and are glad to see that you are publishing your magazine again which we have always appreciated in the past and will be pleased to have you enter our name as one of your regular subscribers.

As to news, the most important feature to us at present is the new building or soap factory which we are erecting. Our main building is 112 x 160 feet, is four stories high and a basement under all, really making 5 stories. The power house at one end is about 60 feet square and our office at the corner of the building is about 40 x 20 feet. The power house and office are in addition to the main building. We are putting this up expecting to use all the latest improvements that we can and intend to increase our business in the future over the past. We hope to have the building completed by Christmas time, so we can move in the first of the year.

You are probably aware that we have made a specialty for the last 12 or 15 years of a strictly high-grade of laundry, White bar soap, and our trade has gradually increased during this length of time and we have a larger business than the capacity of our building which has moved us to take steps for a new factory. We thought possibly you might be in this vicinity in the near future and we would be glad for you to call on us, as you might be able to lead us to points which would be profitable to us in erecting the new building.

Yours truly,
Monmouth, Ill., 9, 29.  
MAPLE CITY SOAP WORKS.

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Success at Paris Exposition.

Dr. Henry Gathmann.

Dear Sir:—We are pleased to send you herewith
$2.00 renewing our subscription to the American Soap Journal. With regard to your enquiry as to any new brands, our letter-heading to you will indicate our manufactures. Should it be of any interest to you, however, we merely send you the information that Messrs. Lever Brothers Limited, Port Sunlight, inform us that at the Paris Exhibition they were successful in securing three Grand Prix, three Gold Medals, and one Silver Medal, and that they have obtained more awards than any other soapmakers in the world. Yours truly,

Toronto, Ont., Oct. 3. LEVER BROTHERS LIMITED.

One for All.
Dr. Henry Gathmann.

Dear Sir:—We are in receipt of copy of the new edition of your paper in Milwaukee. Please advise if our unexpired subscription applies against the new publication. Yours truly,

So. Omaha, Oct. 1. CUDAHY PACKING CO.

We print the above simply to have an opportunity to answer once for all a number of rather similar enquiries. Only a misunderstanding or misinformation could give rise to any such question at all. As a matter of course we shall supply our old subscribers with copies of the paper till each has received 12 papers for his year's subscription—by which time he will take pleasure in renewing it for another year.

An Enthusiastic Reception.
Friend Gathmann:—Glorious! Glorious Resurrection. Hallelujah! The falling into my hands of an unexpected fortune could not have gladdened my heart more than the receipt of your American Soap Journal. Please find enclosed $2 for my subscription and accept with my heartiest congratulations the wishes for the greatest success that can be expected from such a deserving enterprise.

Jacksonville, Fla. Cordially,
Sept. 28, 1900.

E. MOULIE.

Recent remarkable discoveries by the Pennsylvania University Expedition at Nippon are said to carry back our knowledge of Babylonian history to a time more than 7,000 B.C. It is to be hoped that it will disclose something or other about soap, so text books, papers, and lectures on soap may hereafter cease everlastingly alluding to Pliny and Pompeii and other comparatively recent people and things.

Let's have some fun. We give below names and cities of a few actual subscribers to this paper, omitting only the countries in which they reside. Now try your geographical knowledge and send us a list of the countries where you think these subscribers are to be looked for. The first complete and correct list sent us will be rewarded by a year's subscription and permission to address our wrappers to these subscribers for three months:

- Trikamal Damoderdass, Ahmedabad.
- Kalkhosroo S. Banaji, Gowalia Tank Bombay.
- Waseninski Bokhandel, Helsingfors.
- Botu Pappazoglou et Cie., Kezanlik.
- N. Nakamura, Gojo Bash Higashi, Nichome, Kioto.
- Schnyder frères et Cie. Madretsch près Bienne.
- José María Marticorena, Aldamar San Sebastian.
- Transvaal Oil Co., Johannesburg.

Owing to the lateness of our last month's edition and the enlargement of the present issue by 4 pages besides, we have not been able to be quite on time yet this month. But we have done rather well under the circumstances and shall do still better from now on.

The Annual Subscription
for this paper for the United States, Canada, and Mexico is $2.00, payable with the order. All other countries $2.50 (=10s 6d.) Intending subscribers are requested to order early, to ensure receiving the complete volume.

Adulterated Borax.
The packages of supposed borax sold in groceries and department stores in our large cities are put up under innumerable brands, but though they are labeled "best refined" or "chemically pure," they are more often than not rather pure sodium bicarbonate than borax. Some firms put up several brands of different degrees of purity, so they can supply the presumably unsuspecting (?) department stores at whatever price the latter think about the proper thing for the article of that pristine purity they are so famed for.

Kelp Once More.
To a short item on kelp burning which we published last month we now add the following from the Scientific American:
The manufacture of kelp from sea-weed was at one time an important source of revenue in the islands and highlands of Scotland. Large amounts of it were required in the last century for the manufacture of soap, glass, and alum. The introduction of barilla from Spain has resulted in a great falling off of the industry, which would probably have declined entirely if it had not been for the discovery of iodine, which saved the kelp trade from extinction for a time, but finally iodine was obtained in
large quantities from Chile as a by-product of sodium nitrate, and this succeeded in materially decreasing the commercial value of kelp. Kelp was formerly made of two kinds of weed, the fucl and the laminaria. Kelp is now made entirely from two kinds of driftweed of which "tangle" is less susceptible of deterioration than the other varieties. It is torn up and driven ashore during the winter gales. It is collected and stacked in heaps usually on foundations built of stones rounded by the action of the waves. It is arranged so that air will have free access to the heaps.

The burning usually begins in May, provided there has been no wet weather, and continues during the summer months. The kilns are made of sods or stone, and vary from 12 to 20 feet in length, and from 2 to 3 feet in breadth, and 1 foot in depth. Thry are usually built on a plot of grass and are fed with the dried weed which yields about a fifth of its weight of kelp. The fuel is placed in the kiln and the seaweed is spread lightly over it. It is stirred constantly until the kelp is in a semi-fluid state, glowing like molten metal. It is then allowed to cool, and when taken out of the kiln appears as a hard heavy substance of a dark gray color. It is then broken into pieces of suitable sizes and shipped to market. In Norway the kelp is burned to ash and realizes its full value.

Schools of Soapmaking &c.

There seems to be something strange, not to say inexplicable, about schools where soapmaking is taught. In Germany, which, generally speaking, is furthest advanced in providing technical education in the most diverse branches of chemical industries, the only school having a regular course of instruction in soapmaking was closed a year or two ago for lack of a sufficient number of pupils. Nor have we heard of any likelihood of its being reopened in the near future.

On the other hand in England, which generally speaking is not noted in regard to the schools of this nature, the scientific study of soapmaking and allied manufactures seems to excel in the number of opportunities offered. Thus we find in one paper an advertisement reading:

Battersea Polytechnic, S. W.—Classes in Oils, Fats, Soaps and Candles in connection with the City and Guilds Institute, Fridays, 7.15, commencing 28th September; Lectures and Laboratory Work; fee from September to May, 10s.—Apply for Prospectus to the Secretary.

And right next to it there is the following:

Mr. Harry Thompson, F.C.S., will hold a practical class in Oil, Seed Crushing Products and Soapmaking, on Tuesday evenings; commencing Oct. 2d, 1900.—Terms on application to 5 Bishop Lane, Hull.

In another paper the Borough Polytechnic Institute of London advertises an evening course of lectures and laboratory work in Oils, Fat and Candle manufacture, the fee for which for the session is 12 shillings for members and 15 shillings for non-members. The course was to open Sept. 24, and includes practical instruction in the testing of raw materials and in manufacturing and refining processes used in the respective trades. Similar courses are advertised in painter's oils, colors and varnishes. As indicating the character of the teaching it may be remarked that last year two students gained respectively the first and second prizes at the City and Guilds examination.

Then there is the Hull Technical School which gives a course on oils, fats and waxes, which perhaps will include soapmaking also.

We also found an announcement of the Leeds Technical School to the effect that classes will be held there in connection with the City and Guilds of London Institute, with lectures on oils and fats, including candle manufacture.

Geo. H. Hurst, whose writings in the Soap Journal have made his name familiar to our readers will also hold practical classes in oils, color and soapmaking in Manchester. Probably there are still others.

The foregoing reminds us of an advertisement which formerly appeared for a time in this paper, namely that of the Missouri Commercial Laboratory of St. Louis. That institute was under the direction of Drs. Minor and Hartman, and advertised a similar course of lectures and laboratory teaching. In analytical work we know the firm did more or less business, but whether or not their lecture course ever came to anything at all, we cannot say. Dr. Minor, who also contributed an article now and then to our pages, went to Cuba during the war and unfortunately lost his life there. Since then very little has been heard of the Laboratory, even St. Louis soap manufacturers being unable to give us any recent information concerning it.

That there is any real need for such school in this country we do not feel justified to assert, since to assert, since there are enough good soapmakers, yet that many of them could still profit from a well-conducted course we also believe. At any rate, from our acquaintance with the trade, we believe that such a school would meet with an extremely difficult beginning, and would not meet much financial success. Still, in connection with

(Continued on page 49.)
Notes on Otto of Rose.

BY HENRY GARNET, F. C. S.

The subject of the chemical and physical examination of otto of rose is one of immense importance. The great value of the product and the extent to which, unhappily, sophistication exists, naturally make it so, while the fact that the adulteration is so skillful as practically to elude all ordinary tests, makes the analysis of otto of special interest to chemists. It is well known that the chief, if not the only, adulterant is the oil of palma rosa, or "Turkish geranium," an oil derived from a widely different plant, but one which closely approximates in chemical composition to the liquid portion of the otto itself. Its somewhat rank smell renders its presence evident if the percentage is large, but there is no doubt that as much as 5 per cent. will escape detection even by the nose of the "expert." In this connection I may mention that experience teaches me that if the suspected otto is dissolved in a little spirit, the solution diffused in a large quantity of warm water, and the mixture compared side by side with a similar mixture of pure otto, under exactly similar conditions as regards quantity and temperature, the difference in the odor is more readily detected than when the otto is smelled alone or diffused through some solid.

Specific Gravity.—This I am in the habit of taking in a Sprengel tube at a temperature of 30° C. (water at 15.5° = unity,) this being the temperature generally employed in Bulgaria. In my opinion the limits usually given for a pure otto are too wide and admit sophistication. I have found the specific gravity of the finest otto to fall within 0.8525 and 0.8575—indeed, I took on the latter figure with some suspicion, while those with higher densities (0.860 and higher are sometimes met with) almost always give other evidence of sophistication. I consider the B. P. figures 0.856 to 0.860 to be too high. My figures are based on Bulgarian ottos over a number of years, including all the best brands. Parry's statement that "0.855 to 0.865 may be taken as including most good commercial otto" must be received with some caution, as it would exclude some of the finest otto and admit much that was doubtful. As imported into this country by the largest houses, the otto is always "bucked" from the products of the various small distillers. M. Raitsow has published figures showing a range of 0.8531 to 0.8659 at 27.5° C. from samples said to be authentic; these figures are naturally rather higher than those based on a temperature of 30° C.

Optical Rotation.—This varies considerably, but usually lies between 2° 15' and 3° 15' for samples in other ways satisfactory (temperature of observation 27° to 30° C.) Parry gives the limits + 1° to - 4°, but for Bulgarian otto these can scarcely be considered "safe." I have never met with one having a dextrorotation.

Freezing Point.—It is almost impossible to obtain figures agreeing closely with those given by Bulgarian merchants, as, although this is almost their only standard for the valuation of otto, their method of taking the "setting points" leads to uncertain and varying results. One of the most scientific of these gentlemen has described to me the method, which consists in standing a vial (1 or 2 oz.) of otto in a bath slightly above its melting point; a thermometer is placed in the bath, neither bath nor otto is stirred, and the whole is allowed gradually to cool. The point at which crystallization is seen to commence on the sides and bottom of the bottle is taken, the temperature of the bath being then read.

The mode which I find yields the most concordant results consists in allowing the melted otto to cool gradually in a jacketed tube (similar to a Beckmann freezing point apparatus,) using a thermometer graduated to 0.2° or 0.1°, and stirring constantly with a platinum wire stirrer. The water bath should not be more than 3° to 4° C. lower than the freezing point of the otto. The small air bubbles carried down by the stirrer will rise while the otto is fluid, but as soon as the least permanent crystallization has set in, the bubbles remain suspended, and can be seen even before the transparent crystals are visible. With care the freezing point taken in this way should not vary more than 0.1° in different determinations.

Here, again, the limits usually given are wider than those found by me for ottos believed to be genuine; the B. P. range of 19.4° to 22.2° is certainly wide enough, while Parry's "17° to 23°" allows too much scope for adulteration. In my opinion 19.5° to 22° would cover all the purest ottos of Bulgarian origin. Some recent experiments of mine, however, lead me to suppose that the freezing point of the same otto may vary from time to time. It was noticed that a sample of otto (about 100 c.c.) which had been allowed to stand in an open beaker at a temperature of 30° to 33° C. for three hours had its freezing point considerably depressed. A further quantity was similarly treated, the length of time being increased to twenty-four hours. During this time at intervals a cold basin placed over the beaker became bedewed with a small quantity of water which had evidently been dissolved in the
oil. No alcohol could be detected in this condensed moisture, nor was there more than a trace of volatile oily matter. An otto which before this treatment had showed a specific gravity at 15.5° of 0.8535; rotation (100 mm.,) —20° 15′; and freezing point, 21.4° C. (corr.) was examining after "dehydration," and I found that although its specific gravity and rotation were scarcely altered, the freezing point was lowered to 20.5°, showing a depression of about 1° C. I have frequently noticed, too, that if a large (20 oz.) bottle of otto be frequently melted and allowed to congeal, a small amount of water separates in drops and the freezing point is found to be lower than the original.

I have endeavored to effect this dehydration by means of anhydrous sodium sulphate, but so far without success; it is evident, however, that this point requires further elucidation, as it seems probable that the same otto with varying percentages of absorbed moisture will show varying freezing points. It would thus seem preferable in all cases to work on the "anhydrous" otto.

As regards the statement frequently made that ethyl alcohol is a constant constituent of genuine otto, I have never been able to detect its presence in pure otto with certainty. The methods employed have been the iodoform test applied both to the aqueous liquid obtained by shaking the otto with warm water and filtering, and to the first runnings of the distillate of the otto distilled under reduced pressure. A modified "flash-test" has also been tried, a test-tube half filled with otto loosely covered being allowed to stand for a few minutes in a water bath at 100° C., the cap being then removed and a light applied. In all samples of ottos examined a pale lambent flame has resulted, passing down the tube. Many other essential oils, however, quite free from alcohol will behave in the same way. Even if, as suggested, the ethyl alcohol is a product of the fermentation of decaying rose-petals which may sometimes occur, it is difficult to understand how more than very minute traces can occur in the otto itself, which rises to the surface and is removed from a very large volume of water in the process of distillation. Surely such a process would insure the almost complete washing out of any ethyl alcohol originally present.

In order to determine the influence of an addition of palma rosa oil, an otto having the freezing point of 21.5° was taken; this was mixed in the proportion of 9 parts to 1 of palma rosa oil (by weight); the freezing point was now 20.5°—i. e., had been depressed just 1° C.

Alcohol Constituents and Stearopten.—The mere determination of the percentage of alcohols (by acetylation) does not afford very useful results, as palma rosa oil consists largely of the same alcohols. The determination of stearopten affords a further clue to the composition of the otto, but care must be taken to follow identical conditions in each determination. The usual method is to treat with alcohol (70 or 80 per cent.), freeze the solution, filter off, wash and dry the stearopten. It is probable the separation is not quite complete; thus, if the mixture is cooled to 0° and filtered, the filtrate will usually deposit more stearopten if further cooled to —10° C.

A desideratum is some method for the quantitative separation and determination of the alcohols, geraniol and citronellol, as it seems probable that there is a much larger proportion of the latter in the fluid portion of otto than in palma rosa oil. Flattau and Labbe have put forward a process for their separation based on the differing solubilities of the alcoholic phthalates in petroleum ether; but the results obtained have been called in question by Schimmel.

Ester Percentage.—This often affords useful information, as the amount of ester in pure otto is very low, often as low as 3.0 per cent., while in palma rosa oil it averages 10.0 per cent. Hence a large percentage of the latter may be detected; low priced ottos smelling faintly of palma rosa have been found to contain 4 to 4.5 per cent. of ester (reckoned as geranyl acetate), while the finer ottos vary from 3.0 to 3.5 per cent.

In conclusion, it is evident that, in the present state of our knowledge, there is no absolutely reliable single test for the purity of otto, though much may be learned from a close study of the various characters, and especially of their relation to one another. It appears that the present "order" prohibiting the importation of palma rosa oil into Bulgaria has not the force (as I am informed by a member of the Bulgarian Parliament) of a legislative enactment, and is practically a dead letter. The same member, however, is endeavoring to obtain fresh legislation on the subject.

*From the Chemist and Druggist.

Trade Marks in Germany.

According to a Blue Book recently published with regard to trade marks and registration in Germany, foreigners, so long as they have a place of business in Germany, are entitled to as much protection as the Germans themselves. If, however, the applicant conducts his business solely from abroad protection is entirely dependent upon reciprocity of trade mark rights with his country.
The Lubrication of Steam Engines.

Engineers very commonly pay scant attention to the cost of oil used in lubricating steam engines. They regard it as an insignificant item. Even those who pay for the oil take small pains to ascertain whether they are paying more than need be paid. The result of an inquiry into the question of oil bills in any district would, we venture to say, give highly startling results. Not long since we were shown an American Engine of the horizontal high-speed type. It was indicating about 13 or 14 horse-power. Coal was very cheap, and we were told that the cost of fuel was as nearly as might be 1s. 6d. a day. The oil bill was 3s. 6d. a day, or more than twice the cost of coal. In another instance we found an engine indicating about 1,500 horse-power, and using 120 gallons of oil per week. A marine engine, triple expansion, of the same power, gets on with 20 gallons a week. Again, we find in some cases that oil costing 2s. 6d. a gallon is used; in others, for just the same class of work, about 9d. a gallon is paid. It will readily be seen that a lavish use of oil at 2s. a gallon runs into a great deal of money. It is high time, we think, that more attention was given to this subject than has hitherto been devoted to it by users of steam machinery. Why, it should be asked, does one engine use more oil, very much more, than another? In the answer lies the key to possible economy.

An excessive use of oil may be accounted for in several ways. We have first the personal element; the engineer, or driver in charge of the engine, cares nothing about what the oil costs, and he wastes it. Secondly, if the engine is badly designed or in bad order, with rubbing surfaces too small, or cut and scored and roughened by neglect and bad usage, much oil will be needed to keep them cool. Thirdly, the oil may be unsuitable, and the result will be waste. Fourthly, the engine may run in dusty places—such as cement mills, iron works, etc., —and a great deal of oil will be required. A prolific source of waste is the apparatus used for lubricating; some of the sight fed lubricators are terrible sinners in this respect. They feed but a drop at a time, it is true; but what a drop! It is becoming rather a favorite practice to fit circulating oil pumps to steam engines. These pumps raise the oil which collects from all the lubricated surfaces in a common reservoir, and lift it to a tank above the engine, from which the lubricating pipes extend. The same oil is used over and over again, and the surfaces are kept thoroughly wet with lubricant. This is a very pretty device in theory, but in practice it will be found extremely costly and inefficient unless certain precautions are taken. Oil used on a steam engine always gets mixed with water, which leaks from the glands. The oil and water becomes churned together in the pumps, mixed with dust, fine brass from the bearings, coals, etc., and, however fine it may be to begin with, it soon becomes a filthy-looking, slimy brown fluid, which is anything but a good lubricant. It is quite possible to avoid this result, but only by providing really efficient strainers, and a large tank in which the water and many impurities may have time to settle. This is, however, very seldom done. There is more than one patented apparatus in the market which professes to separate the oil from the water and return it clear and pure to the pump tank. The space occupied by the apparatus may, it is said, be very small. We have no personal experience of the satisfactory working of these things, and we have very grave doubts that, under any conceivable circumstances, the oil pump system can be regarded as economical.

Some engine builders are never so happy as when they are covering their engines with polished brass and copper lubricators, all self acting, all different, all the best of their kind. Many of these devices work very well, but they do not save oil. It will be understood that at the present moment we are not considering the best means of lubricating, but the cheapest way of securing sufficient lubrication, and on the whole we think that nothing can be found to excel a good oil-can in the hands of a competent and judicious man, who thoroughly understands how to trim an oil-box, and knows when a bearing has or has not had enough oil. It is, however, unfortunately, far easier to purchase self acting lubricators than it is to find men of the right type, and so we take it for granted that the invention and construction and sale of automatic lubricators of all kinds—good, bad and indifferent—will continue. We have not the slightest intention of recommending any one of these things as better than any other, but there are certain obvious qualifications which they should possess. For example they ought not to blow oil all over the engine-room every time they are opened to be filled. There should be no possibility of their becoming clogged up. They ought not to contain delicate mechanism. They ought to be so made that they can be used with oils of different kinds. They ought to be strong, and quite free from the chance of leaking. The cocks should be so made that they will not jam. The screw threads of removable caps ought to be of such a kind that the caps will not stick or jam the threads. The pipes must be free from sudden
bends. The price ought to be reasonable. It will be seen that much of this applies, not only to lubricators pure and simple but to the whole army of impermeators.

No doubt a great deal of extravagance in the consumption of oil is due to sheer waste; but this waste would not be allowed to go on if the steam-user understood something of the art of lubrication. If an engine is kept in perfect order, it is astonishing how little oil will suffice for its wants. Curiously enough, bearings and cylinders seem to possess the power of acclimatizing themselves to almost any condition of lubrication. Thus, for example, if an engine has once become habituated to the use of much oil, time and patience will be needed to reduce the quantity found necessary to avoid heating. On the other hand, if an engine begins its life with a sparing use of oil, it may be moderate in its demands to the end. No doubt this is due in large measure to the fact that a lavish use of the oil can will suffice to hide defects that ought not to exist. Thus, for instance, guide bars become badly scored from some cause. They ought to be taken out and refaced. Instead they are kept cool with oil. Big end brasses are let together a little too much. The crank pin is kept cool until wear has taken place, by pouring on oil as though it were water. Unless drivers of engines are looked after closely they will in too many cases, waste oil. On the other hand if they are reprimanded they go to the opposite extreme and hot bearings result. Attempts have been made in some large mills to work on the premium system, but the result does not seem satisfactory. It is possible, however, that in some instances a modification of the premium system may be found to answer.—London Engineer.

Prof. Chandler’s Address before the Society of Chemical Industry.

In addressing the meeting, Prof. Chandler said:—It is with great diffidence that I rise to address the Society of Chemical Industry in the historic theatre of the Royal Institution. I am oppressed by the recollection of the great men who in years gone by have expounded here the latest discoveries of chemical and electrical science.

In considering the various subjects I might select for my address, I have decided to call the attention of the Society to what is being done in the United States for the advancement of chemical industry. In looking over the addresses of the past presidents, I find that almost every chemical topic, theoretical, practical and historical, has been already presented to you, and my only hope of being able to say anything which is not already thoroughly familiar rests in the presentation of matters purely American.

The retiring President then proceeded to review the rise and development of chemical and technical education in the States, passing from the chaotic conditions of his student days to the present organized methods of the Columbia School of Mines, the Yale and Harvard Universities, and the quasi-collegiate universities of Michigan, Illinois, Cornell, Chicago. Coupled with these were the names of many other technical institutes, such as those at Massachusetts, Cleveland and elsewhere. Regarding our chemical societies, he said these have already accomplished a great deal that has benefited and consolidated the profession in America.

The first step in the movement was the suggestion, early in 1874, by Prof. H. Carrington Bolton, that that year might be very properly regarded as marking the beginning of modern chemistry, and suggesting that the chemists should meet and enjoy a social reunion in commemoration of events important alike to science and civilization. It was a woman, Miss Rachel L. Bodley, Prof. of chemistry in the Women’s Medical College at Philadelphia, Pa., who had the happy thought that this reunion should take place at the grave of Joseph Priestly in Northumberland, Pa., where he found an asylum, when compelled to leave England, and where his grandchildren still live. The idea was very cordially received, and on August 1st, 1874, the 100th anniversary of the discovery of oxygen, the chemists of the United States and Canada met at the grave of Priestly to celebrate the centennial of chemistry. The convention lasted for three days and was full of interest. The success of this movement led soon afterwards to the creation of the American Chemical Society, which was organized under a charter from the State of New York, and I had the pleasure of nominating for first president of this society an Englishman, John W. Draper, who was duly elected. This society has grown in influence and importance, until at the present time it has 1,544 members. Following the example of the Society of Chemical Industry, it began a few years ago to organize sections in different parts of the country, of which there are at present eleven in successful operation.
The work of the U. S. A. Department of Agriculture was then dealt with in detail, which we may summarize by a brief reference to

THE AGRICULTURAL EXPERIMENT STATIONS.

A large amount of original investigation in subjects more or less allied to agricultural and physiological chemistry has been accomplished at these stations, of which there are now 59.

There are 148 chemists connected with these experiment stations, all devoting their entire or chief attention to chemical work. One of the most important objects in view in establishing these stations was to protect the farmer from the cupidity of the dealers in artificial fertilizers. Not only is the exact chemical composition of the fertilizer given, but the station from time to time fixes the commercial value of the important constituents of fertilizers, and in the report of the analysis attaches to each its commercial value based upon the standards adopted.

The amount of money which has been saved to the farmers by this work alone is incalculable. It has been extended to the analysis of feeding stuffs and foods. A large amount of work has been done by the station chemists on methods of agricultural analysis, working independently and in co-operation with the Association of Official Agricultural Chemists.

This work has had an important bearing in the evolution of methods of analysis, in securing uniformity, and in reducing errors, apart from the researches of chemists like Osborne and Teller on proteids; the evolution of Atwater’s respiration calorimeter; the work of Mallett on the physiological effect of creation, and the applications of science to dairying, by Babcock and Russell. He also referred to the excellent work of that other essentially scientific State Department—the Geological Survey.

Under the heading of Sanitary Chemistry, the speaker mentioned that there were 143 sewage disposal plants in 1897 in the United States and Canada. The methods employed included chemical precipitation, filtration, broad and sub-surface irrigation, and combinations and variations of these principles. Of the total number of plants, 120 were built between 1887 and 1897. Assuming this rate of construction to have continued from 1897 to 1900, it would appear that the aggregate number of inhabitants of cities and towns whose sewage is disposed of by scientific treatment is about 1,000,000 at the present date.

The adulteration of food is also attracting more and more attention in the United States, not that adulteration is excessive with us, but from the fact that the public has become extremely sensitive on the subject, and demands pure food. Local health authorities, State legislatures, and Congress are all engaged in the formulation of proper laws, and in establishing laboratories for food analysis in order to secure pure and wholesome food.

CHEMICAL INDUSTRIES IN THE UNITED STATES.

Continuing, Prof. Chandler said:—The chemical industries of the United States have made very material progress in recent years. New industries have been established and old ones developed and enlarged.

In coal production there has been a large increase within the last year. Over 218,000,000 short tons have been produced, of which 191,500,000 were bituminous coal, 36,000 were cannel coal, and 60,577,000 were anthracite, and there are still most extensive tracts of coal lands which have not been disturbed by the miner’s pick. The coke industry has also increased—18,000,000 tons were manufactured.

Metals.—The iron industry of the United States now exceeds that of any other country. Over 25,000,000 tons of ore iron were mined in the country, three-fourths of it in the Lake Superior region; ores are also imported to some extent. The pig iron manufactured amounted to 13,620,703 tons, and the steel to 10,662,170 tons. The United States has become the largest copper producing country in the world. The world’s copper product during the year 1899 was 468,463 tons of 2,240 pounds, of which the United States produced 259,517 tons (55 per cent). Second on the list comes Spain and Portugal with a production of 54,220 tons. 69,574 tons of our copper were extracted from the native copper deposits of the Lake Superior region. The rest was obtained chiefly from Montana and Arizona from sulphurites. About two-thirds of the copper produced in the United States was electrolytically refined. American copper smelting processes have reached a very high degree of efficiency, while they are at the same time comparatively simple. There are 31 copper smelting establishments in the United States, besides two large establishments devoted primarily to other industries in which copper smelting is carried on, and there are 11 electrolytic copper refiners in the United States. The estimated production of electrolytic copper is 198,600 tons annually, and the precious metals obtained in refining the copper amount to 170,273 ounces of gold, and 21,199,200 ounces of silver. It is an interesting fact in this connection that large quantities of tellurium and selenium are obtained as a
by-product in refining copper electrolytically, for which, as yet, no use has been found. It is sad to think of tons of tellurium being thrown away because no useful application has been found for this interesting element.

Our zinc mines continue to develop. 129,675 tons of 2,000 pounds of spelter were manufactured during the past year in Kansas, Illinois, Indiana, and Missouri chiefly; a little from some other States. Oxide of zinc was manufactured to the extent of 36,663 tons of 2,000 pounds, chiefly in New Jersey, Pennsylvania and Wisconsin. The New Jersey ore is most interesting. It consists of a granular mixture of franklinite and a beautiful green willemite, which is the silicate of zinc, and small quantities of the red oxide of zinc. This ore is mined in large quantities, is coarsely ground, and separated by magnetic separators. The franklinite is first used for the manufacture of oxide of zinc, and subsequently for the manufacture of spiegeleisen. The green willemite is shipped to Westphalia for the manufacture of spelter.

_Sulphuric Acid and Sulphur._—The manufacture of sulphuric acid has grown with great rapidity in the United States, owing to the large quantities of artificial fertilizers and superphosphates which are employed all over the country, north and south. As the phosphates are found in the Southern States, the industry of converting them into superphosphates has been largely concentrated there. In a very elaborate article on the manufacture of sulphuric acid in the United States, read before the New York Section of our Society in April last year, Mr. Peter S. Gilchrist has described the methods employed, and given valuable statistics. He mentions the fact that at the present time there are 75 fertilizer works where sulphuric acid is manufactured south of Maryland.

The petroleum refineries also consume large quantities of sulphuric acid, as high as 2 per cent. on the volume of oil refined. As this acid does not lose its acidity in the operation it is either regenerated to be used again or sold to the fertilizer manufacturers for the production of superphosphates.

_Fertilizers._—Chemical fertilizers constitute one of the most important articles in our chemical industries. Mr. Dodge, of the United States Department of Agriculture, estimates that there are approximately one and a half million tons of fertilizers sold in America at a cost to the farmers of more than $55,000,000 dollars.

The largest consumers of sulphuric acid are the manufacturers of superphosphate of lime, chiefly from the phosphatic rock deposits of Tennessee, South Carolina, Florida and other States.

Potash salts and nitrate of soda are all imported, but most of our nitrogen compounds, sulphate of ammonia from the gas works, and animal refuse from our abattoirs and packing houses, such as dried blood, tankage, etc., horns and bones and cotton seed meal, are obtained at home.

Twenty-nine of the States have enacted fertilizer laws requiring that the boxes containing the fertilizers shall have attached to them in some plain manner, the name of the manufacturers, and the guaranteed percentages of nitrogen, phosphoric acid, and potash soluble in water.

In the State of New York alone there were registered in 1899 2,268 different brands of artificial fertilizers, the number of manufacturers supplying them being 190.

A most important process has been devised by Joseph Van Ruymbeke for recovering the valuable material which exists in solution in the liquor of the rendering tanks in abattoirs and packing houses. This liquor or soup as it is called, results from the treatment in the tanks under pressure by steam of all the refuse of the abattoirs and packing houses. The fat is liberated and rises to the top. The meat and bones are cooked, the gelatine and other soluble matters pass into solution in the water of the condensed steam. Many attempts had been made to recover the valuable plant food in this liquor, but on evaporating it to dryness and thoroughly drying it, is was found to be very deliquescent, and it was impossible to handle it successfully. Ruymbeke found that by evaporating this liquor to the consistency of syrup, and adding to it a small percentage of persulphate of iron, it was immediately congelated and rendered so insoluble that it could be squeezed into a solid mass in the hand without difficulty, and when dried it was found to be entirely permanent. This process is now generally employed, and results in adding a considerable quantity of plant food to the market supply.

In connection with fertilizers and plant food, I must mention the interesting investigations which have been made by Dr. W. H. Birchmore. Dr. Birchmore has made a careful bacteriological study of the curing of stable manure, and has ascertained the conditions under which the desirable microbes can be encouraged and the proper fermentation secured by which the plant food is retained, and he has also found the conditions under which unfavorable fermentation takes place, and plant food is wasted. The paper on this subject, which he read before the New York Section of this Society, is published in the journal for February of this year.

_Salt_ has long been manufactured in the United States, generally from brines, though valuable de-
Electro-chemical processes of rock salt occur in Louisiana and New York State. New York State is the largest producer; Michigan follows closely, then comes Kansas, Ohio and West Virginia, California, Utah, etc. The total product for the year 1899 was nearly 3,000,000 tons of 2,000 lbs. Improved processes have been introduced and salt of the best quality is now supplied for dairy use.

Soda Ash was not manufactured in the United States 20 years ago. Since that time, the Solvay process has been introduced. At the present time there are four establishments working this process. The Solvay Process Company has one plant at Syracuse, New York, and another at Detroit, Michigan, and it is claimed that they turn out at these two plants nearly 1,000 tons daily. The Mathieson Alkali Works at Saltville, Virginia, turn out 200 tons, and J. B. Ford and Sons at Wyandotte, Michigan, turn out 200 tons.

Borax.—We have a considerable industry in borax and boric acid; in fact, we are the largest producers in the world of these substances. They are made from colemanite of California, calcium borate, of which 24,068 tons were mined in 1899, and from the alkaline waters and efflorescences of some of the Western States.

Minor Products.—Bromine was manufactured to the extent of 433,033 lbs. Some tungsten and ferro tungsten were manufactured, as well as chromates and bichromates. Bisulphide of carbon is manufactured at one or two points. We have quite an industry in the manufacture of carbonate of magnesia and Epsom salts, the materials being either dolomite or magnesite from California, or imported from the Mediterranean. Carbonate of lithia is manufactured from the beautiful lepidolite of San Diego, California.

Caustic Soda and Bleach.—Another important electro-chemical industry at Niagara Falls is the electrolysis of common salt, for the production of caustic soda and bleaching powder by the beautiful process invented by Hamilton Y. Castner, a former pupil of our School of Mines. I presume that most of the members of the Society are so familiar with this process that it is hardly necessary for me to enlarge upon it. It will be remembered that Mr. Castner employs two separate cells in his apparatus, the salt solution being limited to one of them, where it is decomposed, the chlorine being led off to the lime chambers, while the sodium is taken up by the cathode of metallic mercury. The other chamber is employed for extracting the sodium from the amalgam, and its conversion into caustic soda; the mercury circulating freely from one chamber to the other, while none of the salt solution ever finds its way into the caustic soda compartment.

The efficiency of this process leaves nothing to be desired, and the caustic soda produced is almost chemically pure.

Near by is another establishment devoted to one of Mr. Castner's inventions. This is the extraction of metallic sodium from caustic soda by electrolysis, which is the only process, I believe, now used in the world for the production of metallic sodium in quantity, there being works in England and on the Continent that carry out the same process.

While a portion of this sodium is sent into commerce, a considerable portion of it is converted either into peroxide of sodium, for bleaching purposes, or into cyanide, for use in the cyanide process of gold extraction and by electrolyzers.

Dr. L. Kahlenberg, of the University of Wisconsin, has recently made a discovery which may prove of great value in the future. He has discovered that a solution of lithium chloride in pyridine is readily decomposed by the electric current, with the deposition of pure metallic lithium. We can hardly foresee what advantages may come in the future from the substitution of such solvents as this for water in the preparation of baths for electrolysis, thus avoiding the difficulties which are encountered in working with certain metals owing to the presence of hydrogen released from the water employed as a solvent.

Another establishment is now beginning operations at Niagara Falls for the manufacture of caustic soda and bleaching powder. It employs the process of Charles E. Acker, which differs entirely from the Castner process. The sodium chloride is in a fused condition, and a cathode of melted lead is employed, the result of which is the formation of a combination of lead and sodium, which it is proposed to use either for the manufacture of galvanic batteries as a substitute for zinc, or from which the sodium can be withdrawn by distillation, or in the form of caustic soda by treatment with water.

Chloride of Potash is now manufactured on a considerable scale at Niagara Falls by the electrolysis of chloride of potassium. The process employed was invented by Messrs. Gibbs and Franchot and appears to be an entire success. Another chlorate factory has been erected at Bay City, Michigan.

Phosphorous works have been established at Niagara Falls by the Oldbury Electro-Chemical Company, the phosphorus being produced by elec-
tric heat. I have no detailed information as to the magnitude of the business.

**Lead.—** The Electric Lead Reduction Company, of Niagara Falls, is engaged in electrolyzing galena with the production of spongy lead and sulphuretted hydrogen. The process was started last spring, and the output has reached a ton of lead a day. The results so far are extremely satisfactory, and orders have been placed for new machinery which will enable the plant to turn out ten tons per day.

**Distillation of Wood.—** The most important substitute for grain alcohol in the arts is wood or methyl alcohol. Of this there were produced in 1899 about 4,000,000 gallons. Associated with this, of course, is a large industry which results in the production of pyroligneous acid, acetate of lime and refined acetic acid. A considerable industry has also grown up in the manufacture from acetate of lime of acetone, which is used as a solvent and also as a substitute for alcohol in the manufacture of chloroform. This substitution of acetylene for alcohol has resulted in a great reduction in the price of chloroform. The manufacture is extremely simple, and the yield is over 160 per cent. Frequent fatal accidents have occurred from the drinking of wood alcohol by mistake for grain alcohol.

There are about 90 factories devoted to the manufacture of acetate of lime, with an aggregate product of 35,000 to 40,000 tons per annum. As there is little sale for pyroligneous acid, it is all worked up into wood alcohol and acetate of lime.

**Fatty Acids and Glycerine.—** Another chemical process which has proved remarkably successful was invented by Tilghmann, and consists in hydrolysing the fats for the production of fatty acids and glycerine by superheated water. It has taken the place of all the other processes for accomplishing the same result. It is too well known to require description.

The rest of the address covered aluminum, calcium carbide, branches of mining and metallurgy, artificial illumination by petroleum, gas, water gas and electricity; the glass, cement, pottery, paper, rubber, coal tar, sugar and fermentation industries, and such other miscellaneous processes as the manufacture of explosives and pharmaceutical products.

**Deodorizing Train Oil.**

Many fats and oils can be deodorized by super heated steam or by dilute solution of alum. In either case, gelatinous matters are precipitated and removed. Neither process, however, is effective for train oil. The superheated steam destroys the train oil completely, and alum is without any action. A German patent has been taken out for achieving the desired object by using the two reagents in combination, viz.: hot saturated solution of alum or sulphate of alumina and steam at 130 deg. C. The process is carried out in the following manner: 2 cwt. of the train oil are mixed with from 4 to 8 lb. of the aluminum salt in cold saturated solution and then exposed to steam superheated to 110 deg. C. The evil-smelling compounds are thereby decomposed, and partly volatilised. In from 2 to 4 hours the oil has lost every trace of disagreeable odor, and is then left to stand. It separates completely from the solution and can very soon be decanted. It is run off into vats where it is kept for some time at 80 deg. C. to deposit. It quickly becomes quite clear and transparent. This process stands in sharp contrast with those now in use with respect to simplicity, and takes much less time than any of them. It is applicable to almost any kind of fat besides train oil, and especially to tallow.

**Soap Wanted in Asia-Minor.**

The British Vice-Consul at Erzeroum, Asia-Minor, reports that small quantities of soap from Britain have begun to appear in the market there, and that the demand will probably increase for cheap varieties.

**Duty on Recovered Oil.**

The United States Treasury Department in giving instructions to the collector of customs at Boston, Mass., says:

Sir: Referring to your letter of June 22 last, and to the report of the special examiner of drugs therewith transmitted, and other correspondence, I have to state that, after careful consideration of the matter, the department is satisfied that so called oleic acid or recovered oil as now imported, inasmuch as it is largely used as a wool oil, is not entitled to free entry under paragraph 568 of the act of July 24, 1897, and treasury decision 15,040, of May 10, 1894, as an oil commonly used in soap making and fit only for such use, but is dutiable at 25 per cent. ad valorem under paragraph 3 and section 7 of said act. You will be governed accordingly.

O. L. Spaulding,
Acting Secretary.
such analytical work as was done at the St. Louis institute just referred to, it might possibly have been carried out successfully. There are two flourishing schools for brewers in this country, both in connection with special laboratories confined to brewery work—the time may come when the soap trape will have a similar institution.

At the recent Laundrymen's Convention, by the way, was read a communication from the chemist and superintendent of Tim & Co., of Troy, N. Y. proposing that a school be established for the education of practical laundrymen. He advises that the school be connected with some large laundry and that the teaching cover the chemistry of compounds used in the laundry, laundry bookkeeping, and practical laundry work in all departments. If established, as we believe it will some day, it will not be without interest to the soap trade.

Thank You Very Much.

The American Soap Journal, for many years published in Chicago, and later in New York, has for the best reason, transferred its headquarters to Milwaukee, Wis. Editor Gathmann promises to furnish the trade with a still better paper than he has in the past, which is something that will tax all his energies to do. The American Soap Journal is devoted to the interests of soap and chemical industries, and is a needed publication in the trade. We wish it every success.—Nat'l Laundry Journal.

Special Articles in our Exchanges

Among recent articles appearing in our Exchanges, which are of interest to some of our readers, but which for various reasons we do not reprint, we recommend the following to the attention of those interested in the matters dealt with in those articles.
Note date and address of papers in sending for them or looking them up in libraries.

Mechanical Stoking.—Scientific American Supplement, Sept. 15 (and to be continued.)
Trade-Marks in Germany.—British & Colonial Druggist, London, Aug. 10.
Production of Mineral Paints in 1899.—Oil, Paint & Drug Reporter, New York, Aug. 27.
The Chemistry of Corn Oil.—Oil, Paint & Drug Reporter, New York, Aug. 27.
Guns and their Uses.—Serial article in Oils, Colours & Driers, London.
Heating & Lighting Power of Coal Gas.—Chemical Trade Journal, Sept. 22.

Quantitative Analysis for Glycerine in Fats and Soaps.

M. Laborde, of the Agricultural Station of Bordeaux, has recently discovered a process for the gravitative analysis for glycerine in fermented liquids, based on the action exercised by concentrated sulphuric acid or glycerine under heat.
He has ascertained that glycerine, heated to about 200 degrees C. with concentrated sulphuric acid, produces a quantity of carbon, from which the corresponding quantity of glycerine can be exactly deduced. The reaction is represented by the following quotation:

\[ \text{C}_2\text{H}_5\text{O}_x + \text{SO}_4\text{H}_2 = \text{C}_2\text{H}_4\text{SO}_4 + 5\text{H}_2\text{O} \]

The process, simple, rapid, and exact, constitutes an important progress in analytic chemistry; for previous processes for ascertaining the proportion of glycerine have left much to be desired. The researches of M. Laborde for establishing the accuracy of his process, applied to the analysis of fermented drinks, have led him to the conclusion that the alcohol-glycerine proportion is very variable in red wines, and that it can scarcely serve to characterize a natural wine; since the limits of its variation may extend from 10 to 16 per cent., thus exceeding the figure 14 given by M. Gautier as a minimum. He has also discovered large variations in the alcohol-glycerine ratio in liquids of different nature, as well as in different samples of liquids of this same nature.

His process, therefore, elucidates a very interesting point in the chemistry of fermented drinks, demonstrating that the proportion of alcohol-glycerine is far from having the influence attributed to it in the analyses of wine and other fermented liquids.

We have applied the process of M Laborde to the quantitative analysis for glycerine in fats and soaps. The results have been quite satisfactory, and we believe it will be of benefit to publish the method we have employed.

In the analysis for glycerine in soft soap or in loaded soaps, ten grams of soap are dissolved in hot water, and precipitated with a concentrated solution of zinc sulphate, which is added cautiously until precipitation ceases; then filtered, to separate the insoluble zinc, and washed with warm water. The filtered liquor and washing water receives an addition of 10 drops of sulphuric acid and is evaporated on a sand bath. M. Laborde noticed that in an acid liquor and glycerine is entirely retained at the point of boiling water, so that, for concentration, it is necessary to acidulate it. When there remains not more than 3 cc. of liquid, the analysis for glycerine proceeds conformably to his process; 5 or 6 cc. of concentrated
sulphuric acid are added to the mixture and closed with a rubber stopper, to which an open tapering tube 50 c. in height is fitted; then heated on the sand bath to about 150 degrees C.

The matter blackens disengaging white vapors of water and sulphurous acid, and the temperature mounts to 200 degrees C., and is kept there by reason of the falling back of the water condensed in the tube.

When the carbonaceous matter forms lumps floating in the acid, it is taken from the fire and allowed to cool; then 5 cc. of half diluted chlorhydric acid are added, and the whole heated over, until the white vapors reappear. On cooking, about 100 cc. of water are poured in, raised to ebullition, and the whole deposited on a flat filter in order to collect the carbon, which is washed with boiling water until the acidity ceases.

The filter is punctured, and the carbon made to fall by a jet of hot water into a tarred platinum capsule. Some drops of ammonia are added, and the excess of water evaporated on the sand bath or a stove. The dry residue is heated below the red to drive off the traces of ammonium sulphate which it may retain and then weighed. The weight of carbon obtained, multiplied by 2.56, gives the corresponding weight of the glycerine.

In the quantitative analysis for glycerine in an oil, tallow or fat, 10 grams are saponified with soda and alcohol; water is added to the dry soap, and the analysis proceeds according to the method we have indicated for analyzing a soap.—Revue de Chimie Industrielle.

**Around the Soap Factories.**

News items sent us by our readers will find prompt attention in this column.

The large oil and soap works of the Merchant’s and Planter’s Oil Co., at Houston, Texas, were completely destroyed by fire on Sept. 16. Estimated loss $350,000.

A strike among the employees of the oil factories in Marseilles, France, is threatening to become general, and 2000 workmen are idle. Fifteen oil mills have been compelled to close.

The Nature company of New York City is a new incorporation, to manufacture toilet articles. Capital $10,000.

At a meeting, held shortly after the fire, by the Merchant’s and Planter’s Oil Co., of Houston, it was decided to rebuild the large plant (which employs 350 men) as rapidly as possible. All departments, including the soap manufacturing part, are to be re-erected.

The Vinolia Co., of England has closed its war fund according to which a small sum was given up for war funds on its sales of soap for nearly a year now. The fund amounted to about $55,000.

The new soap works of Lever Bros., Ltd., at Balmain, New South Wales, will commence operations this month.

Cudahy Bros. will erect a large glue plant in connection with their packing establishment in Milwaukee. They already have a glue factory in Kansas City.

The plant of the Hargraves Soap Mfg. Co., at Fall River, Mass., has been bought in by a bank which had a mortgage for $35,000 upon it.

The Florence (Tenn.) Soap Co., is a new firm.

A correspondent of a foreign exchange recently asked for the address of makers of toilet soap with feminine names “worked in by a patent process.” At the time we thought there would be a profitable idea concealed about this item and prepared to print a few words about it in this column. Meantime, however, the following paragraph has come to hand from England:

**Myname Soap Company, Ltd.**—Registered with a capital of £6000, in £1 shares. Object: To manufacture and deal in perforated soaps bearing Christian names, surnames, texts, souvenirs, and words, known as “Myname Soap,” and to carry on the business of perfumers, grocers, chemists, druggists, soapmakers manufacturers of proprietary and patent articles and toilet requisites, etc.

Another queer idea from the same country is that contained in the incorporation of the “Anti-Corpulence Soap Syndicate, Ltd.” Capital, £2500, in £1 shares. Object: To manufacture and deal in fat-reducing soaps, shampoo washes, toilet requisites, proprietary articles, etc. The first directors, (to number not less than three nor more than seven) are Lieutenant-Colonel R. G. Wharton, G. S. Bontall and C. W. Blacklock. Qualification, £100.” We trust the shareholders will not see their fat reduced, but will rather succeed to reduce that of their neighbors who buy the soap for that purpose.

Carbolic soap, as tendered for use to the British Admiralty, was found by the government chemists to contain the requisite 10% of pure carbolic acid in only one tender out of three. A similar condition prevailed regarding disinfecting powders.

Byron Erkenbrecker, formerly the proprietor of the Erkenbrecker Soap Co., Los Angeles, since going out of the soap business, has gone into the Investment, Loans, Real Estate, Stocks and Bonds business.
To save space we do not print in this column the "Personal" items appearing from the letters printed in preceding pages of this issue.

At a recent meeting of the Price Patent Candle Co., Ltd., the chairman said that it was an agreeable surprise to the board to find themselves, notwithstanding a number of unfavorable circumstances, able to recommend the payment of a dividend of the same amount as that paid for the same period of 1899, which was as to profit a record year in the company's history. The profit for the first half of this year has been less by only £2,250, than that for the first six months of last year. Since April 1st last, the price of their chief raw material, paraffin, had been raised by 82 per cent., other raw candle materials had also risen in price, though not to the same extent, and coals, timber, and stores of all kinds had become much dearer. These adverse circumstances had necessitated an increase of the price of candles, and any rise always tended to check the demand. Besides the export business of all British candle makers had been seriously interfered with by the war in South Africa, and seemed likely to be interfered with by disturbances in China, and these matters had to be taken into account in the near future. That the company's business had not suffered more was owing in no small degree to the fact that in the first three months of the half-year, those customers who had running contracts with the company at the old prices availed themselves largely of their right to take candles to the utmost extent allowed by their contracts. The profit of the first half of the year was aided by sales of candles which, in ordinary circumstances, might have been expected to have been deferred till the second half, and it was reasonable to anticipate that the profit of the present half year would suffer in a corresponding degree.

T. Rogers, formerly operating the soap factory in South Bend, Ind., is now superintendent of the water department in that city.

W. H. Lever, of Port Sunlight is expected in this country on a business trip.

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.

658,991. Soap Cake and Holder for same. Charles Langguth, assignor of one-half to P. Daenzer, Chicago, Ill.

PRINTS.

None.

LABELS.

7,799. Title: "Silver Clean." (For a Cleaning Preparation or Powder.) Ashley L. Smith, Sacramento, Cal.

7,801. Title: "Premo." (For Soap.) National Soap Works, Titusville, Pa.


TRADE-MARKS.


35,114. Shaving and toilet soap. The J. T. Robertson Company, Manchester, Conn. Essential feature.—The representation of a shaving brush with a mass of foam surrounding and extending from the bristles.


Notes for the Manufacturing Chemists.

COPPER APPARATUS IN MANUFACTURING CHEMICALS.

F. T. Gordon of the U.S.N. recently undertook the investigation of some reported reactions of tincture of nux vomica and alkaline liquids, supposed to be due to the presence of copper in the plant tissues. He reports his conclusions in the American Druggist to the effect, that if any copper be present in the tincture it is probably derived from copper evaporating pans and similar apparatus. He suggests that, as other metals as well have been found to be taken up from the apparatus used in the manufacture of various articles, a revolution in the character of the materials employed in the utensils used for manufacture may be found necessary.

ALIZARINE.

The alizarine makers of Europe have formed a combination by which two of the continental makers, Messrs. Neuhau and Messrs. Galule, discontinue the manufacture, leaving the production in the hands of the following: Baden Aniline & Soda Works; F. Bayer & Co.; Meister, Lucius & Brunning; British Alizarine Co. Other firms, however, not in this arrangement, are figuring on entering the field now.
A NEW GUTTA-PERCHA.

The English acting-consul for Zanzibar reports the discovery of a new gutta-percha. This substance is derived from a tree which grows principally at Dunga. When tapped with a knife, a white fluid emanates, which when placed in boiling water, coagulates into a substance which in character bears a very striking resemblance to gutta-percha. As the material cools it becomes exceedingly hard, but while soft it can be moulded into any required shape. Although it is not expected to prove equal to the genuine article, it is considered that it will be quite suitable for some purposes for which gutta-percha is at present utilized. It is said to abound in Zanzibar, and will be a very cheap product.

DEXTROSE MANUFACTURE.

It has long been known that wood dissolves in concentrated acid, and that the solution on further dilution and boiling passes into dextrose. One could not start with diluted sulphuric acid, however, as then by-products would form, which prevent the isolation and subsequent fermentation of the dextrose. Alexander Classen has, however, now made the observation that ordinary chamber acid may be applied under certain conditions, and the observation has a more general interest. If one part of sawdust is mixed with ¼ part of acid of 55° or 60° Baume, a greenish mass results, which, on extracting, does not show any sugar. But when we compress this mixture, the reaction begins, and a good deal of dextrose is formed. The pressure is kept on for half an hour, until the mass has turned dark and hard. Four parts of water are then added and the broken-up pulp is boiled for about twenty minutes to complete the inversion. This method thus avoids the necessity of having to use concentrated acid, and there is, further, a saving in acid. The resulting dextrose is described as very good.

NEW USE FOR LIQUID AIR.

A furnace has been designed in Germany, intended to burn low class fuel, such as lignite and peat, and the combustion is intensified by turning the gaseous mixture obtained by evaporating liquid air on the fire. Nitrogen is first set free, after which there remains a gas containing at least 50 per cent. of oxygen. The price of this gaseous mixture is 81 cents per thousand cubic feet.

GRAPHITE AND ASPHALT IN CUBA.

Graphite and asphalt of a very superior quality are worked in a small way in the province of Santa Clara, in Cuba, and there are also said to be indications of petroleum. Amongst other metals and minerals which are known to exist in different parts of the island may be mentioned gold, quicksilver, zinc, lead and antimony, but they have not been sufficiently worked to show whether the deposits are of any commercial importance or not.

DOMESTIC REFUSE AS FUEL.

The caloric value of the average London domestic refuse has been estimated at about 0.99 lbs. of water from and at 212 deg. Fah. per lb. of refuse burnt. It is calculated that the total amount of power per annum which could be obtained from the whole of the refuse in London if burned in suitable furnaces would amount to 133,000,000 brake horse-power hours.

Thompson Kingsford, son of the founder of T. Kingsford & Sons, Oswego, (N. Y.) Starch Co., died on September 7th.

The United States Glue Manufacturers’ Association has its annual meeting at the Waldorf-Astoria, New York.

The Harris Glue Works, Toronto, Ont., have been destroyed by fire, loss $25,000.

D. A. Horton, for fifteen years in the fertilizer business in Northampton, Mass., has died.

M. M. Green has resigned from his position as superintendent of manufacture at the Solvay plant in Detroit.

The government of Greece has prohibited the importation of saccharin, as injurious to health. It is permitted, however, for medical purposes.


In harmony with the vote of the executive committee, the seventeenth annual meeting of the Association of Official Agricultural Chemists will be held in Washington, D. C., beginning Friday, November 16, and continuing over Saturday and Monday, 17 and 19, or until the business of the association is complete.

Latest Additions to Our Brand List.

Nottawat, Nottawat Soap Co., Nottawat, N. J.
Naut only, Nautonly Soap Co., Nautonly, N. J.
White Queen, Gree Bay (Wis.)
Soap Co.
World’s Best, Green Bay (Wis.)
Soap Co.
C. O. D., Chas. W. T. Davies, Y.”
Purgo, O. W. Gallinas, Chicago
Malvern, R. E. York, Warrington’s
Mark, Pa.
New Canary, White & Bigley
Sunnyside, National Soap Co
Tampa, Fla.
NOTE: This list is compiled with the greatest possible care, but the publisher does not assume any responsibility other than to correct and to complete the list according to data obtained from official sources or furnished by the trade. Brands registered in the patent office as trade-marks or labels are given with the name of the party registering same. Brands or names marked * are those which were found to be used by more than one firm or the owner of which could not be ascertained.

* SEE THAT ALL YOUR BRANDS ARE ENTERED IN YOUR NAME.
The Scientific American, a paper known probably to every one of our readers, in a recent issue says: "The first edition of 'American Soaps' appeared in print seven years ago and was well received, and since that time the author has continually collected all the available new information that could assist in making a later edition of the book more complete, and the author has had the benefit of the experience of many of the original purchasers of the book.

There is an extensive literature upon soap making, but most of them are adapted from foreign practice or deal with antiquated methods. The present book cannot be placed in this class. It is an excellent contribution to technical literature by a man who thoroughly understands modern American soap making and is in no sense a compilation. To those who are looking for a thoroughly practical book on soap making of all kinds, with special reference to modern practice, we can heartily recommend this book. It is freely illustrated, and the number of formulas for soaps of various kinds are large. The section devoted to the actual processes used in the manufacture of soaps of all kinds occupies three quarters of the volume. It is an admirable book.

If you have a second-hand machine for which you have no use, or expect to buy a new one if you can dispose of a smaller one now in use, or any similar need, remember that an advertisement in our "For Sale" column will convey that information to one or more looking for just such opportunity—if there is any use for such apparatus at all.
'One' Kind of Formula Fiend.

Somewhere or other there must live somebody who takes a fiendish delight in sending into the world all kinds of nonsensical formulas for making various soaps. When he sees them in print he no doubt enjoys himself; when one paper copies them after another he probably takes himself out and treats himself; and when they are translated into foreign languages to appear in ponderous newspapers in various countries he would take a holiday—if he were not too busy—grinding out new formulas.

For ten long years have we watched these formulas come and go, but under the most promising headlines there were always the most unpromising formulas, and still the stream runs on and on.

Thus we notice in a paper—not a soap paper—which every month contains a wealth of really useful reading matter, a formula for a shaving soap—called "Military Shaving Soap." It calls for five pounds of palm oil soap which is to be melted and to which is then added certain proportions of six different essential oils; it may also be "colored if desired." That by this process a shaving soap could be made that would have anything especially to recommend it, can hardly be said; it may do for a "Military" soap, as the name implies, out in camp where any old soap would have to do. A palm oil soap is a good enough base to make a shaving soap from, but the addition of six different essential oils is not what will make an improved article. And a palm oil soap, even though "colored if desired," is a rather indefinite thing. To look at the formula one would think that the soap were really a small matter if only the perfume were right. All in all the formula is simply useless.

Another formula of the same ilk is, for example, the following for a shaving liquid: White soap 1 lb., alcohol 2 pts., orange flower water 3 pts. The process of manufacture consists in melting the soap in part of the orange flower water, then adding the rest of the latter and the alcohol. Here again it seems that any old soap will do if it is only white. The formula, as it stands, is utterly useless, except for tickling the originator when he sees it in print.

On the other hand such a formula may lead the unwary into useless experiments and loss of money, and altogether the propagation of them is about as useful as is the sudden jerking away of a chair from a person intending to sit down. But both these forms of amuse-
sent will persist in spite of all one can say or do. Our remarks are intended only as a reply to an occasional criticism that we do not publish more formulas than we do.

A fairly intelligent office boy could grind out formulas of this description fast enough to satisfy the most active collector of this class of information, but is that what any reader wants? Real working formulas of actual value are as difficult to procure as the foregoing are easy, to get by the dozen.

A Trade Mark Protective Company.

We recently made some remarks about a company organized in that case in England) for the protection of trade marks. Since then we are in receipt of a letter, addressed to us evidently under the misunderstanding that we manufacture soaps, as follows:


American Soap Co.:

Gentlemen—Our representative will call on you at any time you name and demonstrate to you that this company will register your trademarks, names and labels, and so protect you in the use of them, as to make it impossible for others to supply with an imitation article the demand you have created for your goods.

Yours very truly,

The International Trade Mark Protective Co.

On the letter head of one of our correspondents we recently noticed the words, “Manufacturers of Fine Milled Soaps.” Is this a printer’s error for “milled” soap, or are the buttermilk soaps now made directly by milking?

Under the heading “Resinous Matters and the Soap Industry” our Paris contemporary, Les Corps Gras Industriels, points out that the French consumers are wrong to prefer the cheap, highly filled soaps without resin to equally cheap but far more serviceable resin soaps. To this and other very sensible observations the paper mentioned adds, however, the strange remark: “If we must admit for the present that the crude resin oils are unsuitable for soap making, we have a thousand reasons to believe that if they were carefully rendered neutral, resin oils would have as brilliant a future in soap making as olive oil and cotton oil have enjoyed.” Our contemporary is evidently unaware of the numerous futile experiments that have been made with a view to making soap out of resin oils.

During the past month several letters have reached us addressed to New York and forwarded to Milwaukee from there, and at least two letters intended for us have altogether failed to reach us. To avoid this in future we request all correspondents to remember that all our mail is to be addressed to Milwaukee only, and in no case to New York.

The list of a few subscribers with particularly outlandish addresses (no pun intended) which we published last month awakened considerable more interest than we had expected. After mailing the papers on Monday, the first mail of Thursday morning brought replies from Henry Passolt, of Saginaw, D. D. Martin (Larkin Soap Mfg. Co.), and J. J. Behan (Fels & Co.). After that replies came fairly fast and gradually tapered off again, but, being late, they were “hors de concours,” as they said at the Paris exhibition. Strangely enough, nobody mentioned the privilege we extended of addressing the wrappers to these subscribers for a while. Ahem.

Some of the replies had one or two wrong answers, but in the main the replies received were correct. Some answers were dashed off in an off-hand way, while others were carefully prepared; one, for instance, criticized our spelling of Ahmedabad, and also made sure of a correct reply by locating Johannesburg in the “South African Republic, S. A., with understanding, of course, of present British suzerainty.” Altogether these little evidences how carefully the Journal is read are a source of real satisfaction, and we have been gladdened by hearing from our readers so freely.

One of the writers stated that he should be pleased to hear our authority for any corrections; well, his replies were all correct; but to those who had errors in their replies we would say that our authority in each case is the subscriber himself who may be relied on to know in what country he resides. This, clinched by the country from which the remittance is received, can leave no doubt. A Money Order for $2.50 is a pretty good authority, whether it be issued from France, Switzerland, South Africa, or anywhere else.

And, while speaking of our readers in foreign countries, we will mention a little hobby of ours which has just celebrated a little jubilee all by itself. For some years we have kept one specimen of each of the different postage stamps that came to us on our correspondence, excluding from the collection absolutely any stamp not received on our own mail of the Soap Journal, and keeping only one of each kind. Many a reader has seen this collection in our office, and while it contains no stamps of particular value to the average collector, to us each specimen has a significance of its own, so that there are few collections that we would trade it for. Now, the other day we added the 250th variety of stamp to this collection; it came from Hayti and is one of the largest in size in the whole collection. This little occasion, by the way, would have occurred much sooner but for the fact that at one time of its existence this collection had the distinction of being rifled by a youngster who was an enthusiastic collector of postage stamps and anything else not nailed down.
The International Commission on Atomic Weights has reported against the proposition of changing the standard from $\text{H}=1$, to that of $\text{O}=16$. There are many learned arguments both for and against the change, but the 16 to 1 standard——. But this is no time for that.

In connection with our editorial of last month on the subject of technical education, the information is of interest that the sum set apart by the Prussian Government for aiding in such education in its own country has been increased by 75 per cent. in the last four years, amounting to nearly a million and a half dollars in 1900.

We acknowledge, with thanks, the receipt of two pamphlets from the pen of J. Lewkowitz. One of these is a reprint from the Journal of the Society of Chemical Industry, and deals with the chemical manufacturing industries at the Paris exhibition and the annual meeting. The other is a special reprint from the Jahrbuch der Chemie and entitled "Technologien der Fette und Erdöle."

A soap maker in England had two of his fingers crushed between two barrels last month and died of lockjaw in consequence. We publish this as a warning against the surprising indifference of many people toward injuries of a minor kind, and especially when such injuries occur under conditions which necessarily cause the wound inflicted to be particularly unclean.

How Soap is Sold.

In response to our printed request for suggestions how we can add to the interest of our reading matter, a friend suggested last month that it would interest manufacturers very much to know more about what is going on in the way of advertising soaps to the public.

Acting on this hint, we have looked about in search for striking advertisements and other means employed to attract the attention of consumers to certain soaps, and have succeeded in collecting, to start with, a number of advertisements suitable for reprinting and well calculated to arouse the interest of soap manufacturers as well as of consumers.

Considering the enormous proportions to which the advertising of soap has grown, not a few good items may escape our search unless our readers will send us, on their part, either copies of their own advertisement used, or those of other manufacturers which they may happen to notice in magazines, newspapers, etc.

The objects of such reproduction of advertisements in the Soap Journal are several; for one thing they are interesting reading, for another they show what is going on, and, thirdly, they may give rise to other new ideas. So our readers will help themselves by sending us, for this purpose, any such items coming to their attention; if you don’t want to send your own, send those of your neighbors, and they will do as much for you, perhaps.

Taking the various items just as they come, there is before us a circular issued by the Bell & Bogart Soap Co. of New York. At its head there is the following illustration and inscription:

DEAD CATS, DOGS, RATS AND HORSES EN ROUTE FOR BARREN ISLAND SOAP FAT FACTORY.

Under the above comes the following announcement:

OFFICE OF BELL & BOGART SOAP CO.,
520 and 522 West 24th Street.
NEW YORK.

Good Morning.

Have come to stay. You will, in the near future, receive sample of a novelty in soap and will say it’s a money maker for the retail grocer and a money saver for the consumer. Maross Jenkins.

Following this announcement there comes the following newspaper clippings:

“A bill has been passed by the New York Legislature requiring the Barren Island ‘Reduction Works’ to move away within a year.

“Maross Jenkins has been touched. His thunder has been stolen—or rather, the wind that has hitherto filled the sails of his ads. of ‘Coal Oil Johnny’ Soap will die away into a calm. Its presumed he will seek other reduction works and garbage disposal plants for thunder, to yet terrorize the ignorant and to amuse the literate.”—Soap Gazette and Perfumer.

“Saint Cyr made a series of inoculation experiments from which he concluded:

‘Glanders under all its forms, in all its degrees, in all its conditions, in all its stages, and finally at every instance of its existence, is contagious, and there is always danger of contagion—not possible, eventual, or conditional danger, but certain, actual, and always menacing danger.’”—U. S. Agricultural Department “Year-book,” p. 100.

“Report of the New York Board of Health, for the first three months of this year, shows that 24,363 carcasses of dead animals were sent to Barren Island ‘to be made into fertilizers and soap fats.’”—New York Herald, Sept. 19, 1900.
And finally the circular ends with the statement:

"Coal Oil Johnny Soap" contains no diseased animal fats. What soap do you use to wash the dishes from which you eat? * * *

BELL & BOGART SOAP CO.

The envelope containing the circular just mentioned bears the motto: "Too Good to Float; Not Air, but Soap." * * *

Accompanying the circular is a letter, saying:

Dear Sirs:  

Marress Jenkins, the originator of "Coal Oil Johnny" soap, also its name, is now associated with this company.  

He will endeavor to still improve the quality of this soap; also bring out other novelties in the soap line.  

We believe you will join with us in wishing him success in his new undertaking.  

You may look for a letter from Mr. Jenkins in a few days.  

Yours truly,  

BELL & BOGART SOAP CO.

* * *

The picture of "dead cats, dogs, rats and horses" was taken at the foot of West Thirtieth street, New York City, by one of Mr. Jenkins' employees who had armed himself with a kodak.

* * *

Another circular sent out by the same firm shows a girl in bathing costume, with her skirt blown up by the sea breeze. Under the picture, among other statements, are the words: "We don't sell to department stores. Are you buying of manufacturers that do?"

The other half of the circular is taken up by the following advertisement:

HOTEL COLUMBIA, ASBURY PARK, N. J.  

Sea Water Baths a Specialty.  

Sept. 25, 1900.  

My Dearest Mamma:

The bathing suit you kindly sent me is too nice for anything. They all say I look nice in it. Enclosed find photograph I had taken. Don't I look nice?

When the sea is high, or the under-tow strong, I take a sea water bath at my hotel, as I have "Coal Oil Johnny" soap, which works like a charm in salt, or hard water. I also use it to remove grease or stains.

Last evening the stupid waiter overturned a glass of milk on my new Paris gown. How I did cry! You will not believe that I have cleaned it with this soap. Tell our grocer to get it. I will close with love and kisses for you and papa. Your affectionate daughter,  

LUCILLE.

P. S.—Tell papa to be sure and send me a cheek before Saturday. * * *

The H. & H. Co. is a concern in Des Moines, Iowa, making a carpet cleaning compound. In a circular distributed over the counter of druggists and grocers they make it quite a point to declare that their product is not a soap, "because it contains no animal fat." They describe it as a cleaning compound containing nothing but vegetable matter and oils; no acids nor alkalis, and cleaning "by absorption, not force." They recommend it for use on carpets, lace curtains, laces, straw, fur and wool hats, painted wood, floor, linoleum, dishes, silverware, jewelry, dogs, harness, sores on horses, marble, hair brushes, statuary, in the laundry, and for shampooing the hair, brushing the teeth and for shaving. There follow two pages of directions for use, and then a number of testimonials from chemists, wholesalers, and widely known users, such as the Tremont House and the Chicago Carpet Co. of Chicago, the Plankinton House of Milwaukee, the Des Moines Street Car Co., Palace Car Co., etc.

We have not read through all the testimonials, but one of them caught our eye, being dated 1895, signed R. G. Ingersoll, and stating that "the compound, like Lady Macbeth, says: Out—d—d spot."

* * *

Grocers are distributing also, for the same firm, little looking-glasses which are so curved that, looked into in one direction, the face becomes very broad and involuntarily smiling, and the words are printed to appear under the face: "We use the H. & H. Cleaning Compound." Held at a different angle, however, one’s face becomes very long and the words "I wish we had" appear under the face.

* * *

A short and pointed advertisement is the following:  

Get a bar of Fels-Naptha soap. Do your washing with it.

Say you don't like it. Your grocer returns your money; 5e. FELS & CO., Makers, Philadelphia.

* * *

We now come to a set of advertisements of quite a different style, and select a few specimens from the same by way of contrast, reserving for next month the remainder of what we have so far collected. (To save space we do not follow the "display" of any of the ads., but merely give the reading matter again, and merely reprint the ads. without further comment.

* * *

To start a new business, to enlarge an existing one, to increase profit and make satisfied customers, there is nothing so suitable to do this than to show by an article of universal use your superior knowledge and care in selecting and handling goods.

People think they know all about soaps, but by means of our goods prominent firms in your line of business have demonstrated to their patrons (we have shown them how and will do the same thing for you) how long continued intelligent and honorable co-operation between maker, distributor and user has so decidedly improved the general usefulness of even this
seemingly simple article. Write us for particulars how you can take advantage of our experience.

Our goods are made to fit the variable purposes soaps are meant for. They commence to show their many advantages at a time when the fine appearance of ordinary trash disappears, i. e., with the first use.

Our goods are like good people. The best of their kind are not recognized at a glance; it is a pleasure and a profit to become familiar with them.

The full comprehension of the meaning of the word “Leaders,” as used by our successful firms, is worth a fortune.

“Leaders,” if properly used, are sure to lead to success—they are the keys to open the doors of trade.

Successful “Leaders” must appeal to all classes of people, must remind them pleasantly and frequently (while being used) of the party of whom they were purchased. Such ideal “Leaders” are our soaps if handled intelligently, as fully described in our circulars. Send for them and read them carefully and repeatedly.

(The to be continued.)

The Soap Fat Man.

By August H. Nolting.

“What do you feed your wife on?”

“Soap Fat! Soap Fat!”

You’ve seen, heard, and know him of old,

A man with a tin can, all battered and old,

He traveled the streets of our city, ‘tis told,

And all that you heard, whether warm, whether cold.

Soap Fat! Soap Fat! Did you think he had gone, to regions below,

To which he was relegated, long, long ago?

A man with a smell, his maggots and mold,

As he traveled along, with a voice, it was bold.

Soap Fat! Soap Fat! We missed the old man, with a voice clear and bold,

But his spirit is here, a shiver, a cold,

We dealt with him lately, hum, hum, you’re told,

Do you know the old fellow, with a voice sharp and old?

Soap Fat! Soap Fat! He no longer goes forth, in his jeans as of old,

With a tin boiler, battered, all shiny and old,

In broad cloth with jewels shining with gold,

You’ll find him unaltered, the man of old.

Soap Fat! Soap Fat! If you asked him a say, in his days of old,

All you heard was the cold cry, no gold, no gold.

To-day is the same, he’s unlettered as of old,

For no courtesy shows he, though riches enfold.

Soap Fat! Soap Fat! To you then, my reader, whether friend or foe,

Let not this old man, who discourtesy shows

Be a part of yourself, your letters; sure show,

There is something besides the cry of old.

Soap Fat! Soap Fat!

Borax in Europe.

The greater part of the borax which now enters into European commerce is extracted from borocalcite, a mineral which is formed principally of borate of lime. It is found in great quantities in certain parts of Asia Minor. The process of treatment depends upon the reaction of borate of calcium and caustic soda, which, when added, form borax and carbonate of lime. It has been found that the caustic soda may be replaced by bicarbonate of soda to obtain the same result, the best method being to use a mixture of the two. In the process which is now generally used, the native borocalcite is reduced to a fine powder in a mill. Of the powder, 15 parts by weight are taken, and 60 parts of water, and this is placed in a steam-heated vessel, adding 8 parts of bicarbonate of soda and 2 parts caustic soda, and the whole is boiled for about three hours. The mass resulting from this treatment is passed into large filter presses, and the hot solution which comes off is placed in crystallizing basins, and at the end of a few days the borax may be collected in crystals; these are put to dry in a steam oven. They are often in irregular masses of large size, and these must be broken into small pieces, after they have been well cleaned. The small crystals thus obtained are assorted and put in barrels whose weight is from 100 to 800 pounds. The cake of carbonate of lime which remains in the filter-press is washed with water until the borax is completely extracted, and is then sold to glass, paper or cement works. It is estimated that 100 pounds of borocalcite will yield 100 to 105 pounds of crystallized borax.

Alkalimetry.

A Paper Read by A. Castaing, New York, at the Laundrymen’s Convention.

Four years ago, at our thirteenth annual convention, held at Chicago, I called your attention to the cleansing properties of monohydrate carbonate of soda, which I have always recommended as the best and safest substitute for the destructive caustic soda, and since then I have been watching with a great deal of satisfaction the rapid progress of its introduction in the washroom.

As carbonate of soda is found in the market under different forms and names, I thought it might be interesting for you, gentlemen, to know more about its chemical composition, and also to learn how to determine its intrinsic value, which is based upon the percentage of carbonate it contains. Besides some impurities, such as chlorides, sulphates, silicea, etc., commercial carbonate of soda may contain variable proportions of water, whereas chemically pure anhydrous carbonate of soda does not contain any water, its chemical formula being Na₂CO₃, that is 100 per cent. of sodium carbonate. This compound, however, is expensive and liable to absorb
the atmospheric humidity, and for these reasons it is
more advantageous to use monohydrate crystal soda,
which stands next in strength and purity, since it con-
tains but one molecule of water; thus, its prefix,
"mono," which means in Greek "single." This molecule
of water corresponds to 14.51 per cent. in combination
with 85.49 per cent. of sodium carbonate, as shown by
the chemical formula, Na₂Co₃H₂O.

Ordinary washing soda, also called sal soda, con-
tains 10 molecules of water, its chemical formula being
Na₂Co₃H₂O, which corresponds to 62.93 per cent. of
water and 37.07 per cent. of sodium carbonate. It may,
however, be concentrated by evaporating some of the
water, and this explains why there are higher grades of
washing soda.

Therefore, it is obvious that these different carbons
cannot have, pound for pound, the same cleansing
power, and, consequently, have not the same commer-
cial value; for, if monohydrate at 85.49 per cent. car-
bonate is worth, say, 2 cents per pound, sal soda at 37.07
per cent. is not worth more than \( \frac{3}{4} \) cents per pound. In
other words, the market value of any washing soda is in
proportion to the amount of carbonate it contains, tak-
ing monohydrate as a standard.

I am now going to describe an extremely simple and
exact method of determining the percentage of carbonate
contained in any kind of washing soda, and then I
shall test accordingly a carbonate of soda, which I
bought a few days ago in the open market, and a sample
of which I have here.

With this method an acid solution of a known
strength is required—chemically pure sulphuric or
oxalic acid being generally used. The acid solution I
shall make the test with was prepared by Prof. A. Bour-
gougnon, of the Laundrymen's Laboratory, with 49
grammes of chemically pure sulphuric acid at 60° Be.
and sufficient distilled water to make the liquid mix-
ture 1,000 c. c. at a temperature of 16° C., or 60.8 F.
Such a preparation is called a "Normal Solution," and
100 c. c. of it will exactly neutralize 100 c. c. of a solu-
tion containing 5.3 grammes of chemically pure anhy-
drous carbonate of soda, the strength of which, as stated
before, is 100 per cent. Consequently every c. c. of nor-
mal solution used in making a test indicates 1 per cent.
of sodium carbonate. Now, then, if instead of 5.3
grammes of sodium carbonate one should take a smaller
quantity of it, so as to shorten the neutralizing opera-
tion, say ten times less, or 0.53 grammes, it is evident
that in order to obtain the percentage of carbonate the
number of cubic centimetres of normal solution used
must be multiplied by 10. We may then say:

1 c. c. of normal solution x 10 corresponds to 10 per
cent. of carbonate of soda.

2 c. c. of normal solution x 10 corresponds to 20 per
cent. of carbonate of soda, etc., etc., and, as each c. c. is
divided in tenths on the burette, each one of these divi-
sions corresponds to 1 per cent.; thus, for example, 3.5
c. c. of normal solution used multiplied by 10 corre-
spond to 35 per cent. of carbonate.

I will now make the test. Here is the sample of
washing soda I previously mentioned; it weighs exactly
0.53 grammes. I am going to dissolve it in this glass
of water, and then add to it a few drops of an indicator,
which will show the end of the operation by a sudden
change of color. This indicator is simply a weak solu-
tion of methyl orange in water, and you notice that it
gives a yellow color to the washing soda solution.
I now fill this burette to the zero mark with the normal
sulphuric acid solution, which I shall pour, drop by drop,
into the glass, stirring the mixture all the while
with this glass rod, until the orange yellow color
changes all of a sudden to purple red. There, gentle-
men, the operation is finished. Let us now see how
many c. c. of normal solution have been used. I find
that 7.7 c. c. have been required to neutralize this wash-
ing soda, consequently its percentage of carbonate is 77
per cent., or about 11 per cent. less than the percentage
of monohydrate crystal soda.

Antiseptic Soaps.—Many experiments have been
made recently with antiseptic soaps. It is openly stated
with regard to many that they are antiseptic in name
only. Especially is this the case with sublimate soap,
and this is what one would naturally expect. I have
pointed out before how transitory their properties are,
and when only a 1 per cent. of any antiseptic is used,
it follows as a matter of fact that scarcely any action
could possibly result. It must of necessity be very
strong to exert any action, and the majority of them
do not contain half the antiseptic needed. Their num-
er is increasing so largely, that in prescribing them,
the object aimed at should be well considered, and the
soap used as subsidiary only. True, the latter may be
allowed to dry on, but that is a poor substitute for an
absorbent ointment with an aqueous base, and of a
known definite strength. This leads me to a formula
for an etherial solution of soap which can be made ex-
tempore. It is a very useful one, and can be rendered
antiseptic, not with mercuric chloride, but with the bi-
niodide freshly prepared—that is, mercuric chloride
dissolved in a strong solution of potassium iodide.

B

| Acid oleic | .................................................. | \( \frac{1}{2} \) fl. oz. |
| Spirit vina march | .................................................. | \( \frac{1}{2} \) fl. oz. |
| Liquor ammon. fort. | a sufficient | |
| Ether. methyal to 2 fl. oz. | |

The first two are mixed, and the ammonia added in
order to neutralize the acid; care should be taken not
to add excess. A little heat is evolved, but nothing to
speak of; then add the ether, which may be increased
to three ounces if a weaker solution is required. Petro-
leum spirit or benzene may replace the ether, if neces-
sary. It is undoubtedly very excellent for cleansing
ointment-laden surfaces—far and away superior to any ordinary soap. It is better adapted for a physician's use in examination than for a patient. Any other antiseptic may be used, such as ether-soluble oils, izal, or sanitas. Caustic tar preparations, such as lysol and creolin, are not excluded, but, naturally, should be sparingly used, as an ethereal solution is very penetrating. Liquor Picis Carbonis may be used instead of the spirit, providing it is made without resin soap—that is, prepared according to the Pharmacopoeia. I saw an excellent ichthyl wash made with it, the hands requiring several hours to entirely get rid of the odor.

*Herbert Skinner, pharmacist to the Great Northern Central Hospital, in the British Journal of Dermatology.

Chemical Research:
The address delivered by Prof. W. H. Perkin, Jr., Ph.D., F.R.S., aroused afresh all the old interest in laboratory research. Prof. Perkin's statements that, whilst sound knowledge—of general principles and practice—was essential in chemical works today, originality was an even more important matter, has given the more progressive chemists in the laboratories much satisfaction, says the Oil and Colorman's Journal. The complaint of chemists has been that no opportunities for original research have been afforded them, and that works' laboratory practice has tended to bring chemists into well-worn ruts. Lately, since men like Sir John Brunner and Mr. W. H. Lever have had influence in such matters, research has been made a feature in laboratories in which these gentlemen are interested, and considerable sums have been spent in equipping the laboratories for research and in meeting the working expenses. But this is a matter of comparatively recent development. A very few years ago practice in the laboratories of English chemical works was confined to the simple tests for purity and strength of the articles manufactured, and a chemist who occupied spare time experimenting was regarded as being under the first school-boy enthusiasm for chemistry, and was discouraged rather than encouraged. There were exceptions to this, but the custom was to view experimental work sceptically, if not with positive disfavor. Young chemists who entered works' laboratories full of enthusiasm for the science soon ceased to experiment, and confined themselves to doing that which was required of them, and nothing more. The great development which there has been during the last few years in the manufacture of heavy chemicals, coal-tar products, and in the soap-making industry have led to a partial change in works' laboratory practice as a matter of necessity. It has been known that on the Continent chemists were being kept for research work alone, and that unless English manufacturers kept pace with Continental makers, trade would soon be snatched from this country by those makers. Some of the more far-seeing managers have therefore given their chemists latitude, and have provided for the cost of research, but there is still room for much provision of the kind to be made in connection with English chemical works. Mr. Perkin's remarks have, therefore, had special interest for chemists and manufacturers, and are likely to give an impetus to research work. The remarks were very timely, as the technical classes in Liverpool, Widnes, and other towns in the manufacturing districts of Lancashire and Cheshire are just beginning their winter operations. Prof. Perkin has indicated the line which chemical students must pursue if they are to rise to positions of responsibility in works, and to add useful contributions of their own to chemical science.

Do Terms Mean Anything?
By S. P. Fenn.

That depends: 1st, on the man who buys; 2d, on the man who sells; 3d, on the man who collects.

The man who buys offers a goodly order to the house that will best comply with certain conditions, and these are made to appear almost wholly dependent on quality and price. The "pros and cons" are thoroughly gone over until the resources along both lines are exhausted, and, in all probability, a large portion of the patience of the anxious salesman, who, after all has been said, is unable as yet to have the slightest idea that the order is likely to be his. The buyer is in no particular need of the goods—in fact, "in no hurry whatever—can wait as well as not till Jones, of a competent house, comes along and makes his proposition. It is quite well known that his paints are fairly good and at a less price."

One idea, however, comes to mind. What terms can you offer? Perhaps that will settle the question. What time? What dating? What discount? Sixty days and 2 per cent. for cash are entirely out of the question. The dating should be two months ahead less 2 per cent., or 3 or 4 per cent. for cash in thirty days if dated now. There is really no use in talking, the order cannot go without some special concession. Discount, double, triple or quadruple the regular interest of any bank, or otherwise time given equal to capital in business. The buyer properly considers that borrowing here is easier than at his own bank and at less cost.

This last assault strikes most salesmen at their weakest point of resistance and the buyer knows that he can often win them and there when he can not do so in any other way. Terms do mean something to such a buyer.

The man who sells has perhaps trod the way to this concern until he has grown weary and tired without ever having received his first order. He has fought the battle of quality like a hero and has stood to one price.
for his goods like a veteran of a dozen wars. Inwardly he is thoroughly prepared to throw up his hat at the first sign of a possible order. At last prices and quality have been relegated to the background and he possibly is in such a mental and perhaps physical condition as to meet the fresh assault on terms with dismay, especially when he discovers that possible success or failure of the whole hinges on so small (?) a matter as that.

Surrender or renew the fight is the alternative offered. The first is not in his vocabulary, and the buyer is soon made to feel that his "reserves" are the bravest troops of all. Undismayed, he evinces no surprise, has met such cases before, expects such questions to arise, is prepared to state the position of the house quite as clearly in this respect as in either price or quality of the goods. Surely firmness in business methods as to these last, and looseness in such matters as terms, discount and settlement, would clearly be inconsistent.

Common sense would surely suggest that the terms should never be an offset for price, that bills should invariably be paid at the earliest possible date after the receipt of goods, discount for cash should never be more than about double the current bank rate of interest, and capital in business should never be computed on so flimsy a basis as the long time in payment of bills of purchase.

As to accommodation in payment of any account, he certainly is always glad to consider the question; will favor in a variety of ways, by dividing the payments, one-half before, one-half after, or one-third before, one-third at the proper date of maturity, and one-third after. "One good turn deserves another." The buyer asks a favor, the seller asks one in return. If we grant special discount for cash it is without extending the time of payment; if special time is given it is with note, that the account may be closed. Terms do mean something to such a seller.

The man who collects understands the terms given to mean exactly as they read on the bills of sale, and acts accordingly. Sixty days are never ninety, nor 2 per cent. 3 or 4. When due, a bill is to be paid even as a note. Extension of time, when desired, is worth asking for; when granted it is expected to be with interest even as at the bank. Terms do mean something to such a collector.

The remark has frequently been made that with certain business concerns "terms do not mean anything." Surely the worst be it for such concerns. It matters little to the Sherwin-Williams Co.

Terms certainly do and should mean something just as emphatically as price or quality of goods. Surely none of us connected with this business would have it ever become otherwise. With the buyer, the seller, the collector, all depends upon the man as to whether terms mean anything or not.—The Chameleon.

Sunflower Cultivation.

H. M., Consul-General at Odessa, reports that there is a growing demand in Russia for oil-yielding seeds, particularly for those of the sunflower. Until recently there have been but few mills for expressing this oil, and the growers finding no market at home, sent their seed abroad. Now, however, there are mills in Russia which require large quantities of it, and, what is more, they offer the growers higher prices than those obtainable abroad. With the increasing home demand a falling off in the exports of oil seeds may be looked for in the near future.

Samples of sunflower seeds were recently asked for by the government of Bengal, where it is intended to try them, and the plant will also grow very luxuriantly in East Africa. It may well be found a suitable crop for other British colonies.

In this country it is found that the best results in sunflower cultivation are obtained from a well-tilled soil, with not too much clay in its composition; it should be well ploughed in the autumn and harrowed in the spring. The seed should be sown in April or May in every second or third furrow. One or sometimes two or three seeds should be put into the ground at a distance of two to four inches apart. Broadcast sowing may also be resorted to, care being taken that only one seed falls in every two square feet. The quantity of seed required per acre is 20 pounds; the yield, if good, should be about 1,600 pounds. The yield in oil of seed in husks is 17 per cent., without husks 20 per cent. It may be of interest to add that the seed is much liked as a light refreshment by the poorer Russians; indeed, it is sold in the streets by hawkers to be eaten as nuts are eaten in England.

German Versus French Soap Makers and Perfumers.

A telegram published in the Daily Mail stated that the German soap manufacturers have formed themselves into a kind of ring, and had raised their prices, perfumery manufacturers being likely to follow suit. The primary object of the movement, it was said, was to make plans for contesting French supremacy in the perfumery trade, the German product having already found a footing in Paris.

The Paris edition of the New York Herald, with characteristic enterprise, immediately interviewed a number of manufacturers abroad on the subject. The following are some of the views expressed. They will interest our readers, first, as showing what the French soap makers think of themselves as compared with makers in other countries, and, second, because any opening there may be in France for foreign soaps might well be occupied by those of English manufacture, says Oils, Colors and Dyesaltries.
FRENCH PERFUMER’S VIEWS.

In connection with the above despatch a Herald correspondent made enquiries among the Paris perfumers and soap manufacturers.

The idea of Germans contesting French supremacy in such a matter as the manufacture of perfumery was scorned and regarded as impossible by the majority of manufacturers.

German manufacturers were stated to have no important footing in Paris, and in spite of the increased price of materials used in manufacturing soap and perfumery, prices were not changed as a general rule. There were some exceptions, however.

No one occupies a more prominent position among the perfumery and soap manufacturers in Paris than M. Paul Prot (known generally under the name of Lubin, of which he and his company are the successors). M. Prot is the president of the Syndicat de la Parfumerie Francaise.

M. Prot said to a Herald correspondent: “I cannot understand the despatch in regard to the German manufacturers contesting the position which Frenchmen have won in the markets of the world. They have raised their prices as producers. Then, if that be the case, how can they compete with the French manufacturers?

“What constitutes the principle difference from a buyer’s point of view is that the German article is cheap, and the French article maintains its position, relying on its superior quality. It is true that the Germans are competitors on account of their price, but that is the sole ground of competing. If they raise their prices, then where does the competition come in?

GERMAN EXPORTS SMALL.

“In regard to soap, the Germans do not send a great quantity to the United States. You see, the customs are in the way, and cheap soap cannot compete in the American market as the tariff now stands. The new commercial treaty between France and the United States will not affect to any great extent our business as importers. It is true that some houses in France have been forced to make cheap soap, but that is only in certain lines, and this is owing to the price of materials.

“Now, in France, as in Germany, the question of raising the prices of perfumery and soap was brought before the syndicate for discussion. But it was finally decided that the matter was a question that individual houses had to decide for themselves, and not one for the syndicate to deal with. It is very possible that the German manufacturers have raised their prices to ameliorate their position.”

M. Darrasse (Coudray & Co.), secretary of the Syndicat de la Parfumerie Francaise, said: “In France the Germans sell some materials for the manufacture of soap, but only in cheap lines. The French manufacturers are not affected by any competition which the German manufacturers yet have gone into, and the French manufacturers still hold the supremacy for exportation, something like fifty million francs per annum for perfumery alone. But there is always danger in competition—not only by Germany, but other countries as well. The United States receives from five Paris houses alone more than ten millions of francs worth of goods. But the great competition in the United States is not in connection with France or other countries—it is the Americans themselves who are the most important competitors. The Germans do a great deal of business in certain lines in the far East, but it is only in cheap wares. Formerly French manufacturers were only known in the costly articles and qualities of perfumery, but now a change has set in, and there are some houses which follow the movement and demands of the general market.

GERMAN MANUFACTURER’S EXPERIENCE.

“One of the most important German manufacturers who came to France for the Exposition was amazed to find that a French house alone could turn out, on paying lines, as many as ten million boxes of perfumed vaseline for 25 francs the thousand. For the past six or eight months all material has gone up in price, and some manufacturers have raised the prices to some extent. Most of the material is produced in France, but some articles, like lard, come from abroad. One of the items coming under the head of ‘material’ is glass. This has increased in price, which affects trade to some extent. You will find that German chemists are very clever in imitating perfumes of natural flowers, and in this way they can make cheap articles.”

M. Guerlain, of the Rue de la Paix, said: “There are only two houses in Germany known for perfumery, but they do not touch the French trade. I do not think the German manufacturers can influence the French trade in cheap lines of soap either in Paris or Marseilles. In Germany they have a school of soap making, and the industry is an important one. It is possible that German exportation of soap to America may compete with French manufacturers in cheap lines; but they cannot invade France in the way of perfumery or soap.”

At the Maison Legrand (Oriza), place de la Madeleine, MM. Raynaud and Haas said: “French perfumery takes a very important place in the United States, but you cannot say the same of German. German products in this respect have found no place whatever in Paris. On account of the high tariff the French article is always to the fore in the United States in comparison with the German products, because French merchandise in this respect is superior.”

Messrs. Roger and Gallet are well known exporters to the United States. Here, the manager said, “German manufacturers can do something in the way of exportation, but up to the present they have not succeeded in accomplishing anything serious to affect our trade. Al-
though, perhaps, there are houses in Paris which buy in Germany cheap lines to export to South America, I know of none which do so for exporting to the United States. There is one Frankfort house which is represented in the United States, but I do not think it is doing any great business.

AMERICAN COMPETITION.

"In the United States you have three American houses which absorb a great deal of business, which, I suppose, would otherwise be done with French houses. The proposed Franco-American treaty will not affect the French perfumery trade very much."

M. V. Klotz (Pinaud), place Vendôme, was not apprehensive at all as to the French market being invaded by the German manufacturers in any respect. He said: "In France there are certain prices for good which do not change. It is impossible to say whether in a year or so from now they will change. Prices for coal, soda, grease, etc., had, however, increased. French houses are not yet affected by outside competition. If the German manufacturers send soap to America that does not affect the French trade."

At Messrs. Atkinson's Paris branch, the manager stated that German competition, whatever there existed, did not affect English houses, or, at all events, the house which he represented.

M. Saint-Amand, the well-known exporter of the avenue d'Opéra, said: "Perfumery is a speciality of France. They make it in America, but not yet in that state of perfection that is found in France. In cheap lines German soap manufacturers may be able to compete for exportation, but in the finer grades France leads the way."

COMPETING IN CHEAPER GRADES.

Mme. Blanche Leigh, of 4 rue le Paix, said, however: "We have heard about German competition, and the report is correct, for they are competing, but the German soaps can never equal in quality our French article. This is an age of revolution in soap-making, and the Germans have recognized this fact. The Germans can undersell all the French perfumers, for they manufacture on cheaper lines than we do, and can afford to undersell us."

"Here is a case in point: Look at this nice little ornamental soap box. This is made in Germany, and I can save money by importing them in connection with my business.

"In France all the materials for soap-making are dearer than formerly—I should say about 22 per cent. all around. Lard, on June 19, was 124fr. per 100 kilos. This means ruin for those using it. Oils, at the present time, are 117fr. per hundred, and alcohol costs 3fr. 90c. in Paris, while outside the fortifications it costs 3fr. Oil outside Paris limits is, of course, cheaper, being 73fr. per hundred. These prices for material affect everyone in the business, and as my factory is at La Villetat, I have decided to move outside Paris into one of the suburbs."

"While materials are higher, the retail price of soap, however, is the same, and my profits are less than other manufacturers, since I have been determined to put an absolutely pure article on the market.

"Here is where the Germans can compete with cheap rubbish in their export trade; but, on the other hand, they cannot make an article de luxe at a moderate price. The Germans are not willing to turn out an absolutely pure article. Do you know of any other manufacturer besides myself who uses the same lard for soap as the pastrycook uses for his wares? The only way to compete with the German manufacturers is to manufacture a perfectly pure soap, and not be so anxious to make large profits. The public will do the rest as regards success."

Throne Toilet Soap.

Messrs. Edward Cook & Co., Limited, have sent us a sample of the new soap they have introduced under this name. Messrs. Cook & Co. presented to the National Bazaar, which was instituted for the purpose of raising a sum to relieve the sufferers from the war, a large quantity of a specially prepared soap put up in distinctive boxes and wrappers; no less than 2,280 boxes were disposed of at the stall presided over by Lady Dorothy Coventry, the total sum realized being nearly £400. The Princess of Wales accepted a solid silver handsomely engraved casket, containing the soap, each tablet wrapped in a hand-painted satin wrapper, and twelve hand-painted presentation boxes were also accepted by the titled organizers of the bazaar. The soap having proved such a great success, Messrs. Cook & Co., to meet the demand which has arisen for it, have determined to place it in the market under the name of "Throne" Toilet Soap. Each tablet is perfectly pure and delicately scented; it is handsomely wrapped, and the boxes in which it is contained are attractively got up.—Exchange.
An Interesting Open Correspondence.

We find the following in Oil, Colors and DYESATERIES, London, England:
To the Editor of "Oils, Colours and Drysalteries."

Sir—l beg to enclose copies of correspondence which has passed between me and Messrs. Lever Brothers, Ltd. As it is a matter which concerned the life or death of the retail trades, I venture to ask you to find space for its insertion in your valuable journal, and I solicit the opinions of your readers upon the questions at issue. I purpose replying to Messrs. Lever Brothers at an early date, using your valued columns for publication of my reply, if you will permit me to do so. I am, sir, yours faithfully,

PHILIP BUCK.

Sept. 22, 1900.
450 West Green Road.

South Tottenham, Sept. 18, 1900.

Messrs. Lever Brothers, Ltd., Birkenhead:

Dear Sirs—Your traveller told me to-day that you are sampling this district with "Lax," and, in soliciting an order, he stated that it shows a profit of 33¾ per cent. Without traversing this statement, the truth of which I doubt, may I say that I do not mean to stock the article, until you have yourselves forced me to do so by creating a public demand too strong for me to resist. A trader near me tells me that he sells three penny packets for 2½d., which at once brings the profit to the level of that of ordinary Sunlight. If I remember rightly, you have, before now, given a "go" to the trader, to induce him to push your goods. You will correct me if wrong, but I believe you increased the price, both of Lifebuoy and of Unscented Sunlight, as soon as the traders had made them "catch on" with the public. The profit on your goods must surely strike you as being too small for an honest trader. Let us see what sort of a living can be got out of ordinary Sunlight, taking as a basis a quantity to equal the annual returns of a typical grocer's shop:

<table>
<thead>
<tr>
<th></th>
<th>£.</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Say 1,500 gross at 2½d. per bar, returns</td>
<td>2,250</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cost of same</td>
<td>2,006</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Gross profit</td>
<td>243</td>
<td>15</td>
<td>0</td>
</tr>
</tbody>
</table>

BUSINESS EXPENSES.

<table>
<thead>
<tr>
<th></th>
<th>£.</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent, say</td>
<td>50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rates, insurance, stationery, gas and sundries</td>
<td>40</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Assistance, say 30s. per week</td>
<td>78</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Balance for living (!)</td>
<td>75</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Capital sunk in fixtures, shop blind, utensils, say</td>
<td>50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Capital in circulating, say</td>
<td>150</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

£200

So that the actual wages of the shopkeeper, for handling 216,000 bars of Sunlight, dividing wrapping, giving change, finding £200 free of interest, and wearing a year's life away, amount to £75!

The addition of 5 per cent. of the profit upon this turnover would convert starvation into tolerable existence. Your replies to Grocers' Associations, so far as I have seen by the "Grocers' Gazette," show that you do not interfere with the liberty of any man to starve if he is willing to do so, and so reduce his competitors to the same level, and you appear to totally disregard the rights of distributors, although you have, in your bonus scheme, all the necessary machinery to enforce a fixed price. In my view, the distributor has more labor, more risk, and proportionately heavier expenses than the producer, and he therefore should receive at least a living profit. I submit that your goods do not show such a profit. I have left your bonus out of the calculation because you may at any time cease to give it. If a trader works on insufficient profits he must at some time fail to pay his rent, or his trade debts, or his assistants, or himself. Ultimately he must lose his capital and come to grief. Your cash terms will in any case secure you, but it is clearly wrong, if by paying you too much some of the other parties interested in the business are compelled to lose. It is my duty, as a matter of self-respect, to refuse to labor without proper remuneration, to decline to find capital without fair interest; and as a matter of business integrity, I must oppose anything which is likely to cause my credit to suffer, to cause loss to my creditors, my landlord, or my employees; and, last but not least, it is wrong for me to trade on such terms that I cannot provide honestly and decently for my family. For these reasons I must refrain from recommending your goods, and especially your new goods, which will increase my stock, absorb more capital, and add to the list of goods already selling without fair profits. I do not belong to an association, and perhaps I am alone in these views, but on receipt of your reply, I propose, with your permission, to send copies of this correspondence to such trade papers as I think fit.—I am, dear sirs, your faithfully.

P. Buck,

450 West Green Road.

Port Sunlight, Cheshire, Sept. 21, 1900.

Mr. P. Buck, 450 West Green Road, South Tottenham, London, N.:

Dear Sir—We have your letter of the 18th inst., and thank you for going so fully into the question about which you write. As to stocking Lax, we have, of course, always recognized that the trader himself is the best judge of what it will pay him to sell, but as you say you doubt the truth of our representative's statement, we beg to assure you that he is within the mark, and at present cost the retailer's profit on Lax exceeds
If a trader near you is selling these 1d. packets of Lux for 2½d., it is a matter of regret, and we should be pleased to use our best endeavors to persuade such trader that it is not to his interests any more than our own to sell at such a price. You will pardon our remarking in this connection that the fact of your neighbor cutting down the price to 2½d. for three 1d. packets rather tends to show that in the opinion of some of our customers too wide a margin of profit has been allowed, or there would not be this attempt to reduce it.

As you kindly ask us to correct any misstatement in your letter, we have pleasure in saying that so far from having advanced the price of Lifebuoy Soap “as soon as the traders had made it ‘catch on’ with the public,” the reverse is what happened. After the success of Lifebuoy had been established we actually reduced the price 4s. 9d. per gross, and sent credit notes for the difference to every customer who had purchased within twelve months of the reduction. We are not aware of any customer having taken exception to what was then done.

With regard to Unscented Sunlight, a small advance was made some time ago, but certainly not to the extent that was warranted by the rise in the price of raw materials and the increased cost of production, and we venture to say that the majority of our customers would not have been surprised at a further advance in view of the much larger advances that have taken place in most other soaps.

There are several other interesting points in your letter that we should like to touch upon, but as you have our entire permission to publish the correspondence in full if you think fit, it is necessary to have some regard for the valuable space of the trade papers.

It would, for instance, be easy to show that on the basis you figure on, the conclusions at which you arrive are erroneous. We understand you reckon the whole turnover of £2,250 as derived from selling Sunlight only. If so, we think you will find on going closely into the matter that Sunlight Soap is such a ready seller, it can be purchased in such moderate quantities on best terms, and entails very little work in handling, no work at all in weighing, cutting, or wrapping, that it would neither be necessary to incur an expense for rent, rates, etc., of £90 per annum, or to invest capital to the extent of £200, or that the services of two first-class men should be employed to hand the before-mentioned quantity of Sunlight Soap over the counter.

With regard to our graduated profit-sharing bonus, we find some difficulty in following your argument. You say, “I have left your bonus out of the calculation because you may at any time cease to give it.” Is not this like a man with an income of say £500 a year from an investment in railway shares saying that in reality he has no income at all, because at any time the dividends may cease owing to a strike or some other unforeseen difficulty? Our bonus scheme has been in operation nine years, during which period we have paid over to customers out of our profits no less a sum than £340,000. Are we now to believe that our friends have never taken this large sum into consideration? With all due deference, we hesitate to accept such a conclusion. As your letter infers, the bonus arrangement is entirely voluntary on our part, but surely it is not to be considered of less value on that account! As a matter of fact, the bonus alone on the transactions you have taken as an example would nearly equal the net profit shown. It would pay the rent you have mentioned, and leave a considerable balance, or would pay for the services of a first-class assistant. It must therefore be worthy of at least some consideration.

In conclusion, our desire is that the profit to traders on our specialties shall be as large as practicable, and you may always rely on our doing everything possible to that end. With best wishes,

Yours truly,

(Lever Brothers, Ltd.)

M. Harvey,
Managing Director.

The Peanut Oil Industry.

The American consul at Marseilles, reporting lately on the peanut oil industry, observes that more oil is extracted in Marseilles from oleaginous seeds than in any other place in Europe, and the industry is beginning to flourish again after the depression produced by the introduction of American cottonseed oil and the failure of the seed crops elsewhere. As no special machinery or process is employed in the manufacture of peanut oil, as distinct from other oil seeds, the manufacturers crush archides, or peanuts, when the market is favorable, but not to the exclusion of other seeds. Last year over 71,000 tons of peanuts reached Marseilles; at Bordeaux a large quantity of West African nuts of good quality is crushed, and there are some mills in the north of France, but Marseilles stands pre-eminent in the industry. The nuts are scarcely ever ground whole, as this produces inferior oil and cake of little value. In fact, a large quantity of the nuts arrived shelled, after which the inner or red skin is removed as much as possible by processes resembling those for cleaning wheat in flour mills. These are described in detail in the report. After the kernels have been separated and cleaned they are ground, and, enveloped in strong fibrous mats, are subjected to hydraulic pressure, and the clarifying of the oil done by means of filters and Fuller's earth. The husks are sometimes ground with the cake and form an inferior food for cattle, and when coal is dear they are used as fuel in the oil mills. The crude oil runs out
thick and turbid, and must be filtered to make it a bright yellow, while if it is to be water-white in color it must be treated further with animal black and Fuller's earth. It is stated that no alkaline lye is used, but the art is somewhat secret. The sources of supply are Bombay, Mozambique, and Senegal. In some years the African supply is wholly swamped by the supplies from India, and at one time it seemed that Africa would be unable to compete permanently with India. But though the latter still sends large quantities of nuts to Marseilles, it appears to be using more and more of its crop at home, so that while the imports between 1890 and 1895 were mostly from India, in 1896 to 1899 they were mainly from Africa. In the earlier years of the decade American cotton oil menaced the crushing trade of Marselles with extinction because of its low price, but apparently new demands for oil have arisen, for the production in Marseilles has returned to its former average, and prices also, after serious derangements, have resumed their old level. There has been a world-wide decrease in the amount of animal grease, while America is consuming her own cottonseed oils in vastly increased quantities, and the consequence is an increased demand for vegetable oils. Although the production of the nuts in Africa is enormous, no improvement in the mode of cultivation or the price is anticipated for years to come. The soil is readily exhausted by the crop and nothing is done to restore its virtue; labor, though cheap, is thriftless and hard to obtain when wanted, and transportation is defective. The uses of the oil are numerous; it is described as "the most polymorphous of all oils, adapting itself to all purposes, including nutrition, lighting, lubrication, and blending." It is the most difficult of all oils to detect when adulterating olive oil, for its chemical reaction is white. The best qualities are, in fact, used for the table, either pure or mixed with olive or sesame oil; as an illuminant it gives a soft, white light; when neutralized it is much esteemed for lubricating, and is always preferred to cottonseed oil. It is also largely used in the manufacture of soap, and is the characteristic component of the famous Marseilles white soap.

Schemes for Distribution of Prizes by Chance, Etc.

Office of the Ass't Attorney-General for the Postoffice Department, Washington, D. C., Oct. 1, 1900.

To all Postmasters:

Subsequently to the issuance by this office, under date of Sept. 11, 1900, of a circular letter addressed to all postmasters, setting forth the substance of an opinion rendered by the attorney-general on August 31, 1900, in which he advised that certain chain coupon or chain investment schemes were "enterprises offering prizes dependent upon chance," and directing postmasters to refuse to accept for mailing all matter relating to such schemes, under the provisions of the Act of Sept. 19, 1890 (1 Supp. R. S., 503; Sec. 331, P. L. & R. of 1893), numerous schemes involving the main features of the chain coupon system, but with conditions annexed, were submitted to the postoffice department for advice as to whether they were comprehended within the classes of schemes excluded from the mails in pursuance of said opinion. Four schemes, which were regarded as representative of those so submitted, were forwarded to the attorney-general for a supplemental ruling as to whether they were, in his opinion, "enterprises offering prizes dependent upon chance," or were, in view of the annexed conditions, to be differentiated from the classes theretofore held by him to be, in his judgment, in violation of law. None of the schemes so referred to the attorney-general for additional advice were of the compound character designated in the circular of Sept. 11 as No. 1. They are, however, very similar to the class denoted in said circular as No. 2, the characteristic features of which are as follows:

A card or coupon is purchased for a certain amount, which coupon is to be returned to the promoter of the scheme with a stated amount of money, for which the sender will receive ten (or any other number) similar coupons or cards. These he is to sell or give away to ten persons, who in turn are expected to return them with the stated remittances. When these ten cards have been returned to the promoter in this manner, the person who originated this chain of ten coupons or cards is entitled to the prize offered.

Schemes of this character were held by the attorney-general to be "enterprise offering prizes dependent upon chance," and under the circular letter of Sept. 11 postmasters were instructed to refuse to accept for mailing matter relating to all such schemes.

In an opinion dated Sept. 27, 1900, upon the four representative schemes recently referred to him from this department, and which are set forth below, the attorney-general holds that said schemes, as well as others embracing like features and conditions, are in his judgment to be differentiated and excepted from the classes of schemes in respect to which his former opinion was rendered:

(1)

A ticket is sent, for instance, to A, reading as follows:

20c. Ticket A. Book No.

THE * * $3 SHOE.

How to obtain a pair of Fine Shoes for 20 cents.

Return this ticket to the * * * Shoe Store, * * * with eighty (80) cents, for which we will issue to you a book containing four tickets. Sell these four tickets for 20 cents each, thereby getting your eighty cents back. Collect 80 cents from each person to whom you sell a ticket. Send or bring this book to
us with 80 cents, for which we in turn will issue a book
of four tickets for the purchaser. When you have sent
each of the four tickets to us in this way, you can readily
see that we will have received $3.20, and you are then
entitled to a pair of * * Men’s Shoes, or a
pair of * * Women’s Shoes, equal to many $5
shoes in the market, and they cost you but 20 cents.

On the reserve side of the ticket is the following:

SPECIAL NOTICE.

This book is sold with the positive understanding
that should we at any time wish to discontinue issuing
coupon books, or should you wish to discontinue selling
the tickets, it can be done, we placing to your credit 25
cents for each ticket which you have not sold, upon return
of same to us. The same to be applied as part pay-
ment on any pair of * * shoes which you select
from our catalogue, upon your paying the difference
between amount of your credit and the price of shoes.

On the face of each coupon is printed:

"Duplicate. 20c. Series.
THE * * SKIRT CO.

How you can get an $8 * * shirt or waist, made
to measure, any color taffeta, for 20 cents.

Fill out blank on back and return this coupon with
$1 postal or express order, for which the company will
issue you a book of five coupons. Sell the five coupons
for 30 cents each, thereby getting your $1 back. Each
of those to whom you sell a coupon sends in purchasing
a book of five coupons for themselves. When your five
coupons have been sent in to us in this way, we have
received $5 (the wholesale price), and you are entitled to
a TAFFETA SILK WAIST OR SKIRT, made to
measure.

In case any person to whom you sell a coupon fails
to send same in promptly, you may ask for a duplicate
and subscribe for the books yourself, with the privilege
of reselling at your leisure, thus avoiding delay or any
forfeiture of the amount that is placed to your credit on
account of books issued to your subscribers.

If a coupon has been lost or destroyed, write us,
giving number, and we will send you a duplicate.

On each of the tickets is the following:

25c. Ticket A. Book No.
THE * * SHOE CO.’S $1 SHOE.

How to obtain a pair for 25 cents.

Return this ticket to the * * Shoe Co., * *
with $1, for which we will issue you a book containing
four tickets. Sell these four tickets for 25 cents each,
thereby getting your $1 back. Each person to whom
you sell a ticket sends or brings it to us with $1, for
which we in turn issue a book of four tickets for them-selves.
When each of the four tickets have been sent to
us in this way, you can readily see we will have $4, and
you will then be entitled to a pair of * * shoes,
* * * equal to many $5 shoes in the market, and
they cost you but 25 cents.

On the reverse side is this:

SPECIAL NOTICE.

If a ticket has been lost, we will send duplicate free
of charge, upon condition that you give number of same.

If you have sold two tickets, and they have been
cashed in to us, and you can not sell balance, return
same to us and we will redeem them at 25 cents each so
you will not be out anything. One of these tickets, with
$1, must be sent to us before we will issue a book.

On each coupon is the following:

"How to get a $5 Rug, 36x72 in., for 30c."

Purchase a coupon from a coupon-holder for 20
cents; return the coupon to me, 90 cents enclosed, for
which I will issue a book of four coupons. Sell the four
coupons for 20 cents each, thereby getting in return 80
cents of your money. Each of those to whom you sell
coupon, send it to me with 90 cents, and I will issue a
book of four coupons to each of them. When the four
coupons have been cashed in to me, you can readily see
that I have received $3.60, and that you are entitled to
the rug, which has cost you only 30 cents.

SPECIAL NOTICE.—If you have sold one coupon,
and it is cashed in, and you can not sell the balance, re-
turn same to me and I will send you a 90-cent rug
(good size); if you sell two coupons, and they are
cashed in, you are entitled to a 92.50 Moquette Rug
(size 28x64), which costs you 50 cents. If you fail to
sell a coupon, you are not entitled to anything. One of
these coupons with 90 cents, must be sent to me before
a book will be issued.
This circular is not intended to alter the instructions contained in that of Sept. 11, and all schemes covered by those instructions are to be treated accordingly. But, in pursuance of the supplemental opinion of the attorney-general of Sept. 27, postmasters will differentiate from the class of schemes referred to as No. 2 in said circular, schemes of the character—that is, containing like provisions and conditions—of those set out above, and accept for mailing matter relating to such latter schemes.

Postmasters will communicate the substance of this circular to all persons and concerns doing business at their respective postoffices, whose operation of chain coupon schemes has been interrupted by the issuance of the circular of Sept. 11, 1900.

Harrison J. Barrett,
Acting Assistant Attorney-General for the Postoffice Department.


The Occurrence of Fuller's Earth in the United States.

By Dr. David T. Day.

Characteristics.—The only classification of clays which suggests itself by which definite place can be given to the variety called fuller's earth would be based upon the consideration of the relative proportion of total bases, such as alumina, iron, calcium, magnesia, alkalies and sillica, together with the proportion of water in the sun-dried clay. Very frequently the clays which have a large proportion of total bases and silica usually contain more than the average amount of water. For example, kaolin, containing from 40 to 50 per cent. of silica, and from 30 to 40 per cent. of total bases, will frequently contain from 10 to 15 per cent. of water in the sun-dried material. Where, however, the percentage of silica is very high, say 70 per cent., and the total percentage of bases less than 30, the percentage of water is usually quite low. Fuller's earth appears to be an interesting exception to this rule, as its chief chemical characteristic seems to be a high percentage of silica, which, though varying through a considerable range, frequently reaches 65 to 70 per cent., but with a total proportion of bases as low as 20 per cent., and seldom higher than 28 per cent., while the percentage of water in the sun-dried material will range easily from 15 to 25 per cent. Approximately half of this water can be driven off by prolonged heating in a waterbath; the remainder is only to be driven off at a much higher temperature. These clays usually stick to the tongue more than other clays. When placed in water they show no plasticity, but fall apart in gelatinous flakes.

Such clays have been used for very many years, even in this country, for extracting from newly-made cloth the oils used to render the wool pliable in weaving. From this fulling process the clay has taken its name.

Silliman refers to a deposit near the town of Kent, on the Housatonic river, in Connecticut. He states that "a fuller's earth is a clay usually soapy in its feel, very absorbent of grease and oily matters; fine in its texture, so as to present no parts that shall be large and harsh enough to injure cloth or wool, mechanically, by rubbing; it should fall to powder easily in water, so as to diffuse itself through that fluid and easily mix with it and with the stuff to which it is applied. The fuller's earth of Hampshire, England, so much celebrated, is of a greenish-yellow, tolerably firm, crumbles easily in water, receives a polish from the finger nail, and is very powerfully detergent. This is, after all, the important criterion by which to distinguish fuller's earth: if it removes grease with avidity, crumbles easily in water so as to diffuse itself readily, and yet is not so coarse as to wear the fiber, it is fuller's earth. The subject is of some practical importance to this country on account of its woolen manufactures, which, although checked for the present, must eventually rise and prevail. While they are of small extent it may be better to use soap, but in very large establishments fuller's earth from its cheapness (provided it can be abundantly obtained) is very desirable.

"With respect to the existence of fuller's earth in the clay of the Kent iron bed it appears very probable, and some of the specimens appear very like the Hampshire earth, but experiments alone can decide."

This visit of Silliman was in 1820. William Thompson found clay in a fullonica excavated at Pompeii, which was pointed out to him as the soap which the ancient inhabitants used. This was used not only by the washers and dyers, but frequently in the ordinary houses. In composition it has the general characteristics of fuller's earth.

One of the first uses for the white kaolin at Woodbridge, N. J., was for this same purpose of fulling cloth in the absence of real fuller's earth, as shown by note on page 1 of the report on the Clay Deposits of New Jersey, Geological Survey of New Jersey, in 1878.

But the name fuller's earth has usually designated the material obtained in Surrey, England. This has been the chief source of supply for English cloth manufacturers and for export. Various attempts have been made by mineralogists to find in fuller's earth some definite mineral substance which could be referred to as distinctive and which could be found in all varieties. Thus, Dana speaks of it as being in part kaolin and partly the hydrous silicate smectite, but this has been of little value in the identification of other specimens. Even to-day the name fuller's earth is applied to any form of clay which has the characteristics mentioned above, and is capable of absorbing liquids in considerable quantity, and particularly when it will act like bone-black in taking out the coloring matter from certain oils.
Developments of the Industry in the United States.
—For many years either soap or fuller's earth was used as a detergent in fulling cloth, but with the increased use of cottonseed oil English fuller's earth came to be used to decolorize such vegetable oils and also lard oils. This increased the importation of fuller's earth very markedly, as shown in the table appended.

In 1893 good fuller's earth was discovered in the United States quite accidentally. At Quincy, Fla., an effort was made to burn brick from the clay found on the lands of the Owl Cigar Company; the effort was a failure, for fuller's earth when burned exfoliates instead of forming a coherent mass, suitable for bricks. An Alsatian cigarmaker employed by the company called attention to the close resemblance of this clay to the German fuller's earth. As a result, the material found and the industry was developed. This use quickly spread as a substitute for, though more expensive than bone-black, filtering various mineral oils, and it is principally for such purposes that the American earth is now used, the English earth being preferred for cottonseed and lard oils. The development of the industry in this country was sufficient to develop a widespread interest in the search for fuller's earth, and thousands of samples were examined by the chemists of various consumers. Most of the clays examined proved worthless, yet enough good samples were obtained to show that the region of the west and north of Quincy contained many other available deposits if needed. The search extended over the United States, and deposits were soon found in Virginia, North Carolina, Georgia, at various places in Florida, Indian Territory, Nebraska, Colorado, New Mexico and South Dakota. A small industry has been developed in New York state, but, with this exception, the supply continues to come from the developed deposits at Quincy, Fla. The reason for this is the great variation in quality of the earth from different deposits. That from North Carolina and Virginia is more or less sandy; that from Georgia is almost identical with the Quincy earth, but is not more favorably located for shipment. All the other deposits are less accessible, except one near Tampa, which promises soon to be a large source of supply. Curiously enough, the material produced in Florida bears little outward resemblance to the earth which has long been imported from England.

The earth discovered in South Dakota is almost the exact duplicate of the English earth in every respect, and will no doubt become a valuable substitute for it.

Fragments of chert are common in beds of fuller's earth, and in Georgia fuller's earth passes almost indistinguishably into layers of chert, with nearly the same color and fracture. At Ballert Point, near Tampa, Fla., the fuller's earth contains many oyster shells, bits of coral, etc., all entirely changed to chaledony. This leads to the suggestion, as to the origin of this earth, that is probably ordinary clay which has received from interfiltering solutions an additional supply of silicie acid which has sometimes combined with the clay, and occasionally has been deposited as chert.

The conditions of occurrence of fuller's earth and the manner of preparing it for market are quite simple. In Florida it may be found outteropping at the foot of slopes around the edges of the swamps. The clays appear to occur in large, shallow basins in the swampy tracts characteristic of the region around Quincy, and many other parts of the state. Usually there will be one or two feet of surface soil, then two to six feet of mottled, plastic clay, then the fuller's earth in layers varying in thickness from two to 12 feet, then a layer of sand mixed with fuller's earth, which is usually persistent for a considerable depth below the deposit. Occasionally a second deposit of fuller's earth, bluish in color, will be found below the first, with a layer of sand intervening. Up to this time the very simplest methods have been used in preparing it. The overburden of sand and worthless plastic clay is removed and the wet fuller's earth chopped out in thin slices with mattocks and allowed to dry in the sun for several days. By this means the wet, greenish clay will lose perhaps 50 per cent. of its weight, turn to a creamy white color and become very brittle and easily split into thin layers. It then contains 15 per cent. of its weight of water, which can only be driven off above the boiling point. Lately artificial dryers have been introduced and an arrangement for grinding the earth to the requisite fineness.

The process of levigating the earth, which is quite common in Surrey, England, is not used in this country at all. This Florida earth, ground to 60 mesh and finer, is used almost entirely as a substitute for bone-black in filtering lubricating oils, although its use has extended to some extent for the lightening of the color of cottonseed oil. But for this latter purpose the practice is still universal of using English fuller's earth which has been taken out by the ordinary method and then washed in long, narrow troughs, very much like hydraulic sluice boxes, allowing quite a large percentage of the material to settle out as sand and displace the lighter material which goes off into the settling tanks, in which it is finally dried and sold in the resulting lump form. The English earth has not proved any more suitable for the refining of mineral oils than has the American earth for use in vegetable oils. The common practice with the mineral oils is to dry the earth carefully after it has been ground to 60 mesh, and fill it into long cylinders, through which the crude black mineral oils are allowed to percolate very slowly. As a result the oil which comes out first is perfectly water-white in color and markedly thinner than that which follows. The oil is allowed to continue percolating through the fuller's earth until the color reaches a certain maximum shade,
when the process is stopped, to be continued with a new portion of earth. The oil is recovered from the spent earth.

With the vegetable oils the process is radically different. The oil is heated to beyond the boiling point of water, in large tanks, to which from 5 per cent. to 10 per cent. of its weight of fuller’s earth is then added, and the mixture vigorously stirred for twenty minutes and then filtered off through bag filters. The coloring matter remains with the earth, leaving oil of a very pale straw color, provided the original cotoneen seed had been sufficiently well refined by the ordinary process to admit of this, and provided the operation had been conducted with sufficient care. Perhaps the most remarkable feature of this filtration by fuller’s earth is the different rate of speed at which oils of different density, in such a mixture of oils as is found in an ordinary crude petroleum, will percolate through, with the result that the first oil which makes its appearance is not only very much lighter in color, but markedly lower in specific gravity. In fact, by this process separations can be made which are quite comparable with the results of fractional distillation. There is no question but that a method is here suggested for the scientific investigation of petroleum which chemists will not be slow to utilize, and, while it is slower and not so sharp in the fractions yielded, it is perfectly evident that the oil undergoes little change due to the process of separation itself, as is almost always found to be the case in fractional distillation.—Journal Franklin Institute.

The Nicaragua Vacancy.

Filadelfia, Nov. 1, 1900.

Dr. Henry Cathman, Editor, Milwaukee, Wis.

Dear Sir: I am in receipt of the letters forwarded by you. Please accept thanks for your courtesy in the matter. I am forwarding same to my correspondent in Nicaragua.

Yours respectfully,

Cassius A. Green,
Consulado de Nicaragua en Filadelfia.

Around the Soap Factories.

News items sent us by our readers will find prompt attention in this column.

The Buckeye Soap Co. is now represented in Boston by H. B. Coburn & Co.

Extensive enlargements are to be made in the plant of the Milson Rendering Works of Buffalo, N. Y.

The annual meeting of the Union Rendering Co., at Chicago, has resulted in a marked change of the directory. New directors taking the place of old ones are: L. B. Doud, James H. Ashby, Nelson Morris, Rollin A. Keys, B. M. Winston, Ira N. Morris, Sam Cozzins, C. E. Davis.

A. & F. Pears, Ltd., report a net profit for the year ended June 30 last, of $90,694. The directors recommend a dividend for the half-year ended June 30 at the rate of 6 per cent. per annum on the preference shares, a dividend at the rate of 12 per cent. per annum on the ordinary shares, making 10 per cent. for the year, and a dividend for the year ended June 30 at the rate of 5 per cent. per annum on the deferred ordinary shares.

Organization amongst traders is making remarkable progress in Australia, and within a few months every trade or calling will have its own association for the protection of its particular interests. Those engaged in the soap and candle industries form the latest organized body. Shopkeepers and other traders are evidently more progressive in Australia than they are in the old country.—Oils, Colors & Drysalts.


Shade & Miller are successors to the Wolf Creek Soap Co.

The Nicholson Drug Co. has been incorporated at New York City, to manufacture soap, powders, drugs, etc. Capital, $1,000. Incorporators, P. Nicholson, M. Britiwitz, N. Barkan, all of New York City.

Jacobs Bros., of the Oregon City (Ore.) Mfg. Co., have sold their interest in that concern to Brown Bros. & Co.

The Merkle Wax & Candle Co., of St. Louis, Mo., has been incorporated by Anthony Will, Francis A. Muench and Guido H. Rautenberg. Capital stock, $120,000.

Special Articles in our Exchanges.

Among recent articles appearing in our Exchanges, which are of interest to some of our readers, but which for various reasons we do not reprint, we recommend the following to the attention of those interested in the matters dealt with in those articles.

Note date and address of papers in sending for them or looking them up in libraries.


Manganese Ore Trade of Russia.—The same.

Commercial Liquid Carbonic Acid.—Chemical Trade Journal, Manchester, Oct. 13.

French Cultivation with Chemical Manures.—Scientific American Supplement No. 1295, New York.


Assay of Creosote.—Chemical Trade Journal, Manchester, Sept. 29.

Manufacture of Cyanides in Gas Works.—Same.

Dyeing Black on Mercerised Cotton.—Le Moniteur de la Teinture, Sept. 20.


Oil of Turpentine; Its Substitutes and Adulterations.—Chemical Trade Journal, Oct. 6.

The Rubber Industry of the Amazon Valley.—Same.
The Soap Specialists at Play.

Had a stranger called in at the East London Soap Works and seen the spacious hall gay with flowers, flags and hunting, and the tables spread with a substantial tea to which over 300 men and their wives were doing full justice, and had he been told that a few hours prior to his calling, this gay saloon was nothing more or less than the cutting and packing room where tons upon tons of soap was stacked for shipment abroad as well as for home consumption, he would doubtless have been considerably astonished; but to the company, that thinks nothing of building castles, bungalows and palaces in soap, such a little thing as the transformation of a huge work and store room into a dining and concert hall with stage complete was a mere bagatelle.

The soap specialists, Messrs. Edward Cook & Co., Ltd., do nothing by halves, and when they invited their employees to spend a social evening with them, they laid themselves out to make everyone happy, and their efforts were not in vain.

When the tables were cleared a capital entertainment of songs, music and story was provided, and Madame Edith Hands, Messrs. George A. Briance, Alec Meade, Will Cornish (handbells soloist), Tom Burgess, W. B. Steele, W. Woodall, H. Lomax, H. Smith and H. T. Morey Attwell, with tuneful songs and merry guys, kept the audience in the best of humor.

Mr. F. E. Blair acted as accompanist and deserves great credit. Much amusement was caused when, to vary the program, a gramophone was placed on the stage by Mr. T. Alex. Cook and started on its wild career.

In the interval between the first and second part of the concert the genial chairman, Mr. William Cook, took the opportunity of congratulating one and all on the prosperity of the company, and in a few kindly and cheering words expressed his great pleasure at seeing so many bright faces around him.

He was followed by Mr. T. Alex. Cook, who, in the course of a humorous but short speech, drew the attention of the company to two photos printed on the program. They were the prototypes of Mr. Martyn Cook and Captain S. Godfrey Hall. They were not, said he, putting up for Parliament; one as a Tory and the other as a Liberal, and he was not going to tell which to vote for because he wanted them to vote for both. They had lately been elected on the board of directors, and he asked the meeting to give them a good reception.

Mr. Cook and Mr. Hall, who were enthusiastically greeted, thanked the meeting, and stated their intention to do all in their power for the good of the company and the company’s employees.

 Presents of pipes and tobacco for the men, and handkerchiefs and sweets for the ladies, were distributed by the new directors, and the national anthem concluded one of the most enjoyable evenings in the annals of the firm.

Notes for the Manufacturing Chemists.

The Brazilian Government is inviting bids from European and American smokeless gunpowder manufacturers for the erection of gunpowder works in Brazilian territory, after a test has been made of the powder selected. Bids are not to be opened until on or about February 21st, 1901.

ADULTERATION OF LINSEED OIL.

Analyses of linseed oil made by the Minnesota Dairy and Food Commission show that this oil as obtained in their jurisdiction is frequently adulterated with mineral oils. Of 9 samples recently tested, 7 were so adulterated the proportion of mineral oil present ranging from 5 to 7 per cent. As a result of this, prosecutions were ordered to be begun against the sellers of the adulterated oil.

SALT-MAKING IN MEXICO.

The British Vice-Consul at Monterey, in a recent report, states that salt-making is a new industry in the State. For some years it has been known that salt water deposits existed in the north-eastern part of the State, but several experiments resulted in failure, owing to the insufficient supply of water and the weakness of the brine. Within the last 18 months, one concern has secured an apparently unlimited supply of brine of 18 per cent strength, and is now successfully making a very fine quality of salt, by solar evaporation. This concern contemplates adding the artificial process during the present year, and thereby largely increasing their output. There is a very large demand all over the Republic for good salt, and nearly all hitherto made has been of inferior quality, and even that in insufficient quantity to meet the demand. This industry appears to be capable of unlimited extension, as the market for the product is great, and there is a protective duty of 20 dols. per ton.

Latest Additions to Our Brand List.

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The American Soap Journal & Manufacturing Chemist.

A MONTHLY JOURNAL OF THE MANUFACTURING CHEMICAL INDUSTRIES.

DR. HENRY GATHMANN, Publisher.
322 Windsor Place, MILWAUKEE, WIS., December 1, 1900. VOL. XI. No. 4.

THE AMERICAN SOAP JOURNAL AND MANUFACTURING CHEMIST.

SUBSCRIPTION:
United States, Mexico, and Canada, $2.00 a year.
Foreign Countries in the Postal Union 2.50 "
PAYABLE IN ADVANCE.

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SPACE ON COVER DOUBLE RATES.

For Rates and other Information concerning advertisements of WANTED and FOR SALE, see Announcement at the head of that page.

OFFICE OF PUBLICATION:
322 Windsor Place, MILWAUKEE, WIS., U.S.A.

The AMERICAN SOAP JOURNAL AND MANUFACTURING CHEMIST is devoted to the interests of all manufacturing industries of a chemical character, and is an absolutely independent publication. It is the only newspaper of its kind in America and has also a large foreign circulation.

For Subscription and Advertising rates see above.

Communications on industrial subjects, news items, and any information suitable for printing in these columns, are solicited and will have due attention.

Readers in search of machinery, supplies etc., not advertised in these columns, are invited to write us and we shall endeavor to supply the information.

Address all communications to
DR. HENRY GATHMANN, Publisher,
322 Windsor Place, MILWAUKEE, WIS. U. S. A.

A writer in the "Seifenfabrikant" says that the cold process of saponification was first practically introduced by Douglas in Hamburg, Germany. It was at first confined to cocoanut oil soap, and only later was it shown that all other fats can be saponified by the cold process, by making suitable changes in the details of the process.

The same writer states that Dircks & Thorey succeeded for only a short period of time in keeping secret the process invented by them for making Erchweg soap. The foreman of a competing soap factory gained access to their factory under the guise of a common laborer, learned their secret, and then traveled through the country teaching the process to those willing to pay for it. Four years after the invention of this soap it was being made by numerous factories. The invention itself was something of an accident.

Milled soaps are of French origin and were first made from half-solidified soap into which the perfumes were worked by the aid of cocoa-mills. But their real beginning on a large scale dates from the invention (in the sixties) of the machinery of Beyer Frères, of Paris, who still make most of the mills and plodders used in Europe.

The adulteration of soap was a subject of legislative enactments in France as early as 1789.

The most suitable odor for a honey soap is a matter of opinion, but a combination having a good proportion of oil of citronella comes probably as near to it as any other. Some hold that oil Portugal gives a closer imitation.

Pink colored soap requires whiter stock than do the yellow colored varieties; dark fats never afford a delicate pink color.

Man wants but little here below. But he wants it quickly. Try our "Wanted and For Sale" page.

An unusual number of new brands are added to our list this month, to say nothing of some others that were too late for insertion this month.
Some letters received last month refer to a recent visit of the editor of this paper to the writers. As nobody connected with this paper has been outside of Milwaukee recently, it is evident that somebody else is traveling under false pretenses. Any further information on this subject will be appreciated.

Scarceley a month passes by without bringing us one or more enquiries concerning, in some way or other, persons or firms advertising in our "Wanted" column. Last month in particular was rich in enquiries stating that letters directed to a certain advertiser had brought no replies, and we were asked for information why this was so. In this particular case we could give no definite information, as it seems the advertiser moved since he gave his address in the advertisement, so that letters did not reach him even. In a general way, however, we may say, that too many people are in the habit of ignoring simply any letter that does not appeal to their immediate attention. Anyone paying for having an advertisement inserted may be relied on to be desirous of returns to the same; if he then does not reply, it may be because he has already found what he desired, or because circumstances with him have changed, or because the answer to his advertisement was not what he wanted, or because he died since, or because of numerous other reasons. Some people have the laudable habit of replying courteously to any business letter received—others have not. All we can do, as a rule, at least, is to print the advertisements paid for, and leave the rest to the parties concerned.

A correspondent writes: "I would call your attention to Prof. Chandler's address, published in the October number of the American Soap Journal, page 44. Why should this government go to all this great expense to protect farmers from adulterated fertilizers and allow the mechanic to be defrauded with adulterated soaps, many of which are branded pure?"

Why, indeed? If the government employs one hundred and forty-eight chemists for the benefit of the farmer, might not they, for the sake of variety, do a little on soap?

Under the heading "A Practical Form of a Soap Manufacturers' Association" we publish a letter on another page which deserves the most serious attention of the entire soap trade. Whatever may be the opinion of every individual manufacturer, there can be no doubt that in numerous instances, at least, the proposed plan would be followed by very desirable results if determinately carried out, and a system might be developed that would greatly benefit manufacturers who now see no redeeming feature in the whole trade. Those who enter further into the subject, modify its details perhaps as further consideration may suggest or as individual circumstances may require, and act promptly upon the result of their combined deliberations, may find this the starting point of a more prosperous era. One advantage of this plan, as we see it, is that the smallest factory can enter into such an arrangement with others, with the same readiness as can a large one, whereas in the ordinary association this is not so; again an arrangement as proposed depends mostly on the ordinary rules of credit and less on the adherence to association rules in which matter competitors belonging to the usual association so often distrust each other and thereby invite failure. Altogether, there can be no possible doubt that the plan can be made successful—the only question being one of the extent to which such arrangement can be and will be taken advantage of. The result will depend almost entirely on the active response which the proposition will meet with.

So far as the Soap Journal is concerned, it is deeply interested of course in anything that will benefit its readers, and will lend any assistance it can to the desired end. Any one desirous of being heard on this subject is welcome to the use of our reading columns, and any information in our possession that can aid in the plan is at the disposal of the trade.

In closing we call attention to the announcement at the top of our last cover page.

How Soap is Made in New Orleans.

The "Daily Item," of New Orleans, last month contained a description of the Magic Soap Co.'s plant of that city, and although such a general description does not afford much that is new to most of our readers, yet there is something interesting in all such articles. We have not published any similar article for a very long time and for the sake of variety, at least, a reproduction of the one just mentioned may not be out of place. The writer says:

The city of New Orleans has just reason to be proud of any manufacturing enterprise which has grown to success, and among all which have placed themselves on a sound footing, none is more noteworthy than that enterprise known as the Magic Soap Works, of which Mr. J. H. Haag is the proprietor. Mr. Haag is still a very young man, but his record speaks for his business acumen. A few years ago he began in business by renting a small building on Girod street at $25 a month. Now the manufactory occupies five buildings, put up especially for it, and the amount of work it turns out is something phenomenal, and is very little understood, perhaps, by New Orleans people.

The writer had the pleasure of a visit to the manufactory last week, and inspected the various departments of the work with surprise and interest. Huge vats and boilers as large as an ordinary room, were among the
paraphernalia, with pumps and pipes leading everywhere, so that there is no labor of dipping and carrying. All the labor is simplified by the most modern machinery and apparatus, and the work of soap making progresses there without a hitch from year's end to year's end.

The first of the great vats into which we looked is made for the melting of the caustic soda, from which the lye is made by adding a proper amount of water. The caustic soda comes in large "drums," and when the making of lye begins, eight thousand pounds of the soda are turned into the iron vat at once. It will be readily seen that quite a quantity of lye comes out of that enormous vat at one time.

In another department are the great kettles of tallow, and of cotton oil, and of coconut oil, ready for use, and hogheads of rosin, all of which go to the making of special kinds of soap. Among the furnishings of this department are kettles so large that it almost startles one to look into them—kettles which hold 30,000 pounds of soap at one time. When the kettle of soap is ready a pipe is lowered into it, the pumps are set at work, and the hot soap is drawn off to the places where it is to cool, or where further transformations await it.

Among the most interesting of the machinery was the "mixer" for the white soap. A large kettle had a system of paddles working in it with great force and swiftness, at the same time that intense heat was applied below. It boiled and swirled and changed under that magic alchemy until from a frothy state it had passed to a smooth and solid condition, the paddle working all the while. It is in this mixing kettle that the Magic Soap is made which gives the business its name, for while Mr. Hang manufactures other soaps this is the specialty in which he takes the greatest pride.

It was something new to see a tank of coconut oil, ready for the kettles, a tank that held something like a thousand pounds, one would judge. There were great tallow tanks too, and it is worthy of note that the tallow, most of which comes from the slaughterhouse, is put into kettles and boiled six hours, before being used for soap, after which it is carefully drawn off. The boiling has made all impurities sink to the bottom, and the residue is perfectly clean.

In still another department we found the thousand-pound drums of perfumery; citronella, sassafras and others. In another department we found men busy nailing together the boxes in which the goods are shipped. Here, again, the firm encourage home industry, for the boxes are bought from local box factories, already "knocked down," and the workmen simply put them together. In another place we found other workmen pasting the labels on the boxes.

There is one department which is the "drying room" for the "Magic Soap Powder." A great pen, for it is constructed on the smooth floor, and it is spread out there, five or ten thousand pounds at a time; curtains are let down to the floor all around, and then enormous electric fans are set to work. After this goes on for an entire week the dry powder is shoveled into a vat, which terminates in an iron chute, through which it drops into barrels. As fast as a barrel is filled it is rolled away, and another takes its place.

We went into the drying room for the yellow soap, and saw an enormous number of bars a foot long, drying on racks, and on them, too, the drawn curtains and the electric fans are brought to bear. After being allowed a sufficient length of time for drying they are laid on tables where the cutting machine, a most ingenious contrivance, divides them into bars and the ends are thrown drier bars, smoothly cut, are taken on to the stamping room. A machine, not unlike the machine that stamps coins at the mint, takes each bar and prints the proper stamp into it. The soap must be dry before it goes into this machine, for if it is damp it will crack and crumble.

In another department we found the drying room for the Magic Soap. It was a large, sunny, airy room, with great doors at either end, and with all one side formed of windows which were thrown open that every breath of air might reach the snowy white bars on the racks. A glimpse of the amount of soap drying there at once gave one an idea of the magnitude to which the business has grown. A little distance away was a huge mould of soap, which had been dropped down into it from the mixers above, a number of hours before. The mould is a box, made so that all its sides are removable, and when the soap has cooled and hardened sufficiently the sides are unlocked and taken away, and the soap is left standing there, what one might call a cake of soap, weighing fourteen hundred pounds. In about five days it will be cool enough to slice into slabs and into bars, and then still further cooling and drying will make it ready for the cutting machine and the stamper.

An idea of the amount of business done by this house may be gathered further from the fact that such things as wrappers are ordered in lots of a million or two million at a time. The entire business is carried on in a strictly up-to-date fashion. The engine and boiler that runs all the machinery are packed with asbestos, so that there is none of the suffocating heat which the workmen had to endure under old methods. The same consideration is shown, even in the stabling of the horses, as their stalls are large and clean and light, giving abundant room for rest, and the same horse is never worked two days in succession.

Beginning in the day of small things, and working up to greater things, the Magic Soap factory has become one of the institutions of New Orleans. It uses
Southern labor, and so far as possible, Southern materials; and it should have a fair share of the Southern patronage, all other things being equal. If we add to this that the soap manufactured here is as good as that we could get from abroad, we have another argument for home patronage. The truth is, it is winning its way in the North and East and West, as well as at home. The writer saw an order which had just come in, for a car load of the Magic Soap, to be sent to Evansville, Indiana; and other orders were from Oklahoma, and New York and many other fields. Now that it is the policy of the South to build herself up with manufactories, those should not be forgotten which have struggled through their starvation time unaided.

The First Washboard.

The patent office at Washington contains many queer relics of the past. From many of them can be traced to completion the most valuable inventions ever furnished mankind. Few inventors, or patentees, ever cherished the hope or anticipated the value of their productions. They laid the foundations, though, for many great things, while others, by improving on them, reaped the harvest. Great is invention; greater still is the perfection of crude ideas when put to practical use.

Many inventions that the inventor protected by patents, are now the property of anyone who chooses to manufacture them. Perhaps one of the most useful to the housewife in days fast fleeting was the washboard. This simple device was conceived and patented by a young man living in a small village in New York state. He was at that time considered a worthless sort of a chap; stayed around home and devoted most of his time and energy helping his mother. The weekly wash day was one of his hardest jobs, as the water used had to be carried about one hundred feet from the back porch, where the work was done. Then, again, the manner of cleaning the garments of the household was slow and tedious. It was the old system of first boiling, then placing in a big barrel, and with a heavy block of hard wood attached to a pole, or long stick, the clothes were pounded, lifted, turned over, and beaten again and again. No thought was ever given to any rubbing, except by the hands, and the skin on the hands of this young man was torn and lacerated every week by it. One day he conceived the idea of a washboard, and with the aid of a knife, saw and hammer, and a few nails, he constructed a board with legs fashioned like the old stile bed posts, and on the surface of a board, which was about 16x20 inches, he made grooves. The following wash Monday he tried his washboard, and it was such a success that his poor old mother is said to have remarked that blue Monday would now be counted among the days of the past, as "SI." had "just made it too easy for anything." Then this shiftless young man suddenly awoke to the value of it as an invention. He planned carefully and soon had a board completed with corrugated or fluted piece of metal fastened on its face, and through an attorney applied for and was awarded a full patent. That was in 1833. Since then washboards have been made by the million, and naturally they have been improved, but the only method of rubbing the clothes over a corrugated board has never been improved upon. To be sure we have the splendid inventions of our steam washers, and our family washing machines, but the fact still remains, and always will, that a washboard is a necessity even in the largest and best regulated steam laundries.—American Laundry Journal.

Laundry Blues.

Ultramarine is now very generally used as a laundry blue where the insoluble or "bag blue" is desired, says the Drugists' Circular. It is mixed with glucose, or glucose and dextrin, and pressed into balls or cakes. When glucose alone is used, the product has a tendency, it is said, to become soft on keeping, which tendency may be counteracted by a proper proportion of dextrin. Bicarbonate of sodium is added as a "filler" to cheapen the product, the quantity used and the quality of the ultramarine employed being both regulated by the price at which the product is to sell.

As the mixing and compression process is somewhat troublesome, it may pay better to purchase the balls or cakes from the manufacturer or jobber in large packages and put them up from these into small cartons, as this operation will usually yield much of the profit to be derived from the sale.

Leaf bluing for laundry use may be prepared by coating thick sized paper with soluble blue (of which further mention will be made below) formed into a paste with a mixture of dextrin mucilage and glycerin. Dissolve a given quantity of dextrin in water enough to make a solution about as dense as ordinary syrup, add aside, to be taken back to the melting pot again. The blue smooth with a sufficient quantity of this vehicle and coat the sheets with the paint.

The amount of blue to be used will depend, of course, on the intended cost of the product, and the amount of glycerin will require adjustment so as to give a mixture which will not "smear" after the water has dried out and yet remain readily soluble.

A satisfactory liquid laundry blue is made by dissolving the "soluble blue" of commerce, which, when properly made, dissolves freely in water; solutions of it can consequently be prepared of such strength that a small quantity will blue a tubful of water.

The water employed in making the solution should be free from mineral substances, especially lime, or precipitation may occur. If rain water or distilled water and a good article of blue be used, a stable preparation
ought apparently to result; but whether time alone affects the matter of solubility we are unable to say.

As it is essential that the solution should be a perfect one, it is best to filter it through several thicknesses of fine cotton cloth before bottling; or if made in large quantities this method may be modified by allowing it to stand some days to settle, when the top portion can be siphoned off for use, the bottom only requiring filtration.

The soluble blue is said to be potassium ferri-ferrocyanide. If the pharmacist wishes to prepare it himself, instead of buying it ready made, he may do so by gradually adding to a boiling solution of potassium ferricyanide (red "prussiate of potash") an equivalent quantity of hot solution of ferrous sulphate, boiling for two hours and washing the precipitate on a filter until the washings assume a dark-blue color; the moist precipitate can then at once be dissolved by the further addition of a sufficient quantity of water.

About 64 parts of the iron salt is necessary to convert 100 parts of the potassium salt into the blue compound.

Anilin blues are also used, it is said, in laundry work.

In an article reprinted in the Circular from the London Laundry Record, it was said: "The coal tar blues are not offered to the general public as laundry blues, but laundry proprietors have them frequently brought under their notice chiefly in the form of solutions, usually 1 to 1\(\frac{1}{2}\) per cent. strong. These dyes are strong bluing materials, and, being in the form of solution, are not liable to speck the clothes. Naturally their properties depend upon the particular dye used; some are fast to acids and alkalis, others are fast to one but not to another; some will not stand ironing, while others, again, are not affected by the operation; generally they are not fast to light, but this is only of minor importance. The soluble, or cotton blues, are those most favored; these are made in a great variety of tints, varying from a reddish-blue to a pure blue in hue, distinguished by such brands as 3R, 6B, etc. Occasionally the methyl violets are used, especially the blue tints. Blackley blue is very largely used for this purpose, being rather faster than the soluble blues. It may be mentioned that a 1 per cent. solution of this dye is usually strong enough. Unless care is taken in dissolving these dyes they are apt to produce specks, which is not desirable."

It was stated in the article referred to that the heat to which the pure blues are exposed in ironing the clothes caused some kinds to assume a purple tinge.

The cheapest anilin blue costs, say, roughly, three times as much as "soluble blue," yet the tintorial power of the anilin colors is so great that possibly they might afford a solution of the cheapening question.

Cocoanut Palm Products.

The cocoanut palm (Cocos nucifera) is found nearly everywhere within the Tropics, and in many tropical countries is the principal food of the inhabitants. There are many varieties of this palm, thirty species having been discovered and classified, and with each variety the fruit varies in size, in weight, in shape, and in percentage of fiber, flesh, etc. Several varieties are distinguished for producing but small numbers of nuts, but these are very large and heavy; others produce large nuts and many of them, and some species are noted for producing large quantities of small nuts. It is estimated that over 3,000,000 acres of land are under cultivation in cocoanut palms, of which 1,000,000 acres are located in South America, 250,000 acres in Central America, and 15,000 acres in the West Indies. Probably about 300,000,000 trees, bearing from 5,000,000 to 6,000,000,000 nuts per year, are in existence. Of late years the cultivation of the cocoanut palm has been largely extended, and its products are becoming of ever-increasing importance in the markets of the world.

It may be interesting to know that the kernels of 500 nuts give an average production of one hundredweight of oil, and the kernels of twenty-four nuts produce about one hundredweight of copra. The kernels of three average-sized nuts produce one pound of desiccated kernel. From copra or dried cocoanut, immense quantities of oil are extracted, which is extensively used in many trades. The refuse is used for feeding cattle and poultry and for fertilizing purposes. A large proportion of the kernels are desiccated and sliced, to be used in the manufacture of confectionery. It is said that for the latter purpose about 40,000,000 nuts are used annually.

The foregoing items do not exhaust the list of the products of the cocoanut palm which enter into the commerce of the world. There is a trade in mats made of the leaf, in coir mats and rugs made of the fiber, in laths and rafters made of the wood, and in a variety of articles useful and ornamental manufactured from the shells. The husks of the cocoanut contain valuable fiber, known as coir, a corruption of a word meaning rope. The refuse, or broken coir, is turned to account for stuffing mattresses, and is used in horticulture, as insects will not touch it.

The husk, which contains the fiber enveloping the nut, is divided into two classes; the first is the ordinary fiber used for spinning and for the manufacture of mats, the second is the brush fiber which lies just underneath the skin of the husk. The brush fiber is much thicker, stronger, and straighter than the spinning fiber, and is very largely used in brush making. The coir industry has become so great that special machinery has been manufactured for crushing the husk, extracting the fiber, and spinning it into yarn. When this fiber is
brought to the United States, having been packed with great pressure, it has to be put through an opening machine in order to prepare it for use in manufacture. Other machinery is necessary in order to cause the fibers about as much glycerin as there was dextrin, rub the to be as free and parallel as possible. That which is to be spun requires a special spinning machine which produces a perfectly cabled yarn. When spun into yarn and woven by means of powerful looms, coir fiber produces an article of very extensive and daily increasing use—that is, floor matting. This fiber is also very largely used in the manufacture of door mats, for which purpose it has especial qualities, being able to stand a great deal of wear and tear and much dampness. This industry is of growing importance in the United States.

In 1900 the United States imported 3,901,854 pounds of coir yarn, valued at $141,850, against 2,530,914 pounds, worth $95,968, in 1899. The value of the cocoanuts imported was $702,947 in 1900, against $635,789 in 1899.

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A Laundry Advertisement.

Having so much to say about soap advertising recently, we think the following, which we find in the National Laundry Journal, is a pleasing variety:

The Egyptian steam laundry, Carbondale, Ill., on a printed card distributed to the public produce a few quaint sayings, some of which we take the liberty of publishing.

BUSINESS AXIOMS.

Bring your bundles tomorrow night and they will be ready this morning.

If we lose your washing you can keep the ticket.

Clean wash not taken.

No starch wasted on shirt waists.

Shirts sewed on buttons free of charge.

Irishmen’s shirts washed with green soap.

Collars made extra stiff for rubbernecks.

We are scorchers on bicycle bloomers.

Leather sole sox washed by Sappho-lio.

Whiskers starched wind proof.

Overalls overhauled all over.

Buggies washed, but not ironed.

Rags washed in rag time.

One-legged shirts double price.

Hose washed with hose.

Scrubbing called for and delivered.

No work done on Sundays—until after Sunday school.

Our hand work is better than foot work.

We iron with irons—steam laundries iron with bricks.

Steam washing don’t kill microbes—opium smoke does.

Concentrated lie don’t harm linen because no rubbing is necessary.

We have no strikes—our slaves have no union.

All languages spoken except English.

One price to none, different prices to all.

Your money is safe with us—we’ll never spend it.

We never sleep, nor eat, nor fool away any time or money in any sort of religious, charitable or public enterprise. We are out for the stuff strictly.

Come and contribute.

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Hints on Firing Soft Coal.

(By W. H. Wakenan in Steam Engineering.)

While in a certain boiler room, I noticed that the fireman did not wet the soft coal that he was using, but shoveled it in dry. This plan does not work well in my plant, and I doubt if the best results are secured by it in other places. So far as the actual economy of using water to assist combustion is concerned, it probably takes as much heat to evaporate the water as can be secured from the improved combustion, but with wet coal there is less waste by falling through the grates than where dry coal is used, as the water assists in holding the small pieces together until they become “coked” by the action of the fire. By using water on the coal, especially where the draft is strong, the tubes do not become filled with soot as quickly as when the light particles are put in dry, allowing the draft to take them over the bridge wall before they are ignited, thus choking the tubes and causing a loss of heat. For if the shell and tubes are not clean, the heat is not readily absorbed by the water, but passes on to the stack and is lost. I believe that locomotive firemen always wet the coal they use.

While using this kind of fuel I find it proper to let the regulator open the damper wide as soon as the steam pressure falls enough to warrant it, in order to carry the particles of soot through the tubes and into the bottom of the chimney, whence they may be removed at pleasure. Even if the boiler is not worked to its full capacity it is not a good idea to prevent the damper from opening wide, as the feeble draft so secured only draws the soot up into the tubes of a horizontal boiler and leaves it there. The same effect is secured by nearly closing the ash-pit doors, according to the custom of some firemen.

At one plant where I was engaged to take charge of the engine and boilers, my predecessor had become discouraged because it was difficult to keep up steam; also because it was necessary to scrape out the tubes three times each week. He used a very light fuel, and kept the ash-pit doors nearly closed at all times when the plant was in operation. The draft of the chimney was strong, but the air could not pass through the tubes any faster than it was allowed to enter the ash-pit (when
the furnace doors were closed), therefore they soon became coated with soot. The simple plan of keeping the ash-pit doors wide open at all times when the engine was running, enabled me to run two weeks before cleaning tubes, and then they were not very dirty.

Ordinary soft coal "coke" up when put into the furnace, and it is not a good idea to level it off with a heavy hoe, because much of it will rattle through the grates, and be lost in the ashes. If the fire does not need cleaning, a slice bar should be run under the large cakes and lifted up so as to break them and afford a passage for air. The low places should then be filled with coal.

I find that in some plants it is customary to break up a fire, then close the furnace doors without putting on fresh coal. I have not found this to be a good plan, because when a fire is so treated, it throws out a very intense heat for a few minutes, and then dies down. This causes great variation in the temperature of the furnace, which is not desirable for two reasons. We are told that if a boiler is perfectly clean, and properly filled with water, a very hot fire will do it no harm, but our boilers frequently become scaled on the inside so that the heat does not readily pass through the plates to the water, therefore such an intense heat as is caused by breaking up a soft coal fire, will do them no good, to say the least. If fresh coal is put on at this time, it absorbs this fierce heat and not only prevents this heat from injuring the boiler, but quickly ignites and so tends to keep the temperature even. The second reason is that the great variation of temperature destroys a brick furnace in much less time than where a more even heat is maintained, as it causes expansion and contraction, the effects of which are irresistible. One day, when my fireman was absent, a friend, who was also an engineer, came to ask me to write a letter for him. I suggested that he attend to the fires while I was doing it, to which he readily assented. As he was working over them just before he went away, I did not give them attention for a short time, when an examination of No. 2 furnace showed that the fire was entirely out, so that it was necessary to quickly draw the ashes, put in wood and build a new fire. This shows that a great amount of heat was liberated in a short time, a portion of which should have gone to ignite fresh coal, but the coal had not been put on.

Where I am employed at present the coal is furnished by the year, the lowest bidder securing the contract. This year two bidders quoted the same price, and as a compromise, one furnishes it for one month, and the other for the next. This gives an excellent opportunity to compare the two kinds, and the price is the only point on which they agree.

Assuming that both contain the same number of heat-units per pound, one is worth 10 per cent. more than the other. This is because one will burn about three times as long as the other without breaking up or slicing, and as every effective motion of a slice bar causes loss of coal through the grates, and every time that the furnace doors are opened cold air is admitted, the kind which requires the least attention is the more economical. When the day's run is nearly finished the fires are shoved back from the dead plates and covered with coal for the night. The lumps are saved for use in the morning, as much more steam is required then than in the afternoon. The fine coal is well wet down, and the fires covered with it, but with one kind the flames must not be entirely smothered, for if this is done an explosion of gas results that blows the furnace and ash-pit doors open, also the doors in the back connection. If places are left so that small flames shoot up from them, the gas escapes and no harm is done, but otherwise a sheet of flame may envelop the fireman in a way that is extremely unpleasant, if not dangerous.

Either kind will nearly or quite go out over night if not properly cared for and managed right. As the demand for steam is usually light in the afternoon, the coal in the furnace will last so long that when it is time to bank the fire it may contain nothing more or less than a poor grade of cokes, and when covered with wet coal it has not life enough left to keep it over night. The remedy is to put on some fresh coal about half an hour before it is time to shut down, then when the time comes to bank the fire there will be enough gas left in the coal to insure a quick fire in the morning.

Occasionally I meet an engineer who has his fires banked just as he runs them, covering the entire grate, but I do not believe this to be the best plan, for the ashes will collect on the under side of the fire with a stationary grate, and they must be removed at some part of the day's run. Is there any better time to do it than just before shutting down the plant? When the demand for steam is about to cease, the top of the fire may be shoved back with a heavy hoe, leaving the ashes and clinkers to be removed, but right here is another point for consideration.

(TO BE CONTINUED.)

Jewelers' Red.

By Anton Munkert.

The ferric oxide materials, which play an important part in industry as colors and polishing agents under various denominations, are partly products obtained by simple operations from minerals occurring in nature, partly they are manufactures produced artificially by the use of iron salts. The latter group includes caput-mor-buum, colcothar and English red. In the manufacture of fuming sulphuric acid in working up alum mud and vitriol mud in roasting iron pyrites, etc., materials containing ferric oxide are known to be obtained, which
are subjected either direct or after a subsequent calcining process frequently conducted with admixture of other bodies, to a thorough reduction and cleaning by circulating operations.

The examination and estimation of English red is, of course, to be made from various view-points, according to whether the article is to be used as a pigment or as a polishing medium. In the ferric oxide pigments the shade, the brilliancy of the tone, the fineness of the grinding, the covering power, the permanency of the coating, etc., are especially of importance. For a grinding and polishing agent, however, the hardness and the degree of fineness of the product play such a prominent part, according to the nature of the material to be treated, that for many purposes the polishing powder must exhibit the highest degree of fineness and softness.

Jewelers' red may be examined in the following manner:

Boil 2 grammes of substance for some time with concentrated hydrochloric acid; after the solution of the ferric oxide has taken place, evaporate to dryness, take up the residuum with acid and filter off from the undissolved mineral substance. Of the filtrate amounting to 250 ccm., 50 ccm. is used, after precipitation of the iron with ammonia, for the estimation of the sulphuric acid and another 50 ccm. for determining sesquioxide of iron, alumina, lime and magnesia. For estimating the copper 10 grammes of substance is decomposed with concentrated hydrochloric acid, filtering off from the insoluble mineral substance and reducing the ferric chloride solution with excess of acid by sodium hyposulphite. The copper is now separated by means of hydrogen sulphide and estimated by the electrolytic process.

In examining a grinding or polishing powder, the material must be decomposed direct by acids without any previous disintegration. The resulting residue insoluble in acid, of pale or dark color, usually contains some soluble silicic acid, which may be gotten rid of by a solution of sodium carbonate. A microscopic inspection will now give valuable information regarding the kind and nature of the mineral admixture and frequently also regarding the mode of manufacture of the material.

At the occasion of a comparative microscopic examination of the residues of the three samples analyzed as below, light colored scales of mica, black, opaque and double refractive colorless granules (quartz and feldspar) of various sizes were distinctly recognized, beside dust-like particles. In one of the samples the residue formed a light-brown, soft powder consisting of glossy scales of mica.

The analyses of the three varieties of jewelers' red of different origin furnished the following figures:

<table>
<thead>
<tr>
<th>Compound</th>
<th>Mass Percent</th>
<th>Mass Percent</th>
<th>Mass Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fe₂O₃</td>
<td>83.50</td>
<td>93.65</td>
<td>88.73</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>1.40</td>
<td>0.49</td>
<td>..</td>
</tr>
<tr>
<td>MgO</td>
<td>0.13</td>
<td>0.19</td>
<td>0.14</td>
</tr>
<tr>
<td>CuO</td>
<td>0.24</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>SiO₂</td>
<td>2.44</td>
<td>2.24</td>
<td>2.31</td>
</tr>
<tr>
<td>H₂O</td>
<td>1.59</td>
<td>1.07</td>
<td>3.86</td>
</tr>
<tr>
<td>Residue insoluble in acid</td>
<td>10.73</td>
<td>2.31</td>
<td>4.81</td>
</tr>
<tr>
<td></td>
<td>100.03</td>
<td>99.95</td>
<td>99.85</td>
</tr>
</tbody>
</table>

Considering the comparatively high price of jewelers' red, which is not caused by the value of the material, but by the costs of production, a rather large percentage of ferric oxide must be demanded and an intentional admixture of foreign bodies should be resented.

As is well known, however, a moderate percentage of mineral ingredients cannot be avoided with some manufacturing processes, and in such cases soft minerals, even in comparatively large quantities, are, of course, less detrimental to the quality of a fine polishing medium than a few coarse grains of a hard stone.

Bat Guano Caves in Southern New Mexico.

Southern New Mexico is a land of natural curiosities, and one, at least, of these has proved to have a high commercial value. A resident of that district had the good fortune a few years ago to accidentally stumble upon several bat caves, one of which is stated to be some six miles in length, and as he has shipped in the last two years 3,392,240 pounds of phosphate or guano from these caves, for which he has received about $48 per ton, it can be understood that the present and prospective value of these caves is considerable. It can be readily understood that bat guano possesses great value as a fertilizer, and the value of the caves is enhanced by the fact that beneath the guano is a considerable deposit of phosphatic rock (the remains of defunct bats), which, when ground up and treated with phosphoric acid, is highly prized as a fertilizer.

Since the discovery of these ancestral homes of the bats, in which they have made their resting place for unnumbered centuries, the search for more such caves has continued intermittently, and it is probable that many more valuable finds of this nature will be made; for the section of the country in which they lie is literally infested with this obnoxious, but very lucrative, little creature. The caves which are frequented by bats are of lava formation, and carry evidence of having been subject to violent volcanic action. A remarkable bat-trait is mentioned by our correspondent, which has the effect of rendering the caves of permanent value. It seems that after the entire front of the first of these caves to be opened had been torn down to within a foot or so of the narrow openings through which for centuries the bats have come and gone, the little creatures continued, and still continue, to follow the ways of their
Is Your Credit Good?

Something About Some Men Who Know Nothing About It.

There are, says the National Laundry Journal, hundreds of men engaged in the laundry business, and who are fairly successful, but who have never had any other business training or experience that gave them an idea of what is really understood or meant by "credit." We do not mean "credit" in dealing with customers of their laundry, but "credits" with the firms they purchase goods from. Many men feel confident that their credit cannot be disputed by a large business firm with whom they desire to open an account, simply because it is good in their own town, outside of which they are generally an unknown quantity.

When desiring to purchase an article, or several articles in the supply line of a house they have never had any dealings with, and to whom they are unknown even as laundymen, many men fail to stop and consider, when sending in an order, that they must furnish undoubted evidence of their ability to meet obligations, or their responsibility when creating a debt. As an illustration we will give two sample letters containing orders for goods sent to a supply house by this class of laundymen. If the letter files of every supply house could be scanned, hundreds of similar letters would be revealed, but the object of this article is not to show how many there are, or from whence they come, but to show that it is ignorance of business methods used by hundreds of laundymen:

Gentlemen:

Dear Sirs—Please ship me at once 1 barrel of—
starch, 1 barrel of—soap, 10 pounds of wrapping
twine, 1 bottle of marking ink (if it is good), 5 gross of
buttons. I hope you will send these at once on receipt
of this letter.

Yours truly,

Squarem Laundry.

No other name than "Squarem Laundry" is signed to the letter, or no indication that it is genuine, for usually such letters are written on a blank sheet of letter paper, with no heading, even of the laundry or town. The supply dealer looks over his Dun reports, but he fails to find the name of even a laundyman in the town from which the letter was sent. Squarem Laundry is not on the map, and he is puzzled over it. Some dealers would at once fill the order, and mail a bill requesting a remittance on receipt of same. Others fill the order and attach a due bill of lading for collection; but the careful dealer indites a letter at once to Squarem Laundry, and politely asks for more information regarding credit of the proprietors, or bank references. This takes time, and Squarem Laundry is in need of the goods. Perhaps they have let all the goods named in the order run so low that the delay causes them inconvenience, and before they can get them the laundry is compelled to slow down or close temporarily until a new stock arrives. This has happened many times to men who are thoughtless and careless in business methods, or whose credit was not worth the value of the paper an order was penned upon, and they knew it, but thought they would take a big chance of renewing their supplies, by ordering from a new house, and pay, or not pay, as circumstances allowed.

This is not stretching it the least, and supply firms all over the country will bear us out in it. Another letter which was shown us was as follows:

Gents—I want you to send me at once by freight,
some starch, soap, blue, pins, bleach, ink and paper.
Don't fail to get these off by first train as I am nearly out and must have them.

Yours,

Snap Laundry, per Jones.

What would a supply dealer do in this case? Fill the order? Not much—that is if they were business men. They wouldn't take any chances sending two barrels of soap and starch, five pounds of blue, ten pounds of pins, a carboy of bleach, a quart of ink, and a couple of reams of wrapping paper. Not if they didn't know Snap Laundry or Jones, and were accustomed to sending him this amount of supplies, taking it for granted he wanted to duplicate his last order. And, if Snap Laundry was not on the map, and was never heard of before, a careful firm would never think of sending anything but a letter couched in the most polite language, asking for references and the amount of goods required to fill out the blank order.

Taking these as only two samples of many orders received by supply houses, we would like to give the answers received to their letters. One wrote: "You seem to be particular, and afraid you won't get your money. Well, I want to tell you I was never turned down with an order before, and I can get all the goods I want. I won't give references for I know my credit is good, so please cancel my order from your books." The other replied: "I suppose you don't know who I am, but I can give you references from a good many supply dealers who have sent me goods, but I won't. I heard
of you, and so wanted to try and see if you could give me anything better than I got at other places. I didn't give amounts of goods for I supposed you would know I could not buy in large lots, being a small laundry, but did think you would know how much I wanted by it. I have been in business here six months, and my credit is good at all the grocery and drug stores. Don't send the goods."

Wouldn't that jar you?

Now a word about credit. A business man whose trade is scattered, and who carefully advertises his goods so as to increase custom, never forces a man to buy of him. He solicits business, but is careful to know the responsibility of everyone he gives the least credit to. If a man is not rated by a mercantile agency, he requests other references. He also makes careful inquiry as to the amount of business being done by his proposed customer; his personal character, and his past responsibilities in business. If found to be "good" for an order not larger than is known to be actually needed, he gives the usual credit. If, on the contrary, the cash is demanded or requested, before shipping the goods. This is business.

The laundry supply houses must be more careful in this than many other lines, as it cannot be denied but there are many men engaged in the laundry business who could not be trusted to even one dollar's worth of anything. They will not pay, even if able, but go along for awhile and then slip up and are forced out of business.

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The Complex Phenomena in the Sulphuration of Fats.

By Leonce Fabre.

The treatment of oleaginous seeds and seed cake by carbon bisulphide imparts to oils a dark color, and a characteristic disagreeable odor sufficient to neutralize the fruity fragrance which the seed might yield from simple pressure. The sulphurated oils have a marked acidity. These objections reduce their commercial value.

In the following paper it is proposed to analyze the chemical phenomena which occur in the manufacture, and to separate their different phases. For this purpose it will be needful to review the action of oxygen, of moisture, and of carbon bisulphide, each separately, and afterwards the whole together, to arrive, as near as may be, at the typical composition of a sulphurated oil.

Rancidity.—Rancidity is the chemical phenomenon produced by the slow and continuous oxidation of fats in contact with the air and in presence of light.

The reactions which occur in consequence of the continuity of the phenomenon are complex, and vary from time to time. Anyone will be convinced of this by measuring the acidity of the same oil at different periods; it gradually increases.

In the first phase of rancidity there is the access of the oxygen of the air on the glycerin ethers decomposed in acid, at first not saturated, of the formula \( C_2 H_2n \) —202, which yield on completion saturated acids of the fatty series; and on these last the chemical action is continued causing, by a sort of peroxidation, the slow transformation of these acids into acids having a less number of atoms of carbon, with elimination of CO2. I note, in passing, that every time an oil is oxidized, in consequence of the chemical separation of the glycerin ethers, at the same time with the formation of fatty and volatile acids, there is produced a quantity of glycerin molecularly equivalent.

The rancidity of oils is, therefore, due to the oxygen of the air; but it should be remarked that this phenomenon is favored in a manifest way, if the operation is on seed cake or moist seeds; and even the oxidation of these moist bodies is produced with a great disengagement of heat. I would not undertake to say that the rancidity is due to the action of micro-organisms, such as the ferment introduced by water, but in consequence of the concurrence of this agent, the organic matter constituting the albumen of the seed, especially the nitrogenous matter, would play a role analogous to the diastase contained in germinated barley, and in consequence the marked rancidity of oils obtained by pressure of seeds, proceeding from an oil harvest or having remained in moist places in the open air, would be particularly promoted.

Now, as the lixiviation of oleaginous seeds by carbon sulphide does not occur with these in a dry state, and as the oil cake, however strong the action to which it is subjected in the hydraulic presses, always contains moisture, there is reason for taking account, in the rancidity of oils, of the considerable influence of this agent, and also to notice the influence of the nitrogenous matter in the seed, and even in the extracted oil, in which it is often found in suspension, as is the case with sulphurated oils.

Such being the chemical reactions of rancidity, what are the effects on the color and odor of oils?

Color.—Oil tends to grow darker and darker, in consequence of the formation of inferior fatty acids highly colored, proceeding from the oxidation of the oleic, linoleic and ricinoleic ethers of glycerin, etc.; at the same time the mucilages and gums contained in the seed, and soluble in the oil by oxidation, become resinous and yield a kind of soluble varnish of ordinary color.

This is one of the reasons why non-siccative oils lose what is called in industry their brilliant quality. This is recognized readily by examining some drops—let fall opposite the light.
In addition to these chemical phenomena which occur within the liquid and which often have their first point of departure in the seed itself, it must be considered that a putrid oil which remains in metallic receivers, notably in iron cylinders, is liable to become colored by reason of the organo-metallic combinations arising, such as the oleates, lineoleates, and ricinoleates of iron, etc., soaps quite soluble in oil and always highly colored.

Odor.—The odorous properties which an oxidated oil exhales are due to the formation of free and volatile fatty acids, as well as to traces of allylic aldehyde, proceeding from a commencement of decomposition of the small quantity of glycerin produced in the decomposition of the ethers of glycerin.

The Sulphuration.—From these preliminary considerations, and a recognition of the fact that a sulphuretted oil proceeds from the treatment of oil cake or oleaginous seeds which have reached the commencement of putrescence, there is reason for studying the prejudicial effects of this solvent on the extracted oil, and to search for the cause, which appears to reside entirely in the impurities of the industrial carbon bisulphide. These are various, proceeding from impurities pre-existing in the original materials employed in its production.

Carbon bisulphide is always accompanied with:
1. Carbon monosulphide.
2. Sulphur, soluble in carbon bisulphide, drawn in by volatilization, notwithstanding the purification, unfortunately insufficient, which the industrial carbon bisulphide undergoes in the oil establishments where this solvent is employed.
4. Combinations of sulphur, carbon and hydrogen, liquid, of changeable odor, intensely fetid, constituting acid sulphydric ethers analogous to mercaptans. They proceed from the action of the sulphur on the gaseous and volatile hydrogenous compounds shut up in the coal, whatever may be the precautions previously taken to get rid of them.

Now, if we seek to know the chemical influence of these diverse impurities—sulphur, sulphuretted hydrogen, mercaptans—in the sulphuration of oleaginous seeds and oil cakes, which have previously reached the initial point of rancidity, we shall arrive at the conclusion that a sulphuretted oil responds to the following chemical composition:

1. Rancid oil, consisting of:
   Free, non-saturated fatty acids, thirsty for oxygen, tending to completion of the process for yielding saturated fatty acids; and by super-oxidation, organic acids of an inferior number of atoms of carbon.
   Volatile fat acids, exciting with the whole series of sulphonated derivatives, and even the sulphur, brought in by the carbon sulphide, the fetid odor of the sulphuretted oils.

Traces of free glycerin, holding in solution organic matter tending to color it.

2. Neutral oil, consisting of:
   Ethers of organic acids of glycerin (fatty acids combined with glycerin), to which must be added the impurities of the solvent employed and even the solvent itself, which, after distillation in the desulphurating apparatus, remains in slight quantity in the oil.

3. Matters in suspension, on account of the moisture, and denominated the "brutt" (crude). They proceed principally from the constituent matter of the seed, and have very complex characteristics. There are traces of cellulose, poly-saccharides, gums, oxidized resins, mucilages, pectic matters, albuminoids, starches, etc., introduced in the lixiviation of the seed of oilcakes by the sulphide, in which, nevertheless, these organic matters are insoluble. It is on this property that the quantitative analysis of these impurities depends.

After this investigation of the complex phenomena produced, in connection with the rancidity, by the sulphuration of seeds and oilcakes, it seems that the whole series of sulphonated derivatives, which depreciate the commercial value of sulphuretted oils, and which render them, by reason of their color and their fetid odor, inferior to the oils extracted by pressure, proceed particularly from the impurities of the industrial carbon bisulphide; which would be a very practical solvent, capable of rivalling the ethers of hydrocarburretted petroleum, if it were subjected to a thorough preliminary rectification, in suitable apparatus, and a new distillation to eliminate the odorous and colored products which it contains. The managers of the oil works ought to direct their efforts to this result, which has been already realized in the industry of perfumery and of essential oils, in which carbon bisulphide is of constant utility.

"Sulphuretted oils," much less objectionable, would thus be secured, and their purification and refining would be greatly facilitated. The latter consideration should be viewed seriously, for these oils, under the present rudimentary processes, cannot be of the same practical utility as if they had been subjected to a more rational treatment, founded on better knowledge of their chemical constitution.

The hope of promoting this result has been the inspiration of the present paper.

Addendum.—It is known that the oil of colza, even extracted by simple pressure, has an odor sui generis of great stability. Like all the seeds of the crucifers, the colza seed contains, in the state of a potassium salt, acid glucoside, both sulphuretted and nitrogenized; myronic acid, quite unstable, resembling the glycerin ethers so much that in the analysis the fatty acids, after saponi-
fication of the oil, are capable of sulphurizing a piece of silver.

Under the influence of an enzyme, myrosine, also present in the seeds of the crucifers, especially in mustard seed, this potassium myronate is decomposed into allyle iso-sulpho-cyanite, carbonic gas and carbon sulphide. In the oil cake of the seeds of the crucifus, especially this reaction takes place. If this is somewhat moist, the iso-sulpho-cyanite itself is changed by hydration, yielding traces of allyle cyanide and carbon bisulphide, to which the special odor of the extracted oils seems to be due. There is also found accumulated in the oilcake of the seeds of white mustard a nitrogenized glucoside, which yields a yellow oil of piquant odor, the more or less characteristic odor of the mustard oils.

The dissolution by carbon bisulphide of the sulphur- 
crusted principles contained in the seeds of the crucifers would be weak if the operation were conducted in oilcake nearly dry with a solvent chemically pure. This odor, sui generis, of the carbon sulphide is particularly noticeable in the formation of new sulphonic organic derivatives of fetid odor.—Revue de Chimie Industrielle.

How Soap is Sold.

(Continued.)

An English firm advertises a buttermilk soap, milled and superfatted, and with 50 orders gives a “model of a cow and sufficient moss to make a striking window display.”

* * *

The usual argument is somewhat reversed in the following advertisement of Hall & Ruckel, New York, proprietors of Sozodont, Sozoderma Soap, etc. They say:

Is this a big argument in a little space? Or the reverse?

Every druggist loses customers through criticism of articles he sells which do not give satisfaction. He can better afford to have the article criticized if it does not bear his own name than to have that name and his word brought into question.

What his own article costs him, plus depreciation in stock of same on shelves, plus dissatisfied customers, some of whom are lost altogether, should make the retailer hesitate to try to compete with manufacturers of well-known proprietary articles which have stood the test of public use for years.

* * *

The Brownie Soap Co. of Chicago advertises among the laundries that “Brownie Soap is the only soap made retaining all glycerin matter.” Do tell!

And Lucille has written to mama again. Here is her letter:

HOTEL COLUMBIA, ASBURY PARK, N. J.

SEA WATER BATHS A SPECIALTY.

My Dearest Mamma:

Enclosed find my new picture. How do you like it? No, the Count hasn't proposed yet and I don't intend he shall, until I know better how he is fixed.

I cannot be more economical. “Every day here, bang goes a whole saxophone,” as the Scot said of London. But Coal Oil Johnny soap enables me to save a lot of laundering. I wash my laces and handkerchiefs with it in my room. They are sweeter and cleaner than ever before. And when dried on the mirror or window-panes, they are every bit as smooth as if they had been ironed. And they never get lost or mixed up with other people’s any more.

Another great discovery I have made—Coal Oil Johnny soap will cleanse perfectly, yet not take even a little bit of color out of my daintiest shirt waists. I soap them, soak in Luke-warm water, rinse and—there you are.”

Nellie says I'll need to know how to wash, if I marry the Count. Isn't she mean?

Your affectionate daughter,

Lucille.

P. S.—Have caught the Count making love to the rich old widow from New York. Now I know it is money he is after and I've given him the G. B. Any man is welcome to two strings to his bow—if he can get them—but I'll not be one.

Tell papa to send a big check, to get me away from here and take me to Paul Smith’s with Nellie.

* * *

The following circular is of a very different style:

BE SURE NOT TO BE INFLUENCED BY NICE LANGUAGE—DEMAND PROOFS.

Our circulars are copied and imitated very extensively. Unscrupulous rascals steal our ideas and imitate in appearance our goods and style, but they cannot take away our experience, knowledge, skill and reputation. Be careful therefore to ascertain that you are handling properly selected, genuine goods made by our firm.

* * *

OUR CUSTOMERS SHARE WITH US the reputation of our goods and this depends not only on their quality, but on their suitability. Soaps are like tools, means to accomplish a certain object. If you use the wrong tool the work becomes difficult and the result is unsatisfactory. Communicate with us and we will show you how to select soaps so that their users will be delighted—they improve health, increase comfort, make people healthy and beautiful.
The Alden Speare’s Cons Co. advertises its laundry starch by asking: “Which starch produces the stiffest, finest, most flexibl work?” and replying: “The answer is found in every barrel of Speare’s brand Crystal Springs Wheat Starch.”

* * *

WE HAVE SOAPS WHICH SELL AT SIGHT—
THEY ARE SO CHEAP AND LOOK SO WELL.

But the more you learn about our goods and methods, the greater and more lasting will be the benefit you derive. It will be a revelation to intelligent readers to understand the great and valuable object lessons which are given by means of our soaps. We are only waiting to hear from you in which direction you are interested, so we can send you the proper instructions together with free samples to prove the truth of our claims.

* * *

We have not seen the original, but an English contemporary quotes the following as being an American advertisement:

“When you buy soap, on what basis do you decide your purchase? Do you buy on its appearance? Appearance is always deceitful, and especially so in soap. By a little bleaching and a little treatment your soap man can make the poorest grease look clean and white. They are making soap today in New York City from the grease tried out of the offal and swill collected at hotels and elsewhere in that city. Do you want that kind of soap? Do you buy on its taste? A mild alkali, costing less than 1 cent per pound, can be added which will not make the soap taste strong, yet detracts largely from its value. Do you buy on its smell? Essential oils are cheap, and a small quantity added to each batch of soap will give it the most delicate scent. Do you buy on its ‘sudsing’ properties? Cheap cottonseed oil or even petroleum products, under certain conditions and in combination with strong alkalis, will foam all over your washroom. Do you buy because its lowest in price? French chalk, talc, silicate of soda, and other adulterants, costing less than 2 cents per pound, can be added to soap without changing its appearance or benefiting anyone except the soap maker, who transfers your cash to his pocket without giving you money value in return. You should buy your soap on a grease basis. That’s the true test of any soap. That’s what does the work. Make your soap maker guarantee you 55 pure grease, with the privilege of having his soap tested by an expert chemist, charges paid by the soap maker. See how a proposition of that kind will start some of the so-called ‘honest’ soap men to the woods. Our chemist recently tested twenty-one samples of soap, all received from different so-called ‘reputable’ soap dealers whose soaps some of you are using today. Only one was pure. All the others were adulterated to a greater or less extent. Only two contained over 50 per cent. grease. We will guarantee our famous —— Soap to be absolutely pure, and to contain 62 per cent. of grease. We will stand the expense of an analysis by any chemist you may appoint, and any other forfeit you may wish, if we don’t ‘make good’ on the above claim. We know —— Soap to be the best and most economical soap on the market today, though its by no means the cheapest in first cost.”

* * *

In the line of street car advertising, the following is from the Johnson Soap Co.:

“PERSONAL.”

If the young lady in the black tailor-made suit and pompadour hat, who left a package of Palmolive on a Wells street car, Tuesday afternoon, will send her address to P. O. box 874, package will be returned to her in person.

* * *

Sapolio is still being advertised widely in street cars, the following being a few specimen rhymes (accompanied by appropriate illustrations):

This is the Maid of fair renown
Who scrubs the floors of Spotless Town.
To find a speck when she is through
Would take a pair of specks or two;
And her employment isn’t slow,
For she employs Sapolio.

This lean M.D. is Dr. Brown
Who fares but ill in Spotless Town.
The town is so confounded clean
It is no wonder he is lean.
He’s lost all patients now, you know
Because they use Sapolio.

This is the butcher of Spotless Town;
His tools are bright as his renown.
To leave them stained were indiscreet
For folks would then abstain from meat,
And so he brightens his trade, you know,
By polishing with Sapolio.

(TO BE CONTINUED.)

Amendment to Trade-Mark Law.

A foreign consul reports from Chile that an act improving the trade-mark laws was adopted by the National Congress in 1899. This provides that in case of an action for infringement the judicial authority may be allowed, providing the original mark has been duly registered, to use his discretion as to whether or not the infringing mark is intended to deceive the public. Formerly to successfully bring an action, the infringing mark had to be an exact copy, the slightest alteration being sufficient to render prosecutions useless.
Law Regarding Portuguese Labels.

On July 17, 1900, the National Congress of Brazil enacted a law with reference to imported goods bearing Portuguese labels, of which the following is a translation:

"Article 1. All foreign merchandise bearing labels or lettering of any kind, in whole or in part, in the Portuguese language shall have printed in capital letters and in colored ink across such lettering or labels the name of the country of manufacture. All decrees to the contrary are hereby revoked."

The government has issued an order, according to the "British Board of Trade Journal" of Sept. 27, 1900, postponing the application of the prohibition of goods bearing Portuguese labels until Nov. 30, 1900.

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.
660,814. Soap cutter and separator. John J. Gaynor, assignor of two-thirds to F. M. Fauvre and D. A. Murphy, Indianapolis, Ind.

TRADE-MARKS.
35,299. Soap powder. J. G. Haas Soap Company, St. Louis, Mo. Essential feature.—The word "Brightlight."
35,300. Soaps. Munyon's Homeopathic Home Remedy Company, Philadelphia, Pa. Essential feature.—The representation of a man, a woman, and a branch of leaves, which latter the woman is apparently in the act of presenting to the man.
35,301. Laundry soap. N. K. Fairbank Company, Chicago, Ill. Essential feature.—The word "Rainbow."

Bones Are Rising.

Meat dealers in this city are considerably interested in what promises to be a rate war between local fertilizing firms. The latter make it a practice to send wagons about Newark and adjacent towns to collect bones from the meat markets. A certain rate per ton is paid to the dealers, and the bones are taken to the factories and converted into fertilizer or other products of the same nature.

The American Agricultural Chemical Co., formerly known as the Lister Co., is the principal fertilizer firm in this city. It is the head of the recently formed fertilizer trust. The trust includes nearly every fertilizer factory of any consequence in the country.

Several months ago the firm of Russell & Whitehead, fertilizer manufacturers, was started in a small building at the foot of Hawkins street. It prospered and began to send out wagons to collect material from the Newark meat markets.

Not much attention was paid by the trust people to their new competitor, owing to the small extent of its business. Some difficulty was found in getting bones by the Russell & Whitehead people, and so they decided to offer a higher price.

The Lister people have been buying the bone at the rate of $7 per ton. Two weeks ago the Russell & Whitehead firm offered $10 per ton, and to pay the expense of carting the bones to the factory. Many meat dealers, as a result, began to sell their material to the new company.

In Newark, there are about 250 meat dealers, and this week each of them received a notice stating that the Lister Co. will, beginning on Nov. 1, buy bones at the rate of $10 per ton. Whether the new firm will make a higher bid for the trade is what is now interesting the butchers.—Newark (N. J.) News.

Candles With Colored Flames.

According to a patent granted in France, candles are made to burn with variously colored flames by preparing the wicks previously to their employment by certain chemicals. For red a strontium combination—preferably the nitrate—is used; for a blue flame nitrate of copper; for green barium nitrate; for yellow sodium nitrate or some other sodium compound, etc.

Magic Polishing Cloths.

Polishing cloths sold under the above and similar names are prepared by soaking woolen cloths in soap solution and adding tripoli. A solution of about 20 parts soap in 100 of water, to which 10 parts tripoli are added, will give a suitable product for polishing metallic objects.
Spiritus Saponatus.

According to the pharmacopoeias, this preparation is a clear yellow alkaline liquid, which mixes with water or spirit without precipitation. These requirements in no way demand a uniform product, as one containing 10 per cent. of free alkali, and one containing, on the other hand, 18 per cent. of unsaponified fat, both responded to them perfectly. When the former sample had stood several weeks at a moderate temperature, the saponification became complete, so much so that no alkaline reaction was given even by phenolphthalein, unless the soap was dissociated by the addition of water.

It is said that spiritus saponatus owes its efficacy to its alkalinity. Hence, what has been long stocked has lost its virtue. The writer, however, disagrees entirely. The alkali, to which the spiritus saponatus owes its power, is that set free from the soap by the moisture in the skin. Unsaponified alkali has an inflammatory and cracking action on the skin, and may cause serious disorders in a delicate epidermis.

Hence the maximum percentage of free alkali in spiritus saponatus ought to be accurately prescribed, say, 6 per cent. of the total alkali present. As, according to the formula, 7 to 10 per cent. of the oil in spiritus saponatus must be unsaponified, it is certain that, after some days' standing, this quantity of free alkali will not be exceeded. The methods of saponification directed in the pharmacopoeias are awkward and the reverse of economical. The writer recommends the following as a substitute:

In the first place, the alcoholic lye and the oil should be, as nearly as possible, of the same specific gravity, to favor their intimate admixture, and the pharmacopoeia lyes are too heavy, and will only mix with the oil, of which the specific gravity is .917, by constant shaking or by boiling, which wastes gas and alcohol. Besides, the pharmacopoeias do not pay sufficient attention to the fact that lyes, rich in alcohol, saponify more vigorously than those containing less spirit. The saponification can further be accelerated by substituting arachis, seasame, or cottonseed oil, especially the last, for the more expensive and more difficulty saponifiable olive oil. Although the lye becomes heavier during saponification, even if of the same specific gravity as the oil at first, very little shaking is needed even in the later stages of the saponification. The writer distinguishes three steps in the process. The first is characterized by the disappearance of the oil, and the production of a transparent homogeneous fluid. When the second is reached, the liquid does not become turbid, on dilution with water, and in the third, the free alkali does not exceed the .6 per cent. already mentioned.

There is also the necessity to use such high grade and expensive caustic potash as the pharmacopoeias direct.—"Pharmaceutische Zeitung."

Association of Official Agricultural Chemists.

The secretary of the association of Official Agricultural Chemists, Prof. H. W. Wiley, chief chemist of the United States department of agriculture, announces that the seventeenth annual meeting of the association will be held in the city of Washington, beginning Friday, Nov. 16, 1900, and continuing through Saturday and Monday, or until the business of the association is completed. The meeting will be held in the Columbian University and the following order of business will be observed: 1. The president's address; 2. reports of the referees. These reports will be discussed in the following order: 1. Report on nitrogen; 2. potash; 3. phosphoric acid; 4. soils; 5. ash; 6. foods and feeding stuffs; 7. liquor and food adulteration; 8. dairy products; 9. sugar; 10. tannin; 11. insecticides; 12. reports of special committees (abstract committee, food standards, fertilizer legislation, and volumetric standards).

Progress in Manufacturing Candles.

The discovery of gas lighting and improvements in lamps has done much to curtail the manufacture of candles, but it is yet a vast industry. An estimate of the vast consumption in the United States places it at 22,000,000 pounds annually. Candles are still the staple illuminating medium for the poor of large cities and for all the classes in small towns and villages where there are either insufficient or no gas works. Country hotels and taverns are large consumers, and the preference of many people for candles over lamps, as portable lights, keeps up a constant demand in all sections. Candles likewise are the true aristocrats among illuminators, and the renaissance in art taste which holds no illuminating medium to be quite so beautiful and effective as the candle for dinner tables and party and ball rooms calls for an extensive manufacture of fine grades. Now, it is not the beauty of the polished brass or silver candelabrum alone which makes appeal to the aesthetic judgment, for, except the yet imperfect electric light, no illuminator can give so pure and white a light as a perfect candle. The finest fruit of science applied to the once homely industry is the stearic acid mold candle of today, which is not only quite as handsome in appearance as the wax candle, but burns with equal brilliancy and purity and has to a great extent usurped the place of the more costly light. The homes of the far west share with the boudoirs and salons and dining rooms of the east in the consumption of the best of these candles. A very large proportion of well as originating the modern method, that the stearic acid on cooling became unsightly, brittle and uneven of combustion. The remedy appeared to lie in breaking the grain of the acid, and this was done by the introduction of a powder.
Unfortunately, white arsenic was the powder chosen, and the result was so noticeably injurious to health that Chevreul's discoveries were brought into disrepute, and the early art of stearic acid candle-making was almost annihilated. Better study found a simple and harmless remedy to lie in lowering the temperature of the acid before pouring it into the mold and in heating the mold to receive it. Improvements were also successively made in the methods of preparing the fat, and when, finally, American ingenuity was brought to bear upon the mechanical side of the problem, a machine was developed out of Sieur de Broz's last century mold that has marvelously simplified and cheapened the manufacture of candles. The purification of the fat had done much to improve the combustion, and the smoke had been abolished; the flame, too, had become much brighter and clearer, and the snuffing of the wick had become less necessary, for the combustion being more perfect, the wick, whose only duty is to conduct the oil to the flame, was more nearly consumed. A little attention to the making of wicks soon banished the snuffers and the snuff tray to the curiosity shops of the inquisitives.

The old-fashioned wicks were simply twisted. Camphor was conceived the plan of plaiting them, with one strand tighter than the others. In the candle the wick is kept straight by the hardened fat, but, when released by the flame, the tightened strand draws the end of the wick over to one side so that it is brought in contact with the outer envelope of the flame where the combustion is most perfect because of the liberal supply of oxygen received from the air, and thus the wick is continuously consumed.—St. Joseph News.

A New Use for Soap.

Those wearing spectacles or eyeglasses know how they are at times almost blinded practically when, on passing from a cool place to a warmer one, the glasses become covered with condensing moisture. This, it is said, can be effectually prevented by applying to the glass a minute portion of soft soap (potash soap) and then rubbing the glass till it looks bright and polished again. An application in the morning will usually suffice for the whole day.

Ammonia Soap.

According to a recent German patent, granted to O. Seeber, a fatty acid is partially saponified so that a soap of strongly acid character results; to 100 parts of the still liquid, hot soap is then added 100 to 150 parts ammonium chloride which has previously been warmed so as to drive off the greater part of its water. After cooling, this soap is cut into fine shavings and added to soap made by any ordinary process (including cold-made soaps). Ammonia is not set free until the soap is dissolved in water for use.

Bathing Spirit.

Casile soap, shaving...........2 av. ozs.
Potassium carbonate...............1 av. oz.
Glycerin ..........................2 fl. ozs.
Oil of lavender flowers...........1 fl. drm.
Oil of bergamot ..................½ fl. drm.
Oil of rosemary ..................½ fl. drm.
Alcohol ............................10 fl. ozs.
Water enough to make...........16 fl. ozs.

Digest the soap in 4 fluid ounces of water with gentle heat, when solution is effected, add the potassium carbonate and glycerin; dissolve the oils in the alcohol and add to the soap solution, and when a perfect solution has taken place, filter through paper.—Meyer Bros. Drug.

Carbolic Soap.

Canton, Bell & Co. imported at San Francisco certain merchandise which was invoiced as "One iron drum carbolic soap." It consists of a stiff, unctuous brown-colored paste of pronounced soap-like smell, and having been returned by the appraiser as "carbolic soap medicated," was assessed for duty 15 cents per pound under the provision for "medicinal or medicated soaps," in par. 72, act of 1897. It was claimed by the importers to be dutiable either at 20 per cent. ad valorem under the provisions of said paragraph and act, or at the same rate under sec. 6, or at 25 per cent. ad valorem as a chemical compound under par. 3, or at ½ cent per pound under the provision for "caustic soda," in par. 76, or at one-fifth of one per cent. per pound as "bleaching powder or chloride of lime," under par. 8 of said act. The protestants stated that it is used for spraying trees, flowers, and plants, to kill insects, acting thereon as sheep dip does upon sheep; that, although called "carbolic soap," it is not actually a "medicated" or other soap, nor is it used as such, but is an "insecticide," and has to be reduced to a liquid state for use.

The board found as a matter of fact (1) that the merchandise in question "consists of potash and soda soap, to which carbolic acid has been added, and that it is intended for use, and is used" as a disinfectant and antiseptic wash." It dissolves readily in either cold or warm water and is easily agitated into suds. (2) All soap, whether used medicinally, sanatively, or for laundry or the other purposes for which soaps are intended, are, as a rule, reduced to a semi-liquid condition, or to suds, prior to or in the course of their use. A principal use of most medicated soaps is as insecticides, germicides, disinfectants or as antiseptics, by external application, to remove or destroy destructive insects, bacterial germs or micro-organisms, thereby preventing injury from putrefactive fermentation, septic infection or otherwise, and thus operating as a preventive or remedy of disease.
A Practical Form of a “Soap Manufacturers’ Association.

To write against a “trust” of soap manufacturers and at the same time acknowledge the truth of the old saying, “In union there is strength,” seems to be a queer thing to do; nevertheless I intend to outline a plan by which soap manufacturers may co-operate with mutual benefit. Because I intend to speak for myself and shall endeavor to present in the best light what I might accomplish (even if I do so only for the purpose of illustration) as a co-operator with others in my line of business, and because such a proceeding might be of material benefit to myself. I am securing advertising space in this journal which I intend to use for the purpose of setting forth the merits of certain improvements in “Means for Rational Skin Culture and for the Promotion of Hygienic Cleanliness” (“soaps” is shorter, but the word is getting old and is being abused). Such advertisements will appear above the signature of the firm name adopted by myself and family, viz., Geo. A. Schmidt Co., Chicago, U. S. A. If other manufacturers follow my example, and advertise such specialties as they can make to better advantage than others, we all can exchange goods and act as agents for one another, thus making deliveries, keeping accounts, collections, etc., mphc more simple and less expensive than if special agents had to attend to it. Local soap manufacturers come in contact with all establishments using soaps in quantities and whenever it is a fact, that certain large concerns, owing to perfected methods and systems, etc., can make one or another kind of soap to better advantage at lower prices than a smaller manufacturer can, it certainly is more to his interest to acknowledge the fact and, for that particular quality, at least, act as distributor, which fact does not hinder him from making and selling his own specialties whenever there is a demand for some or one can be created. “The survival of the fittest” is an inexorable law and only those will live and succeed that will render the best service for value received; it is utterly useless, for any great length of time, to “make believe” the public anything else but real facts, and the sooner we adapt ourselves to changed conditions the better.

The writer can truly say that he foresaw prevailing conditions and acted accordingly; he has limited his efforts for a third of a century to the details of practical soapmaking, to the improving of the quality and effectiveness of soaps, to the getting up of labor-saving machinery of improved compositions and processes, in short, to such work as can only be done by the practical soap maker who loves his calling and does not get tired of practical and experimental work. It is but natural that such a man must neglect that which, to others, is most essential, the “make-up,” the “advertising” and many other “selling” schemes.” Others display eminent qualities in managing help, or in designing plants so well arranged that the commoner class of soaps may be made in enormous quantities at little cost for labor, and even the smallest and least experienced of soap manufacturers has certain advantages, if they only consist in friends and customes who patronize him in preference to all others. If these different “classes” of soap manufacturers co-operate in such a manner that each gets a share of resulting profits, which is in just proportion to the services he renders the whole, it is a far better and more sensible plan than the prevailing custom of one trying to get the best of the others regardless of decency and fairness. It is a hopeless task, even if there should be a desire to do so (which I doubt) for the large concerns to try and annihilate the smaller ones, eventually all foul schemes which might be employed in that direction will recoil on their originators; history repeats itself, and it might be well to remember it for all those contemplating combinations of a nature which cannot be perfected publicly by means of an exchange of ideas in the trade journals, etc.

Above is simply an outline to be filled in by my colleagues in the soap business. I shall give details of what I have to offer (to co-operators) in the shape of advertisements to be found in future on the last page of this journal. Hoping to soon find similar offers (which might lead to co-operation) from other soap manufacturers, I sign myself,

Geo. A. Schmidt.

The Patent and Trade-Mark Commission Agree on a Bill.

Some two years ago a commission was appointed by the president, under an act of congress, to revise and amend the laws of the United States concerning patents and trade-marks, says the Scientific American. The commission held public sessions in New York, Chicago, and Washington, at which inventors, attorneys, and others interested had an opportunity of presenting their views as to such changes as they deemed necessary. The responses to a large number of circular letters were also considered. Since this time Mr. Francis Forbes, the chairman, Judge P. S. Grosscup, and Ex-Assistant Commissioner of Patents Arthur P. Greeley have been giving the subject their attention, and are now prepared to report at the coming session of congress amendments of the patent laws, the object of which is to make them conform with the practice under the convention for the Protection of Industrial Property concluded at Paris, March 20, 1883. The commission will report a new trade-mark law.

This will be an epoch-making statute, and it will create much discussion between those who favor a “declaratory” trade-mark law, making the registration
a recognition of ownership, and an “attributive” trade-mark law, which creates and may create ownership by registration even though the trade-mark itself is not used immediately. The bill will be considered in a subsequent issue. The commission will also report several bills to amend the patent laws in minor details, relating especially to the filing of caveats and the appointment of foreign administrators.

Mr. Forbes and Assistant Commissioner of Patents W. H. Chamberlain sailed Nov. 29 as delegates to the convention for the Protection of Industrial Property, which will be convened at Brussels, Belgium, on Dec. 11, being an adjourned meeting from that held in Brussels in December, 1897.

The above bills, especially that which relates to reforming and remodeling trade-mark practice, will be watched with the greatest interest, not only by the profession at large, but by all those members of the community who have any property rights in trade-marks as such. The present practice of allowing the owners of trade-marks to use their own judgment as to whether they shall or shall not register their mark is the one feature of our trade-mark laws which is not up-to-date, or in harmony with the progressive spirit of the time. Many of our readers may be surprised to know that there is no way by which the originator of a new trade-mark can ascertain whether or not the device or name which he has conceived and adopted is original with him. He may go to some expense in having a search made in the patent office; his attorney may correctly advise him that as far as the patent office is concerned, nothing stands in the way of his using the trade-mark he has adopted; and having taken the only precaution open to him in advance of actually putting the mark in use, he, perhaps, spends a considerable amount of money in having labels and imprints made bearing his trade-mark. He puts his goods on the market, and perhaps expends large sums in advertising those goods. Some months or years may elapse before he receives a notification from some petty manufacturer that he must discontinue using the mark, and that he must be answerable for damages, as he, the petty manufacturer, had placed goods bearing the same mark upon the market ten or perhaps twenty years before. A case of this kind seems exceptional, but those attorneys who are actively engaged in practice are aware that this is an everyday occurrence. Prominent attorneys, know of cases where thousands and hundreds of thousands of dollars have been spent in advertising before it is discovered that the mark which had been so prominently put before the public is an infringement of a mark which is the property of some rival manufacturer. No recourse is open to the merchant under these circumstances. He is obliged to submit, perhaps, to the rather cruel terms of a rival, or he is obliged to discontinue the use of the mark and lose the benefit of his advertisements, and perhaps, in addition, to pay heavy damages for his innocent act.

How may evils of this character be corrected? It rests with the able body of commissioners appointed by the president to solve this problem, for certainly no greater evil exists today in our trade-mark practice. It would seem that a law could be mapped out without any great difficulty which would correct these abuses and give the industrial classes relief from the present chaotic conditions. Probably the simplest method to correct the abuse is to frame a law extending trade-mark protection only to those who shall register their trade-marks in the patent office within a reasonable time. Many substantial property rights are protected alone by trade-marks, and there is no reason why the title to such property should not be recorded in the same way as the ownership of a piece of real estate is now recorded. It will then be possible for anyone seeking trade-mark protection to ascertain in advance of applying for registration what his rights are, what the probabilities of allowance will be, and whether he is likely or not to infringe the rights of some other merchant. In carrying out such a provision it would be necessary, of course, to modify the present exorbitant fees of the patent office for filing trade-marks. The government fee for registering a trade-mark is now $25. This is far in excess of the needs of the case, where, with proper classification, the matter of examination is simple, and the registration fee should not exceed $5, or at the outside $10. This will render it possible for merchants to freely register trade-marks for all their brands of goods. We have every reason to believe that the commission will have some plan to lay before congress which will prove of great relief to the business community.

Fertilizers.

Out of 481 samples of commercial fertilizers, collected by the Indiana state chemist, at Purdue University, at Lafayette, only thirty-nine were up to the standard in every particular. Some samples were only slightly below the standard, but all the cases were violations of law. Of the number examined 322 samples differed so much from the form of legal standards that the purchaser, the state chemist says, would be seriously deceived.

Poisoning by Hair Dye.

Pollak reports (Wien. klin. Woch.) a case of poisoning by the application of paraphenylenediamine as a hair dye. After the third application the patient experienced an extensive eczematous eruption of the scalp and forehead, lachrymation, injection of the conjunctiva and edema of the eyelids.
Essential Oil of Jasmine.

Hesse (Berichtc) who had previously studied the odoriferous principle of jasmine flowers as derived from pomade, has examined an authentic sample obtained by extracting 1,400 kilos, of the fresh flowers with light petroleum, the solvent being recovered. One kilo. of the concrete essence was obtained. This has a specific gravity of 0.914; the saponification number was 85, corresponding to 25 per cent. of benzyl acetate. The neutral unspoonified residue had a powerful odor of jasmine (the new ketone discovered by Hesse). By steam distillation the product yielded 25 per cent. of pure essential oil. This oil has the following characters: Its specific gravity is 0.940, it is optically inactive, and contains esters corresponding to 41 per cent. of benzyl acetate. It is not fluorescent, and contains neither methyl anthranilate nor indole. It is apparent from these figures that the oil prepared by enfleurage differs materially from that prepared by extraction. It is therefore probable that a change (possibly of a fermentative nature) takes place after the flowers are picked. This research is of a very valuable nature, as it opens up an important question in discussing the relative value of methods of flower treatment. Indol is a very undesirable constituent of an essential oil, and apparently it need not be present, being only a decomposition product.

German Technical Education.

Mr. F. Brocklehurst, M.A., who has recently been traveling in Germany with the purpose of obtaining an insight into "the heart of the social and industrial condition of the German working people," records his impressions in his notes on "Labor and Progress" in the Manchester Evening News. He says: "My chief interest centered in the finding out the extent to which the German workman was technically educated. To this end I made inquiries at the machine shops I visited, and also examined the type of student in attendance at the Technical Schools of Berlin, Dresden, and Chemnitz. My motive influence was that of discovering the secret of the cry "Made in Germany" which startled our manufacturers a year or so ago. The impressions which I gained with respect to this question are that the relative success of the Germans is due to the technical training of their heads of department. We shall have to bestir ourselves or we shall be left in the rear. Our technical education must be more thorough and its cost cheapened. The school at Chemnitz is attended by from six to seven hundred young men, whose average age is 21 years. The period of their course of education covers three years and a half. They are all day students. The cost of their education is only £6 a year. This is but one school out of many. The Polytechnicum of Charlottenburg, near Berlin, is vastly larger and better equipped. Yet in these establishments I did not find a working man. I learned that some workmen attend evening classes, but, as with us, that they were men possessed of more than average intelligence. The general impression which I brought away with me was that the rapid growth in German industries was due to the skill and enterprise of managers and manufacturers, and that the technical education of the ordinary workmen played a very inconsiderable part in that development. It is, however, certain that the contrast between the heads of departments and the average workman cannot long continue. A trained foreman or manager will not rest satisfied with inferior instruments, and ere long we may certainly expect that the German workman will become a better skilled craftsman than he is today."

Perfume Tipping.

The Daily Mail publishes an article on this subject from which the following are extracts:

Unfortunately, there are more ways than one of getting drunk.

Eau de Cologne has been more or less used for many years. But of late years the quantities sold by chemists are enormous. Chemists will tell you that fashionable ladies buy an amount of Eau de Cologne that they could not possibly use for toilet purposes.

The novice, who, by the way, would be shocked at the idea of drinking brandy neat, usually begins with five or six drops of Eau de Cologne taken on a piece of sugar. It gives a glow to the cheeks and a sparkle to the eye. And when a woman is weary after a dance it is delightfully stimulating. From six drops the dose increases to 12. By and by 30 or 40 drops are taken in water. And when well into the habit women drink it by the spoonful.

Of course, it ruins the health, for the lining of the stomach is quickly ruined, sleeplessness follows, and after awhile melancholia sets in. England and the United States are the leading countries in Eau de Cologne tipping.

Essence of lavender is also becoming a much-used intoxicant. It is quite common for a man to walk into a chemist's and drink a couple of drachms, or even an ounce, of this still more destructive liquor. As an ounce of essence of lavender is equal to about nine-pence worth of public house whisky, it can be realized how dangerous the practice is.

Pretty similar to these two intoxicants is essence of ginger. But the ginger is even more harmful. Essence of ginger is 84 degrees over proof, or about twice as strong as good whisky.

It is quite surprising what a lot of people drink ginger on the sly. An able London barrister never goes to court without a bottle of it. Clergymen take it. Liter-
ary men take it. Business men take it. But the greatest consumers are women.

Usually these people begin by taking drops for painful sensations in the stomach. Then they often get up to a pint a day, and numerous chemists’ customers buy essence of ginger by the gallon.

Capsicum drinking is one of the newest forms of indulgence. Tincture of capsicum is a very valuable medicine when properly used. But if consumed to excess it destroys the body. And the liking some people get for it is extraordinary. An army officer who began taking capsicum as a relief for chilly sensation became so addicted to its use that he could take no fluid without it. He put it in tea, coffee, beer, and even soup. The consequence was that from being a happy, cheery man, he became gloomy and melancholy, and in a twelvemonth looked 20 years older.

Quite different from the foregoing are ether and chloroform. These terrible drugs are used by an immense number of persons. Men whom you meet in business, and whom you would never suspect of giving way to the worst of all forms of intoxication, go to sleep every night under the influence of ether or chloroform. Chloroform is really not very dissimilar to alcohol. It is, in fact, made from alcohol, and it first excites, and then stupefies, precisely like alcohol. In one way, it is not so injurious, for it does not injure the substance of the liver and other organs nearly so much. But it kills all the same.

Some people drink chloroform, others inhale it.

The habit is startlingly common in England, medical men being the most numerous victims. Dr. Kerr says that he has found it consumed mostly by males, mostly by doctors, and mostly by men between the ages of 40 and 50. After the horrible experience of inhaling the dose there follows a perfectly delicious unconsciousness of all discomfort and all things external to one’s self. Beautiful visions are seen. One experiences all the happiness we conceive to exist in Heaven. But this state is very transient. Soon there is a most unpleasant awakening. And until the next dose is taken existence is perfect misery. Then ruin progresses very swiftly. Nausea becomes constant, dyspepsia of a severe form comes on, with hatred of food. There is an ever-present burning thirst, a horrid pain in the heart. The victim becomes nervous, languid, drowsy, thin, cold, haggard, worn, and utterly hopeless. He has an hour or two of perfect bliss every day, and 22 hours of almost intolerable misery.

The quantity of chloroform used by those accustomed to it is astonishing. One woman was known to have bought a pint of it every day, poured it on her blanket, and inhaled it. Yet a single teaspoonful sometimes kills a strong man.

Ether is quite like chloroform in its effects. But if you inhale it the action is much slower, while if you drink it the action is quicker than that of chloroform. At first it is most exhilarating. Mixed with whisky, it excites men almost to madness. It is not so dangerous to life as chloroform. Hence it is more commonly used. It takes a terrible hold of the consumer, and many people get drunk on it several times a day. After a time it produces gastritis.

In Ireland, some years ago, the population of an immense district were, almost every man, woman, and child, ether drunks. From Ireland the practice traveled to Glasgow, down to Lincolnshire and London, and even crossed the Atlantic. It is not quite so extensively used now, but as it is a cheap way of getting drunk, there is a progressive increase of the habit.

**Around the Soap Factories.**

News items sent us by our readers will find prompt attention in this column.

The Louisville Soap Co. write that they are running night and day (in spite of a large increase in their former capacity), to supply the demand for their various brands.

The Rockefeller Soap Co. is a new incorporation in Brooklyn, N. Y., for the manufacture of soap and soap powders. Directors, Edgar Rockefeller, D. H. Dugan, and E. J. Dugan, Jr.

The Supreme Court of New York has decided that the recent law, which would have made an end of the Barren Island garbage and rendering business, is unconstitutional.

Carbolic soap, imported by Catton, Bell & Co., has been assessed for duty at 13 cents per pound, under paragraph 72 of the act of 1897, in spite of the protest of the importers.

The Eureka Soap Co., of Cincinnati, O., has been incorporated. Capital $200,000.

We regret to learn of the death of Jose Maria Marticorena, a prominent soap manufacturer in San Sebastian, Spain, and a reader of this paper for the past ten years. His sons will continue the business under the style of Marticorena Hermanos.

Twenty-six soap works at Marseilles have had to close for want of coal.


A. & F. Pears, Ltd., who have closed their San Francisco branch and supplanted it by an agency in Chicago, erected a new plant during the last year, at a cost of $130,000.
The Hewitt Bros. Soap Co., Dayton, O., has been incorporated. Capital, $50,000.

There is a movement on foot among the associated retail butchers of Columbus, O., to construct a co-operative tallow plant. Henry Pletsch is the president of the butchers' association, and M. L. Kellner is secretary.

Maurice Pineoffs, formerly of Chicago, has left for Antwerp where he will act for the Proctor & Gamble Co., and other firms as resident agent.

On another page our readers find an advertisement in which the Brantford (Ontario) Soap Works are offered for sale. This is the factory which makes the “Ivory Bar” soap, which has been known as one of the best soaps in Canada for many years, and enjoyed a large measure of success.

Notes for the Manufacturing Chemists.

Barbers’ Bay Rum Substitutes.

“The National Druggist,” in replying to an inquiry for a cheap toilet preparation to take the place of “Bay Rum” or “Witch Hazel,” gives the following:

- Oil of bergamot ............. 2 parts
- Oil of lemon ................... 1 part
- Oil of spike lavender .......... 1 part
- Oil of bay .................. 2 parts
- Sodium salicylate ........... 16 parts
- Resorcin ......................... 10 parts
- Water, sufficient to make ... 1000 parts

Rub up the essential oil with the sodium salicylate and a little water, finally adding water sufficient to make a clear solution. Dissolve the resorcin in the rest of the water, and mix the solutions. Let stand, and after a day or two, filter. Color with caramel. The cost of a gallon of this mixture would be about 42 cents, at current wholesale rates.

Camphor Dentifrice.

- Camphor .............. 50 centigrams
- Powdered soap .......... 1 gram
- Saccharin ............... 25 centigrams
- Thymol ..................... 5 centigrams
- Calcium carbonate ...... 50 grams
- Oil of sassafras ........... 1 to 2 drops

Wintergreen oil or cassia oil may be substituted for the sassafras oil, if preferred.

Assay of Chlorinated Lime.

Wolanisky proposes the following method of assaying chlorinated lime: Pour a solution of the substance into one of potassium iodide slightly acidified by sulphuric acid. The liberated iodine combines with the chlorine, and the solution becomes decolorized. To insure the completion of the reaction the liquid is shaken with chloroform, which is at once colored pink if any free iodine remains in solution. The solution of potassium iodide employed contains 0.1 per cent., and 5 c.c. are used for a test. The hypochlorite solution is used in such strength that it contains about 1 per cent. of available chlorine, and this is run in until the decolorization takes place completely after each addition.

Quinine Tooth Powder.

Prepared chalk .......... 825.0 grms.
- Orris root, powdered .... 100.0 grms.
- Sugar of milk .......... 100.0 grms.
- Saccharin ............. 0.35 grms.
- Pumice stone, powdered .. 25.0 grms.
- Magnesium carbonate .... 25.0 grms.
- Tannin ...................... 20.0 grms.
- Quinine hydrochloride ... 50 grms.
- Oil of rose ........... 1.0 grm.
- Oil of peppermint .... 5.0 grms.
- Oil of ylang ylang ...... 5 drops
- Oil of bitter almond ...... 5 drops

-Dusting Powders with Boric Acid.

A conversation recently on dusting powders led me to try one of carboflic acid, and as it was required to be free from the old clogging fuller's earth, the following was devised:

R Phenol. granul .............. 56 grms.
Ac. boric. pulv. subfil. ...... to 1 oz.

The skin was found to absorb it readily, and in one case was rather irritating, so that a reduction in the amount of phenol was made. Boric acid is a slowly soluble base, and should never be used unless passed through a No. 60 sieve. There can be very little doubt that when a close application of anything that will admit of being mixed in this way, there is nothing equal to a good dusting powder, and boric acid, together with the other ingredient—be it chinosol, izal, lysol, or sanitas oil—is slowly but continuously absorbed. The effect does not last so long as an insoluble base, and the medication may be weaker. If a liquid is added, the acid must be dried and passed through a No. 60 sieve, as in the case of the well-known creolin dusting powder.—Herbert Skinner.
Artificial Indigo.

The Pharmaceutical Journal says: "The artificial indigo of commerce, as at present manufactured, is said to represent almost pure indigotin. It is sold in the form of a 97 per cent. powder, whereas the indigotin contained in vegetable indigo fluctuates between 70 and 80 per cent. The artificial product, however, contains no indigo red, no indigo brown, and no indigo glue. The lack of indigo red and indigo glue, which seem to be of some importance in the relation of the dye-stuff to the fiber, are its special disadvantages. Still, it is believed that at some time not too far off it will be possible to produce the indigo red which is of importance in the production of darker shades of color. Artificial indigo is used by dyers in the same way as vegetable indigo, and if it is possible to render the process of manufacture materially cheaper, thus reducing the price of artificial indigo, the danger to natural indigo will be greatly increased. The struggle between the two products has already commenced, and on the advantage will be with the natural article, inasmuch as its by-product aid the dyeing process to some extent: moreover, the price of the artificial indigo is only a fraction below that of the same quality of the natural product."

Borax Mining in California.

The Frazier Boraxate Mining Company is the title of a new concern located in Ventura County, California, which is going to do its best to successfully compete with the borax monopoly now run by the Pacific Coast Company. So far the new company is shipping about 150 tons per month, but the New York Commercial says there are "untold thousands of tons" of colmonite blocked out ready for mining as soon as shipping facilities are improved.

Cement Industry in the U.S.A.

The cement industry is developing with great rapidity in the United States. There are now forty factories producing Portland cement, and the products for 1900 will be nearly 6,000,000 barrels. The increase has been greatest in the Lehigh Valley region in Pennsylvania. The severe requirements of engineers and the introduction of testing laboratories for cements, and the employment of chemists at the works, have lead to a great improvement in the quality and consequently a much more general use of the American product.

If you have a good position—hold on to it. If you have not, perhaps an adv. in this paper will help you find one.

Wants of all kinds are most readily brought to the attention of the trade through these small ads. in the Soap Journal.
The Scientific American, a paper known probably to every one of our subscribers, in a recent issue, says: "The first edition of 'American Soaps' appeared in print seven years ago and was well received, and since that time the author has continually collected all the available new information that could assist in making a later edition of the book more complete, and has the benefit of the experience of many of the original purchasers of the book.

There is an extensive literature upon soap-making, but most of them are adapted from foreign practice or deal with antiquated methods. The present book cannot be placed in this category. It is an excellent contribution to technical literature by a man who thoroughly understands modern American soap making and is in no sense a compilation. Those who are looking for a thoroughly practical book on soap-making of all kinds, with special reference to modern practice, may be heartily recommended this book. It is freely illustrated, and the number of formulas for soaps of various kinds are large. The section devoted to the actual processes used in the manufacture of soaps of all kinds occupies three quarters of the volume. It is an admirable book."

If you have a second-hand machine for which you have no use, or expect to buy a new one if you can dispose of a smaller one now in use, or any similar need, remember that an advertisement in our "For Sale" column will convey that information to one or more looking for just such opportunity—if there is any use for such apparatus at all.

An Australian subscriber to the SOAP JOURNAL and purchaser of the work "American Soaps," writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file in black and white.
M.L. BARRETT & CO., INCORPORATED,
Importers of and Dealers in
ESSENTIAL OILS,
CAUSTIC SODA,
COCOANUT OIL,
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Rosin, Talc, Soda Ash, Etc.

PHILADELPHIA QUARTZ CO.,
SILICATE OF SODA.
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Guaranteed Superior to any Equal to the Natural.

RHODINOL II
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Can be used in Alkaline or Alcoholic Solutions.

Send for Samples and Pamphlet concerning Synthetics

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OIL OF MYRBANE
for scenting laundry soap. It has the two-fold advantage of costing little and of being very efficient. Write for sample and price of Barrett's C. P. Brand.

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NEW YORK.

“Used by Largest Soap Makers,
Must be a reason for it.”
The "JOHNSON" ROTARY PUMP.

Adapted to PUMPING all kinds of Liquids—Thick or Thin, Hot or Cold

Simple in construction. Positive in action. All parts interchangeable. Made in both iron and bronze—also in acid-proof alloy. As a belt pump, steam pump, or geared to electric motor or gas engine.

SIZES: 1 TO 6 IN. CAPACITY: 25 TO 750 GAL. PER MIN.
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NEW ORLEANS...R. Vallon, 345 Carondelet St.
NEW YORK.....Welch, Holme & Clark Co., 381-383 West St.
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SILEX especially prepared for SCOURING and LAUNDRY soaps.

THE BRIDGEPORT WOOD FINISHING CO.,
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O. L. Hall, 215 California St., San Francisco, Cal.
Bellis Bros. & Pate Co., 1667 Maiden Lane, Louisville, Ky.

The attention of our readers is called to the column of "WANTED" AND "FOR SALE" advertisements on another page. Manufacturing firms looking for intelligent up-to-date help, or who have second-hand machinery they wish to dispose of, and practical men experienced in any branch of manufacturing chemistry looking for employment, can mutually profit by using this column.
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COILS OF ALL DESCRIPTIONS FOR ICE MACHINERY
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218 and 220 THIRD STREET,
MILWAUKEE, WIS.

Say you saw the Ad. IN THIS PAPER
The American Soap Journal & Manufacturing Chemist.

A MONTHLY JOURNAL OF THE MANUFACTURING CHEMICAL INDUSTRIES.

DR. HENRY GATHMANN, Publisher. 322 Windsor Place, MILWAUKEE, WIS. January 1, 1901. VOL. XI. No. 5.

THE AMERICAN SOAP JOURNAL
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SPACE ON COVER DOUBLE RATES.

For Rates and other Information concerning small advertisements of WANTED and FOR SALE, see Announcement at the head of that page.

OFFICE OF PUBLICATION:
322 WINDSOR PLACE, MILWAUKEE, WIS., U.S.A.

The American Soap Journal and Manufacturing Chemist is devoted to the interests of all manufacturing industries of a chemical character, and is an absolutely independent publication. It is the only newspaper of its kind in America and has also a large foreign circulation.

For Subscription and Advertising rates see above.

Communications on industrial subjects, news items, and any information suitable for printing in these columns, are solicited and will have due attention.

Readers in search of machinery, supplies etc., not advertised in these columns, are invited to write us and we shall endeavor to supply the information.

Address all communications to
DR. HENRY GATHMANN, Publisher, 322 WINDSOR PLACE, MILWAUKEE, WIS. U. S. A.

We received with much pleasure a New Year's card, reading: "With all Good Wishes for a Happy Christmas and a Peaceful and Prosperous New Year, from A. E. Nelson, Lieut.- Col., Mayor of Grahamstown, Cape Colony."

The sender of the card, besides being mayor of Grahamstown, is also the owner of a prosperous soap factory in that city. These wishes for a "peaceful" New Year have a peculiar significance, coming from the country they do, and we return the sender our most sincere wishes for a peaceful future, not only for Grahamstown, but for the Cape Colony and its neighbors.

Some months ago we remarked in these pages that the only school for soap-makers in Germany had discontinued its courses since a year or so. We had in mind the soap branch of a government institution and forgot for the moment that there had been established in 1900 the "Versuchs- und Lehranstalt der Seifen- und liederzeitung" in Augsburg. A prospectus of the latter school is before us now, and we gather from it some interesting details.

The object of the school is to "teach young men, who already have served an apprenticeship in the trade, such further scientific and theoretical details as may be needed for their future advancement." The object is sought to be attained by lectures and practical exercises; the former embracing as much as is deemed necessary of physics, chemistry (general and special, as applied to alkalis and fats), raw products, commercial correspondence, and technical drawing. The practical exercises include analytical work and the manufacture of the various soaps by steam and by direct fire; also the manufacture of candles, sal soda, etc.

The cost of a course of six months is $85 (100 for students from countries other than Germany), including the use of the laboratory, reagents, library, etc. The first course of this school was recently completed and appears to have been very successful.

Do we need to mention that the school just referred to is a subscriber to the American Soap Journal?

A washing match! Not one of those competitive feats in which one man (or woman) endeavors to show his (or her) superior skill and rapidity, but a very
serious competition between rival soap concerns, in a war to the knife! Such is the latest occurrence at Mannheim, in which figured the Sunlight soap factory on one side, and a considerable number of German soap factories on the other. Our reports on the competitive trials (of which two were made) are from German sources, and though apparently made in a spirit of great fairness, are perhaps not quite free from bias. (The Sunlight soap factory in question is the one located in Germany.)

The trials had been ordered by the court in the course of a suit of which we have made mention before, and experts appointed by the court were present to decide between the respective merits of "German" soaps and "Sunlight" soap. The interests of the German soap industry at large were upheld by the executive officers of several soap manufacturers' associations, while the Sunlight Co. was represented by two directors.

On the appointed day a quantity of laundry was assorted in such a way that two equal lots should result as regards material, degree of soiling, etc. One lot was marked with a red thread, and sticks were drawn which side was to wash the marked pieces and which side should treat the other half. Then there was weighed off a certain amount of Sunlight soap and for the other side a quantity of "German" light-yellow curd-soap bought at a store. The experts retained a piece of each of these soaps for subsequent analysis, and on request the German side of the trial was furnished some sal soda to be used with the soap. Expert washer women were engaged on both sides, and a record was kept of the time, amount of soap used, etc., and the appearance of the two lots examined into.

And then opinions differed on every point. The experts have not as yet published their report, and in order to do no injustice to either party we refrain for the present from giving the statements which emanate from one side alone.

We are in receipt of the "Year Book and Diary for 1901" issued by "Oils, Colors & Dyesalteries." It contains, besides the very conveniently arranged diary part, a very considerable amount of useful information, such as recipes, painters' notes, color mixtures, a list of chemical names with their popular equivalents, legal information, an illustrated list of trade-marks, calculating tables, tables of weights, measures, etc., and, in short, just the kind of information which it is very convenient to have on hand for easy reference as occasion requires. This volume is issued every year in an enlarged form and in its present state is worthy of a place in any office.

Wanted—The address of a Chicago firm making a soap cutter. Address this Journal.

Do not forget our collection of soap advertisements which we print every month, and the supply of which needs constant renewals so that we may not run short of material. Send your own specimens or those of other firms that catch your eye.

Fertilizing Materials.

The following is an extract from Bulletin 145, of the New Jersey Agricultural Experiment Station:

INTRODUCTION.

In this bulletin is reported the work of the station relating to commercial fertilizers and fertilizing materials.

The fertilizing materials examined include 47 samples of the various standard products. This work has for its primary object the instruction of the farmer, in reference not only to the composition and use of standard fertilizing supplies, and the relation of the cost per pound of the actual constituents in them and in regular brands, but also to rational methods of purchasing plant-food.

In foreign countries, particularly Germany, where work of this nature has been carried on for a longer time, the application in practice of the information furnished along these lines is more general, and haphazard methods of purchase are the exception rather than the rule.

The inspection of commercial fertilizers has required the analysis of 300 samples of different brands of complete fertilizers, 25 of ground bone and 31 of miscellaneous products. The number examined this year indicates a thorough inspection, although a number of brands may have, nevertheless, escaped the inspectors, owing either to the fact that the manufacturers have not reported to the station the names of their brands, or that in the case of special brands, or where small amounts were handled, they were sold or used before they could be inspected.

In addition, there are reported the analyses of five samples of home mixtures, and twelve of mixtures specially compounded by manufacturers to order.

These lines of work have been a matter of special investigation in the past, and the results secured confirm the conclusions heretofore reached, viz., that in the matter of the purchase of fertilizers, the use of intelligence on the part of the consumer, and the application of a knowledge of what and how to buy are quite as important as compliance on the part of the producer with the law providing how products shall be sold. The guarantee which the law requires may be easily kept, and yet the charge for the actual constituents may be so great as to amount virtually to a fraud upon the ignorant consumer. It may be that an average charge by the manufacturers of 86.49, or 31.2 per cent., for mixing, bagging and selling, is not greater than is necessary to
enable them to secure a living profit; the question for the farmer to determine is whether he can afford to pay these charges when, by an intelligent study of the question as presented by the station, he may learn how to reduce them.

The analyses do not reveal any flagrant attempt at fraud, although the crude preparation of many brands and the wide variations that exist in the cost per pound of the constituents in the different products, and even different brands of the same manufacturer, indicate that a considerable proportion of those engaged in the business are not possessed of the ordinary facilities required to secure a proper mechanical condition or uniformity, or they do not have a very definite idea of the importance of these points.

The fact that the number of farmers taking direct advantage of the suggestions of the station concerning methods of purchase is growing annually, is an encouraging feature of our work, although progress in this direction is confined largely to the more thickly-settled districts, where market-gardening, fruit-growing, and in fact where more intensive culture is practiced. This may be explained by the fact that in the more thinly-settled districts, where extensive culture is practiced, smaller amounts are used and, besides, it is more difficult to effect co-operation, which is an essential factor. A large majority are still wedded to the "ton basis" of purchase, without sufficient regard to the relation of guarantee or composition to selling price.

2.
THE TRADE VALUE OF FERTILIZING INGREDIENTS FOR 1900, AND THE EXAMINATION OF THE STANDARD MATERIALS SUPPLYING THEM.

In most states in which a fertilizer control is exercised it is customary to estimate and affix a commercial valuation to the various materials analysed. This estimated commercial value, it must be clearly understood, is separate and distinct from the agricultural value, the latter depending upon the character and form of the material with reference to its availability and the needs and value of the crop for which it is to be applied. The former, on the other hand, is determined by market and trade conditions, such as supply and demand, the cost of production, the methods of manipulations required, etc. It is derived by applying to the various forms of plant-food ingredients, as shown by analysis, the values previously determined upon for them. These values are fixed from year to year, and are altered according to the cost of the standard materials containing these forms of plant-food, as shown in market reports and actual transactions.

It is not asserted that this system shows absolutely the commercial value of each brand at the time that the sales were made, but the relative commercial value of the different brands; it is not intended to be a guide as to the agricultural value, even relatively, and therefore cannot mislead in this direction. It is a guide only as to the charges for mixing, handling and selling plant-food contained in the different brands as compared with other brands. Any system of comparison of brands must leave a great deal to the judgment of the purchaser; he must determine for himself whether he would rather that his phosphoric acid, for example, were more or less soluble, that the nitrogen should be derived from the more quickly-acting nitrate, or the more lasting organic forms, or whether for his purpose the muriate is just as good as the more expensive sulphate of potash. These conditions are indicated by the analysis which accompanies the valuation, which is not to be used in total disregard of the composition. With these points clearly understood, a comparison of commercial values cannot be regarded as discriminating against specific manufacturers or particular brands.

The wholesale prices per pound of plant-food prevailing in New York during the six months immediately preceding March 1, last, were for nitrogen in nitrate of soda, 11.2 cents; in sulphate of ammonia, 14.5 cents, and in dried blood, 11.2 cents; for available phosphoric acid in acid phosphate, 3.1 cents, and for actual potash in muriate of potash, 3.7 cents; in kainit, 3.8 cents; in double sulphate of potash and magnesia, 4.2 cents, and in high-grade sulphate of potash, 4.1 cents. A comparison of these figures with those of last year will show that there has been an advance in the market prices of the ammoniates, or nitrogen-furnishing materials, which has, however, been taken into account in arranging the schedule.

From this as a basis, therefore, the following schedule of trade values was arranged at a meeting of station directors and chemists for use in Connecticut, Massachusetts, New York, Rhode Island, Vermont and New Jersey during the season of 1900:
SCHEDULE OF TRADE VALUES ADOPTED BY EXPERIMENT STATIONS FOR 1900.

<table>
<thead>
<tr>
<th>Material</th>
<th>Value (cents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen in nitrates</td>
<td>13.5</td>
</tr>
<tr>
<td>Nitrogen in ammonia salts</td>
<td>17.0</td>
</tr>
<tr>
<td>Organic nitrogen in dried and fine-ground fish,</td>
<td>15.5</td>
</tr>
<tr>
<td>meat and blood, and in mixed fertilizers</td>
<td>15.5</td>
</tr>
<tr>
<td>Organic nitrogen in coarse bone and tankage</td>
<td>11.0</td>
</tr>
<tr>
<td>Phosphoric acid, soluble in water</td>
<td>4.5</td>
</tr>
<tr>
<td>Phosphoric acid, soluble in ammonium citrate</td>
<td>4.5</td>
</tr>
<tr>
<td>Phosphoric acid, insoluble in fine bone and tankage</td>
<td>4.0</td>
</tr>
<tr>
<td>Phosphoric acid, insoluble in coarse bone and tankage</td>
<td>2.0</td>
</tr>
<tr>
<td>Phosphoric acid, insoluble in mixed fertilizers</td>
<td>2.0</td>
</tr>
<tr>
<td>Phosphoric acid, insoluble in fine-ground fish, cotton-seed meal, castor pomace and wood ashes</td>
<td>4.0</td>
</tr>
</tbody>
</table>
Potash as muriate .......................... 4.25
Potash as sulphate and in forms free from muriates (or chlorides) ............ 5.0

VALUATION OF FERTILIZING INGREDIENTS IN FINE-GROUND FEEDS.

Organic nitrogen ................................ 14.5
Phosphoric acid .................................. 4.0
Potash ............................................. 5.0

The results of analysis of 47 samples of standard raw materials appear in tabulated form upon subsequent pages. They include samples of nitrate of soda, sulphate of ammonia, dried blood and ammonite, dried and ground fish, South Carolina rock superphosphates, muriate and sulphate of potash and kainit. The samples of nitrate of soda and sulphate of ammonia are of good quality. The dried blood and dried and ground fish, show considerable variability, as is usually the case, and the samples of the plain superphosphates and of the various forms of potash were of good quality, almost without exception.

AVERAGE COST PER POUND OF PLANT-FOOD CONSTITUENTS.

In connection with the analyses is given the cost per pound of the essential fertilizing ingredient which it supplies. This is derived by dividing the cost per ton of the material by the number of pounds of that ingredient in a ton, as determined by analysis. The samples represent actual transactions of farmers' clubs, and of individuals. Therefore, if the cost per pound of the nitrogen, phosphoric acid or potash in these samples (with the exception of a few, which were purchased under particularly unfavorable circumstances) be averaged, the result may be fairly assumed to represent the average manufacturers' actual retail price at factory for the same, and admit of a comparison with the station's price, which is intended to represent the retail cash cost per pound of the fertilizing ingredients contained in the raw materials before they have been mixed to form the various commercial brands.

(To be Continued.)

Report of the Commission on Patents and Trade Marks.

(From the Scientific American.)

In our last issue we referred editorially to the fact that the commission appointed by the president under act of congress to revise the laws of the United States concerning patents and trade marks, had been holding a final session in the city of New York, preliminary to presenting to congress bills for modifying and harmonizing the present patent practice and trade-mark laws with existing conditions. Through the courtesy of one of the members of the commission, it has been our privilege to examine the report of the commission and the bills, which have been most carefully drawn. It will only be possible to summarize briefly the general scope of the bills, rather than to pass any criticism upon them at the present time.

It will be remembered that the treaty of agreement which has been generally known as the "International Convention for the Protection of Industrial Property" was concluded at Paris in March, 1883, in which nearly all the important countries of Europe, together with the United States, were parties, the only important exceptions being Germany and Russia. The general object of the movement was to secure greater harmony between the patent systems of the world. The results derived from the convention directly and indirectly have been far-reaching. Many leading European countries have since 1883 practically rewritten their laws in the direction of far greater liberality toward inventors.

No less than seventy-one countries have patent laws, and the general features of these laws, with particular reference to the differences existing between them and the United States, are clearly present in the report. For instance, in many foreign countries patents are granted without investigating the question of novelty. Many countries require inventions to be unknown to the public up to the day on which application for patent is filed; many inventions, such as foods and medicines, which are patentable here are excluded from protection in most foreign countries; patents in many foreign countries date from the day of application instead of from the date of issue, as here; in nearly all foreign countries annual taxes are required to keep patents in force throughout the terms for which they are granted; patented inventions are required in foreign countries to be manufactured on a commercial scale within a short time after the grant of the patents on pain of forfeiture, and owners of patent rights may be compelled to license others to make and use the patented inventions.

None of these features should, in the opinion of the commissioners, be incorporated into the United States patent system. There is no doubt, they say, as regards its essential features that the United States patent system is the best which has been devised up to the present time. But in some matters not affecting the essential principles of the system the commissioners find certain features of the foreign laws desirable. These are, first, that foreigners who take out patents here should have in this country a representative on whom papers may be served in any suit affecting their interests; second, to render a foreign patent, as a bar to the grant of patent here, the same weight as any other disclosure—that is, if printed, the patent should be given the effect of a printed publication, and if not printed (and in many foreign countries patents are not printed and may even be kept secret), it should have no other effect than that of knowledge or use of the invention in the country in
which it was granted; third, to provide that a mere application for a foreign patent shall not be a bar to the grant of a patent here; and fourth, that in case of an interference, if it is shown that the later applicant is the real inventor, the patent shall be granted only for the unexpired term of the first patent.

Furthermore, under the present laws, caveats can be procured only by citizens of the United States. The commission considered that if caveats are still permitted to be filed, foreigners as well as citizens should be permitted to file them, but they recommend, in view of the fact that caveats are generally regarded as of no practical value, that the law which provides for them be repealed. They also recommend that the executors or administrators of a deceased inventor, even though appointed abroad, be permitted to apply for a patent for the invention. As the law is now construed in such a case, auxiliary letters of administration are required to be taken out in this country. This amendment seems to be broad-spirited, and will do away with many of the formalities which now render it difficult and expensive for a foreign administrator to file or prosecute an application in this country.

The report may properly be divided into two parts, namely, that which refers to modifying our present patent laws to conform with the convention, and secondly, and by far the more important part, that which relates to reforming our present trade-mark practice. Our present practice is causing widespread discontent, and now that our merchants and manufacturers are engaged so extensively in foreign commerce, the importance of having a simple system of trade-mark registration is imperative, and it is to be hoped that this all-important question will receive the intelligent consideration of congress and that the much-sought-after relief which is looked for by the industrial community may be found.

THE TRADE-MARK BILL.

The commissioners have made a careful study of the trade-mark laws of the principal foreign countries. Trade-mark laws are found to fall into two general classes. First, those known as “declaratory,” in which the right to the mark is acquired by actual use of the mark or brand in trade; and secondly, those known as “attributive,” which make the ownership in the mark depend upon the act of registration, the first who presents the mark for registration becoming, by that act, the owner of the mark, irrespective of the fact of his having previously used the mark or not. Many foreign laws, like that of Germany, are of this character. In foreign countries generally registration is recognized as of great importance to the public, as notice of what trade marks are claimed as the subject of exclusive right, and every effort is made to induce owners of trade-marks to register them. The registration fees are made very much smaller than in this country, being in a number of countries less than $3, while $25 is required here. The procedure of registering is generally much simpler than here.

The report contains a lengthy review of the constitutional power of congress to provide for the registration and protection of trade-marks used in inter-state commerce. The conclusion is that congress has this power, under the commerce clause of the constitution.

It is to be regretted that the commission have not agreed upon a single bill embodying their views. Judge Grosscup and Mr. Forbes, of the commission, have submitted a proposed bill, and Ex-Assistant Commissioner Arthur P. Greeley, agreeing to the principal features of the bill of his colleagues, has drawn up a bill of his own which has been separately presented. These bills have been introduced into the senate by Senator Pritchard.

The bill recommended by Judge Grosscup and Mr. Forbes was introduced on December 5, S. 5027. Mr. Greeley's bill is S. 5026. In the former bill it is proposed to regulate and protect trade-marks, to enforce the treaties regarding the same when used in interstate commerce or foreign trade by registering them, for making the willful infringement of a registered trade-mark punishable by a fine of not more than $500. The bill also provides for the seizure of goods bearing a false mark, and provides very fully for the regulation of commerce, both interstate and foreign. The fee for registration is reduced to $10, and the procedure necessary to secure registration is made as simple as possible. Practically all marks which could be considered good trade-marks at common law are made registrable.

The bill of Mr. Greeley is in harmony with the features of the majority bill in respect to permitting the registration of marks used in interstate commerce, in reducing the registration fee to $10, in simplifying the procedure necessary to registration and providing additional remedies for the registration beyond those now secured under the common law, but does not include the one very important particular of making the title of ownership dependent upon the act of registration.

The preparation of this report has taken an immense amount of labor on the part of the commission, covering a period of more than two years. An unusual feature of the work is the fact that the commissioners serve without compensation, the total appropriation for the expenses of the commission being but $250.

It has been possible only at the present time to make a statement as to the provisions of the bills. It is not possible at the present writing to take up for consideration the merits of the proposed legislation.
South African Soap Trade.

A letter from Mr. Henry A. Wolf has been brought under the notice of the legislative council of the Cape of Good Hope parliament respecting the disabilities which manufacturers of soap suffer. The present duty on household soaps in the colony is 4s. 2d. per 100 pounds, and in the Transvaal 5s. In the latter instance, however, the manufacturer is much better able to compete with European production, as he is only charged an ad valorem duty on the raw material. Again, on oils a duty of 3d. per gallon is levied, and on tallow 1½d. per pound is charged. The duty works out at so high a rate as to completely nullify the benefit which the manufacturer would otherwise derive from the existing duty on imported household soaps. The result of this is that, for the last three years, the importation of oils for soap-making has been virtually stationary, no headway being made. On the other hand the importation of finished soaps has very largely increased. Mr. Wolf also points out that glycerine forms an important by-product of soap manufacture, but that under existing conditions dynamite-glycerine has, at a cost of £40 per ton, to be entirely imported from Europe.

Olive Oil in France.

Writing in reference to the olive crop in France, Consul Skinner says: French farmers are disposed to abandon the cultivation of olive groves, as in recent years the prices obtained for the oil have not been satisfactory. It is true that there was a sharp advance last year, due to a shortage in the crop; but the highest prices reached, ranging about 36 cents per kilogramme (2½-2¾ pounds) for best French oil, were low as compared with old-time prices, which held firm at 50 cents per kilogramme. Because of this fact and the discovery that other articles can be grown with greater profit, the acreage devoted to olives is annually becoming less in this region, and my attention has been called to the uprooting of 40,000 trees during the last six months in this department alone. Spain and Italy, with cheaper land and cheaper labor, and more particularly Tunis and Algeria, are offering a competition too severe for southern France. The French colonies last named are especially adapted to the successful prosecution of the business, and it is carried on across the Mediterranean upon a very large scale. It is doubtful if olive oil will ever recover its old-time place, as many vegetable oils, notably American cotton-seed oil, are being produced in increasing quantities from year to year, and are gaining in the estimation of the public. Pure olive oil for edible purposes is at present practically unknown in any important market, and if it were offered for sale it is doubtful whether it would be accepted by the public, except as an inferior article, as the average consumer at the present time prefers the neutralized taste of the mixture of the olive and vegetable oils, and would mistake the fruity flavor of the pure juice of the olive for an adulterated product. For some domestic purposes, and particularly for frying vegetables, arachide oil—or peanut oil, as we call it—is considered, even in France, the home of the olive, superior to any other product.

A Method of Determining Free Alkali in Soap.

The following paper is from the “Journal of the American Chemical Society.”

The usual method of making this determination prescribes a separation of caustic from carbonated alkali by drying the soap, dissolving in absolute alcohol, and after filtering and washing the undissolved carbonate with alcohol and dissolving in water to nitrate the solutions containing caustic and carbonate, respectively, with standard acid. This method is open to several objections, aside from the amount of time consumed. If it is desired to obtain accurate results on the caustic and carbonate separately, the preliminary drying of the soap introduces an error, since the caustic alkali will take up carbon dioxide from the air unless the drying is done out of contact with air. It is quite a troublesome process to filter an alcoholic soap solution if one is not provided with appliances to keep the funnel hot during filtration. Dudley and Pease use an alcoholic solution of stearic acid for titrating the caustic, but still filter from undissolved carbonate, and determine the latter in the usual manner. In the following process the writer has succeeded in eliminating filtration. For this method it is necessary to provide three standard solutions:

1. Hydrochloric acid, N/10 (for standardizing 2).
2. Caustic soda, N/10, in alcohol.
3. Stearic acid, N/10, in alcohol.

2 and 3 should be exactly equivalent one to the other, titrated warm with phenolphthalein indicator.

Two grammes of soap (which needs no drying) is weighed into a round-bottomed flask, of about 300 cc. capacity; and 50 cc. alcohol poured upon it. N/10 stearic acid is now run in from a burette in amount judged to be sufficient to neutralize the free alkali in 2 grammes of the soap, some phenolphthalein added, and the flask then stoppered with a cork stopper, through which passes a glass tube about 30 inches long and of about ¼ inch internal diameter, the lower end ground to a point on a grindstone, and the purpose of which is to serve as a reflux condenser. The flask and contents are placed on a steam-bath and heated thirty minutes, at the expiration of which time the solution should be quite clear and show no alkali with the phenolphthalein. If the solution turns red during the boiling, showing that an insufficient quantity of stearic acid has been added at first, add more of that solution until the color disappears,
then several cubic centimeters in excess, and heat twenty minutes further. The flask is now removed from the bath and, after a few minutes’ cooling, titrated with N/10 caustic soda. The difference between the number of cubic centimetres stearic acid solution added and the number of cubic centimetres caustic soda used to back titrate is equivalent to the total free alkali present.

While the first flask is heating, weigh out in a similar flask 2 grammes of soap and add 50 cc. alcohol and place on the steam-bath. When the first test is finished, calculate roughly the total alkali, assuming the total quantity to be carbonate. Now add to the second flask an amount of 10 per cent. barium chloride solution sufficient to precipitate alkali found, heat a few minutes, add phenolphthalein, and titrate with N/10 stearic acid. The titration must take place slowly and with thorough agitation of the liquid, for the reason that the sodium or potassium hydroxide reacts with the barium chloride added and forms sodium chloride and barium hydroxide. The latter is not very soluble in the alcoholic liquid, and sufficient time and pains must be taken to ensure its complete neutralization by the stearic acid. A blank test should be made on 50 cc. of the alcohol, since this frequently contains carbon dioxide, and the number of tenths cc. N/10 caustic soda necessary to neutralize the free acid in this quantity of alcohol added to the reading of the stearic acid burette in the second test. This corrected reading gives the number of cubic centimetres N/10 stearic acid used to neutralize the caustic alkali in 2 grammes of soap. The difference between the total alkali found and the caustic will, of course, give the carbonate. For example, 2 grammes of soap and 15 cc. N/10 stearic acid; run in 3.2 cc. N/10 caustic soda to back titrate. Consequently, 15—3.2=11.8 cc. N/10 stearic acid equivalent to total free alkali.

To neutralize the caustic in the sample treated with barium chloride was required 4.1 cc. N/10 stearic acid. Fifty cc. of the alcohol used required 0.2 cc. N/10 caustic soda, then 4.1—0.2.

4.3 cc. N/10 stearic acid to neutralize free caustic alkali.

11.8—4.3=7.5 cc. N/10 stearic acid to neutralize carbonated alkali.

1 cc. N/10 stearic acid=0.004 gramme caustic soda or 0.0053 gramme sodium carbonate.

The above figures calculated to percentage would be: 0.86 per cent. caustic soda and 1.99 per cent. sodium carbonate.

It is to be noted that a rubber stopper cannot be used in the flasks for dissolving the soap on account of the sulphur in the rubber, which decolorises an alcoholic solution of phenolphthalein. The method is applicable to all soaps which do not contain fillers which react with the standard solutions employed.

Industrial Chemistry.

M. Ch. Lauth, who succeeded the late M. Schnetzenberger as director of the city of Paris School of Physics and Industrial Chemistry, has published an interesting report on the working of this establishment, an abstract of which is given by the Chemist and Druggist. He refers to the classes for chemistry, general physics, and mathematics, and, in expressing himself regarding certain changes made by him in the technological classes, says that in an industrial school of that class it is necessary, in addition to the elementary classes, to teach the students the application of science. This is a difficult task, and requires special qualities. The important thing is to give the students precise ideas of the actual state of various industries. They should be interested in pending questions. What is not less important is to develop these questions in an attractive manner in order that the students may not only learn to know, but also take an interest in, matters relating to industry. A professor of chemistry, M. Lauth adds, is not in a position to give such instruction, for which it is necessary to have passed some time in a workshop, or at least to have closely followed industrial questions. To fill this gap a group of specialists have been secured as professors, who possess not only practical experience but also scientific training. Among the lectures given last year the following subjects were included: Industrial economy and general technology, book-keeping, industrial law, professional hygiene, applied mechanics, chemistry, metallurgy, bleaching, dyeing, artificial coloring matters, sugar, starch, paper, petroleum oil, soap, starch, colloids, perfumes, pottery and glassware, mineralogy, and electro-chemistry. On account of the great development during recent years of the last subject (electro-chemistry), this is being made a specialty of the school, and a laboratory has been organized under the direction of Professor Combes.

Artificial and Natural Perfumes.

Everything new has its opponents, which are the more numerous and influential as the new strikes more deeply at the root of the old; thus begins a writer in The Oil and Colorman’s Journal. In the use of artificial products which are intended to supersede natural industries this has always been well exemplified, and the only arbiter which can be accepted with any degree of authority is—time. Not without many a struggle did the madder planter succumb to the march of scientific progress, when Grebe, Liebmann, and Perkin discovered a method of making alizarin from anthracene, one of the constituents of coal-tar. This was three decades or so ago, and time has now decided. The madder industry is dead, and artificial alizarin has taken its place. The human race has benefited by this. Not only are the
results obtained in its use more constant, since one is
dealing with a definite compound instead of an indefi-
nite extract, but many a thousand acres have been
thrown open to other useful cultivation in the French
colonies.

With artificial perfumes this opposition has always
been exceedingly strenuous, doubtless because enormous
industries are, so to speak, at stake. So many of the
views expressed, however, on the question of artificial
perfumes as against natural products are from biased
sources—that is, either from chemical manufacturers or
from flower growers—that they must be accepted with
great reserve, and it becomes important for the actual
user to make an intelligent use of his independent
powers of observation and deduction. This is all the
more important on account of the great ignorance which
really does prevail in some quarters in this matter.
Quite recently a large user of vanilla said to the writer,
"I cannot use artificial vanillin at all. I can distinctly
taste the tar in my mouth if I eat a piece of chocolate
flavored with it." The wonderful power of prejudice is
here remarkably exemplified. No artificial vanillin on
the market is made from tar or from anything connected
with it. The source of artificial vanillin is oil of cloves,
or oil of cinnamon leaves!

However, there is undoubtedly much to be said on
both sides of the question, and in the following notes,
which are, in the main, the result of actual experience,
may be found useful in this respect. The first question
which must necessarily arise is—"Is a given artificial
perfume fit to entirely replace the corresponding natural
one?" In general, the answer of the impartial judge
must emphatically be "No." The reason is not far to
seek. In almost every case a natural perfume (essen-
tial oil) owes its odor primarily to one predominating
ingredient, its so-called "active principle;" but they are
also present one or more other bodies, which modify this
predominating odor, and the final effect on the olfactory
nerves is the resultant of all these bodies. To exactly
reproduce this natural odor artificially, one must be able
to prepare every one of the ingredients, and mix them in
exactly the same proportions as they are in the natural
perfume. Then the artificial and the natural perfumes
would be interchangeable, and the question of price
would dominate all other considerations. But in gen-
eral we do not know the exact influence of these "sec-
ondary constituents"—their composition, quantity,
method of synthesis, etc. So that the more important
artificial perfumes are definite compounds which we un-
derstand well, and which are identical in every respect
with the main constituent of the corresponding natural
perfume. This is not always the case, however, as the
following examples will demonstrate. Oil of winter-
green (which, of course, is more used as a flavorer than
as a perfume) is one of those natural products, which
consists almost entirely of one single compound—methyl
salicylate. Hence by preparing this compound artifi-
cially we ought to be able to obtain an efficient substitute
for the natural oil. This body is easily prepared from
salicylic acid (a coal-tar derivative) and methyl alcohol
(obtained from wood naphtha), and, as a matter of fact,
this artificial "wintergreen oil" is nearly indistinguishable,
between the natural oil. True, the natural oil has a
faintly "softer" odor, due, no doubt, to the presence of
more traces of secondary compounds, but the difference
is so little marked that one can scarcely choose a better
example of identity between the natural and the arti-
official products. Let us now take an example where the
reverse holds good. Essential oil of bitter almonds owes
its main odor to a compound termed benzoic aldehyde.
Synthetic benzoic aldehyde (easily prepared from coal-
tar derivatives) resembles this oil closely in odor. But
the "artificial oil of almonds" (not to be confused with
oil of mirbane) is far harsher and coarser in odor, and is
not anything more than a cheap substitute for the nat-
ural body. The latter owes its resultant odor to a mix-
ture of numerous bodies existing in small proportions in
the oil, each exerting its own definite influence on the
final result.

A few specific cases may, perhaps, now be referred
to, cases which are daily cropping up in the regular
routine work of the perfumer and "flavorer."

Vanilla.—From every species of vanilla there can be
extracted a white crystalline body of absolutely defi-
nite properties, identical in every respect, from what-
ever source the crystals are obtained. These crystals
possess, in an intense degree, the characteristic vanilla
odor, and are termed vanillin. They can also be manu-
factured, and far more cheaply, from eugenol, the chief
constituent of oil of cloves, and whether obtained from
this or from a natural source, are identical in every re-
spect, and natural vanillin and artificial vanillin have
odors which are indistinguishable. But the odor of
vanillin does not altogether satisfy the nose, which asks
for the odor of vanilla. That vanillin is not the only
factor in the odor of vanilla is quite obvious when one
considers that we have Bourbon, Seychelles, and Tahiti
vanillas, for example, each possessing its own character-
istic odor. The last mentioned, which is worth less than
half in money value of the others, is of an odor so dif-
ferent that it cannot be employed when the fine Seychel-
les' variety has been used. It is clear that vanillin repro-
duces the main odor of vanillas, but the less powerful
subsidiary bodies, which give to vanillas their sweet,
"soft" odor, are missing in the case of the artificial vanil-
lin. This latter has its virtues—indeed, its use is now
so great that this alone would demonstrate its value.
But vanillin must be regarded merely as a very excellent
substitute for vanillas where a great economy is pre-
ferred to an intense delicacy of flavor and odor.
Tonka Beans.—In general, the same remarks apply to the powerful odor-bearer of the Tonka bean—the body coumarin—as have just been made under vanilla.

Heliotrope.—The artificial perfume heliotropin is a body which has come into very extensive use of late years. This compound was made, and found to have a very powerful odor of heliotrope, but is not claimed to be identical with any natural constituent of the heliotrope flower. Indeed, this perfume may be said to be practically unknown chemically. This synthetic compound is one which fills a decided gap. It has not the delicate odor of the natural flower by any means, but is a powerful scent, which is sometimes unjustly described as vulgar. In common with many others, its advantages appear chiefly when it is used in very small quantities in combination with other perfumes, when its intense and somewhat coarse odor becomes very pleasantly modified.

Violet.—The wonderful success of the artificial violet perfume, which has resulted in such a legion of "parma violet" preparations—either soaps, perfumes, powders, or what-not—has amply justified the existence of the body. Natural violet perfume is a delicate, expensive product, which most connoisseurs prefer to any of the artificial combinations, but ionone, which is the principle artificial violet used, when properly diluted, has a very beautiful, if somewhat pronounced, odor. Here, again, the method in which it is used entirely determines its value, for if used in too strong a solution, it has a very disagreeable odor, and can scarcely be described as a perfume at all. When mixed with such a natural perfume as orris, which has a distinct violet odor, it appears to great advantage, and such a mixture may be regarded as filling a distinct gap, without superseding the beautiful delicate natural violet perfume.

Musk.—Much of what has been said in reference to violets applies here. But artificial musk is a body which bears no chemical relationship to the obnoxious ingredients of the natural perfume. In this case the two products do not bear comparison at all. Excellent results may be obtained by the use of artificial musk, but the resulting perfumes are much less delicate and more pronounced than those obtained by using the natural body.

The foregoing remarks are in no sense intended to deal systematically with so large a subject; but rather to bring out a few of the more salient points connected with it, and open up the way to a fairer and more judicious comparison than is frequently accorded to these two classes of compounds. In a word, each of these may be regarded as fulfilling its own functions, and both are practically indispensable to the up-to-date perfumer. But it is very unlikely that artificial perfumes will succeed in ousting the sweet-scented natural bodies for many a year yet—if, indeed, they ever do.

Trade Paper Advertising.

Space in any trade journal is worth only what you make it. The best space in the best trade journal published is never as effective as it can be until the add and design are the most effective for their purpose.

The first mission of any ad. is to be seen—not its greatest mission, but its first. To be seen the ad. must be conspicuous, and conspicuous in a different way from the ads. that are around it.

This means display.

But after an ad. has been seen, its next and greatest mission is to convince. To do this it must say something about the goods advertised, and say that thing in a way which will carry conviction to the reader.

More than this, each and every ad. which appears in any given trade journal should be a part of a carefully prepared advertising plan. The effect of ads. which have gone before or which are to come after should be considered. Each ad. should occupy its space in this advertising story, and should do its part toward adding point to point in convincing the reader of the trade journal that your goods are the best for his purpose.

You wish to make him believe that your goods are the kind which will bring him more business and better business, which it will pay him to carry and for certain specific reasons.

In order to get his entire and undivided attention you should give these reasons.

If you will turn over the pages of any trade paper you will see that there is more or less a family resemblance between the ads. You will notice that any ad. which makes an attempt to break down this similarity, with a strong design or ingenious arrangement of display, is easily distinguished. It sticks up out of the common run of advertising in that paper.

You would like to have your ads. stand out in this way beyond question.

The man who sets up the ads. in the printing office is working for a company, which probably does not even own the trade paper. He is not going to devote special attention to your's, no matter how much he would like to do so.

It remains for you to do those things which will make your advertising, first, just as conspicuous; and next, just as convincing as any trade journal advertising can be.

Therefore, you need first a strong individual and striking style of display, preferably a black and white design.

You need next an ad., or a series of ads., about your goods written in such a way that they will convince the dealer.

A black and white display at present shows up better in the average trade journal than any other method, because very few advertisers are using it.
Although it seems as if enough has been said about the right kind of trade journal advertising to have made it perfectly clear to everybody by this time, it is also true that very few advertisers get the right kind of talk into their advertisements.

Never send an ad. to your trade journal that anybody can read and then ask, "well, what of it?"

For example, this is all there is to a recent ad. in a dry goods paper: Townsend & Yale, Commission Merchants, New York, Philadelphia, Boston and Chicago. Cotton, Hosiery, Summer Underwear, Wool Hosiery, Winter Underwear, Fancy Knit Woolens. Sole agents for Lawrence Mfg. Co.

That is the sort of ad. that after you read it you say, "well, what of it?"

This old world has altogether too much to think of to stop and get enthusiastic over the fact that you sell summer underwear. There are lots of other people who sell summer underwear.

Using expensive space merely to make that statement cannot be expected to sell goods for you.

If your goods, no matter what they may be, ought to be bought there are certainly some reasons why they ought to be bought.

There are some reasons why your present customers prefer to buy their goods from you instead of from your competitors.

What are those reasons?

You must know what they are and you ought to print them in your trade paper ads.

The facts which make you and your establishment preferred by your present customers would operate to bring new customers if you told what they are and kept on telling year in and year out.

That is what your trade journal space is for.

To use it as far too many trade journal advertisers use it is precisely like having a salesman who can’t or won’t walk.

If you sent a man on the road and he simply called on possible customers, presenting a card having printed on it your name and your line of business, and then stood with his mouth shut to see what would happen, you would think that he was either a fool or crazy.

You wouldn’t expect him to sell goods. On the contrary, you would expect him to injure seriously the reputation and prestige of your house.

You expect a salesman to do something more than call attention to your name and address.

You expect him to explain the merits and superior points of your goods.

You expect him to wax eloquent over your facilities for rendering just the kind of service that the prospective customer desires.

You expect him to explain in detail just how more money can be made and a more satisfactory business can be done by handling your goods than in any other way.

That is what a traveling salesman is for.

And that is precisely what a trade journal ad. is for.

If you can make your trade journal ad. talk just the way a really good salesman does you will come just as near having a perfectly written ad. as it is possible to come.

In still another respect this trade journal advertising is like the work of a traveler.

When your traveler goes into a store and asks for an order and a merchant says he doesn’t want anything in your line just now, the traveler goes away and comes back again when he is making another trip.

He does not feel discouraged nor lose the hope of finally making that man a customer.

The man was approached at the wrong time and the drummer keeps coming back every time he is in town, in the hope that sooner or later his visits and the man’s requirements for your line of goods will coincide, or that some time he will find his man in the kind of mood which will enable him to make a sale.

It is just the same way with trade journal ads.

You cannot expect one advertisement to do the business in every case or in the majority of cases.

You have no good reason for saying that because big results do not immediately pour in, trade journal advertising is no good.

You are simply making weekly or monthly calls upon a certain number of men who ought to become your customers.

Through your trade journal you are approaching them at regular intervals and asking them for their trade.

The fact that they do not immediately fall on your neck and embrace you does not go to prove that they are not impressed by your advertising or that sooner or later you will not be able to make them your customers.

The thing to do is to keep right on with regular, systematic advertising campaign and wait, just as the traveler does, for your advertisement and their wants to coincide.—*Current Advertising.*

**Hints on Firing Soft Coal.**

Some firemen pull them out directly on the floor, while others place an iron barrow as close to the front as possible, and let a portion of them fall into it, while the rest are scattered around the fire room. Both of these plans cause ashes to be liberated, so that they fill the air and finally settle down onto the boiler fronts, pumps, injectors, windows and every other available place. To avoid this the fine ashes should be sifted through the grates, the clinkers drawn forward on to
the dead plates and shoveled into the ash-pit. Ashes rise into the air when emptied, if they are deposited in the ash-pit, the draft will prevent them from coming out into the room. In the morning the coal is all on the back part of the grates, so that it is a comparatively easy matter to take a T bar and rattle the ashes down into the ash-pit and pull out the large clinkers, thus leaving the fire nearly clean after it has been spread on the grate. The coal that has been smouldering all night, will ignite more readily than fresh coal, but it will burn out quicker, so that it is best to put fresh coal on as soon as the fire has been "pulled down," to use a common phrase; then when the steam is raised a good fire will be ready to maintain the required pressure. In a majority of cases this will be all the cleaning needed for the day, and it seems best to do it when the engine is at rest. The only objection to it that I know of, is that it calls the fireman into the boiler room earlier in the morning than would be necessary if the fire was spread over the grate.

When it is necessary or desirable to clean fires at other times, practically the same plan for handling the coal and clinkers should be adopted (with a stationary grate), but small clinkers will accumulate, making it necessary to build new fires occasionally, the time depending on the extent to which the fires are forced.

Where it is desired to avoid this, a two-section dumping grate should be provided, arranged in "fore and aft" sections, and the fireman may then shove the good coal to the rear and dump the fore section, after which the coal may be drawn forward and the aft section dumped, thus disposing of all of the ashes and clinkers in a short time. Fires can be cleaned (to a certain extent), with stationary grates, but the time saved by means of the above will pay for the grate long before it is worn out. The subject of smoke consumption and prevention is of interest to engineers who must burn soft coal, but the fact that some claim that while smoke can be prevented it cannot be consumed, while others maintain a different opinion, shows that there is a lack of correct information somewhere. I have seen gas and smoke coming out of the tubes of an ordinary tubular boiler, and afterwards the gas was ignited and the smoke disappeared, so that none of it, in visible form, went to the stack.

Perhaps engineers who claim that smoke cannot be burned will say that it was not consumed but only made invisible. This is true, for nothing is ever actually consumed or annihilated. The process of combustion changes the form of the fuel, and when the black smoke, now so objectionable, is changed into an invisible form, the greatest objection to it will be withdrawn. My boilers are fitted with a patented setting, a portion of which consists of a hollow bridge wall into which air is admitted from the ash-pit. The bridge wall is 22 inches high above the grates, and near the top on the face of the wall there are perforated plates, so that the air enters through the ash-pit, is heated in the hollow space, then comes out through the perforations, and mixes with the hot gases as they pass over the bridge wall. A discussion of the theory of this plan might be unsatisfactory, and so I will only say that when it was new I had but very little smoke of a light brown color. It has proved durable, but as it has been used for nearly six years the holes are partly closed by ashes and slag burned onto the bricks, which cannot be wholly prevented, so that the circulation of air is far from perfect, and the consequence is that I get much more smoke, which is nearly or quite black. No other changes have been made that could possibly affect these results.

While examining the furnaces of a plant a short distance from mine, I found that much slag was burned onto the walls, so that in some places it projected over the grates for a foot. This shows that those furnaces had been neglected, the consequence of which was that the grate surface was much reduced, and when it was necessary to remove the grate bars, it was both difficult and unpleasant to detach this mass without throwing down the walls. I am not troubled with such accumulations, because they are not allowed to collect from week to week, but are cleaned off at short intervals, and as this plan has worked well in my case, I do not hesitate to recommend it to others.

Appraiser's Decision.

On April 24, 1900, the firm of Andrew Jergeus & Co. imported through Cincinnati certain merchandise invoiced as "cinnamic acid" and "anthranilic acid" upon which the collector of that port assessed duty, in the first instance at 20 per centum ad valorem as a "coal-tar product not a color or dye, not medicinal," and in the second at 25 per centum ad valorem as an "acid not specially provided for." Both charges were paid under protest upon the ground that the articles were entitled to free entry, the one as a direct derivative of benzaldehyde, and the other as benzoic acid.

These protests have both been overruled by the Board of General Appraisers, on the following grounds:

It was found that the first mentioned article was a very pure form of cinnamic acid, melting at 133° C. and boiling at 300° C., its empirical formula being C_HO. While it can be made from benzaldehyde, which is itself produced by the fermentation of amygdalin of bitter almonds, yet owing to the present large demand for it for industrial purposes, it has, within recent years, been produced almost wholly as a commercial article, synthetical, from the coal-tar hydrocarbon or product known as toluene or toluol, a much cheaper and more abundant source, and when so produced is often known in trade as "artificial oil of bitter almonds."
Benzaaldehyde can also be made from a number of other substances, including naphthalene, but not so frequently as from toluene. Cinnamic acid can also be made directly from vegetable indigo, and from benzoic acid sub-lined from gum benzoin. But, the commercial supply of gum benzoin is insufficient for the production of any considerable proportion of the benzoic acid now used in the arts; so that, for this reason, and the further fact of the high cost of gum benzoin, the greater part of the benzoic acid of commerce in recent years has been made from coal-tar products. Synthetic cinnamic acid does not contain prussic acid and is pure and far less expensive than that made from bitter almonds.

Anthranilic acid, sometimes called amido-benzoic acid, has its melting point at 113° C., and dissolves readily in water. Its empirical formula is CHON. Its usual sources of production are acetyl-orthotoluicium and orthonitrotoluene, both of which are derivatives of toluol or toluene, from coal tar. When it is made from the first-named source the latter is oxidized, and the resulting acetyl amido-benzoic acid upon saponification produces anthranilic acid. When this acid is made from orthonitrotoluene the operations are reversed, the latter body being first oxidized to orthonitro-benzoic acid, and that new compound is transformed into anthranitic or amido-benzoic acid by reduction. So it is clear that these articles both have their original source from coal tar, although the process of production is different. Both articles constitute initial or starting points in the production of artificial indigo by different methods, and are also employed in making "dyes," flavoring extracts and perfumery.

How Soap is Sold.

(Continued.)

Since our issue of last month we have learned that the advertisement proposing to sell soap on a grease basis was that of the Alden Speare's Sons Co. and referred to their "Nugget" brand. We have also heard some favorable comment on the suggestion—as is natural—for there is no single indication so valuable in determining the intrinsic value of a soap as is the determination of its fatty acid percentage.

* * *

We concluded our article last month with some rhymes sung in praise of Sapolio; the following are two more belonging to the same series:

(Accompanying the picture of a policeman.)
This brilliant man walks up and down
Upon the streets of Spotless town.
The glitter of his shining star
Arrests attention from afar;
It lights the beat, and goes to show
That naught can beat Sapolio.

(Accompanying the picture of a cook.)
The cook of Spotless Town you see
Who takes the cake, as you'll agree.
She holds it in her fingers now;
It isn't light, but, anyhow,
'Twill lighten her domestic woe—
A cake of plain Sapolio.

* * *

Pearline is the subject of a well-worded advertisement, accompanied by an illustration of a woman holding a handkerchief up to the light and running her finger through a place evidently thinned in the washing process. The words under the picture are: "Pearline doesn't do this; it prolongs life of fabrics, especially delicate things which cannot stand the soap rubbing way." Washing need not destroy nor cleaning kill. Use Pearline. Let it do its work of detaching the dirt. Rubbing attenuates the fabric needlessly, and destroys warp and woof. The action of Pearline on the hands and goods is neutral—harmless.

Again—Rubbing (after the manner of soap users), besides destroying the goods, kills strong nerves and sweet tempers—poor economy every way. The "joy in labor" you hear about is a mere dream unless you use Pearline.

* * *

The M. K. Fairbank Co. publishes in magazines, etc., a half-tone miniature reproduction of a calendar mailed free for ten wrappers of Fairy soap. This half-tone even is a most beautiful specimen of illustrative art and makes it almost impossible for the advertisement to be overlooked.

* * *

The Brownie Soap Co. offers to the laundry trade a floating chip soap in these words:

Soap that floats. The only soap made retaining all glycerin matter. It is pure, economical in use, carefully made, and positive results can always be obtained by its use. This is also the only soap made in chips that float, which is undisputed evidence that it is pure and clean.

* * *

The following has several interesting points not necessary to point out in detail:

Magic White Soap and Powder and Pickaninny Tar Soap captured the best soap prizes at the Atlanta, Ga., and Louisiana Industrial Exposition. They are soaps that win because they are good—the judges say, "best."

Magic soap powder has no equal for hard water; it is the best soap for artisan well water. Try them at your grocers, 5c. Magic Soap Co., New Orleans office, 426 Girod street. Not in the trust.

In each cake of Magic White Soap there is a letter, when you spell the word Magic White Soap with these letters send them complete to our office and we will give you a beautiful tea set worth $5 or a box of soap free.
Here is another specimen that ought to serve its purpose, i. e., to attract attention:

Sir, are you interested in Brownwood? If so, patronize your home industries. In a united and strong pull you can create a city of grander proportion than imaginable. Manufacturing enterprises are the backbone of a self-sustaining city, and are upheld by people of push, energy and stamina. You are surely one of these. Put your shoulder to the wheel of time and ask your grocer for a bar of 4x soap, a combination toilet and laundry soap. It is good. Try it on flannel goods. Our 2-for-5 bar is a sniffer—try it. We intend to give you a good toilet soap as soon as we can recuperate and promulgate. Geo. P. Walter, soapologist; J. W. Spangenberg, proprietor. * * *

Wm. Waltke & Co. address the laundry trade, in particular, in the following taken from the National Laundry Journal:

Something entirely new! We congratulate the laundriemen on entering a new year and an entirely new century; one they can start in making good use of right at the beginning and we hope they may be enabled to use all of it, or as much as good health will permit them to enjoy. To have perfect health and unadulterated enjoyment requires a freedom from worry, and this condition is brought about, to some extent, by having a good bank balance, or plenty of money in the safe. Those who aim to put in much of the time of the new century in the laundry business no doubt do so with the object of making money out of it, for it is highly improbable that many of them follow it for mere pastime.

To make this or any other business profitable requires good judgment and true economy. To exercise true economy does not mean to buy the cheapest of everything offered, but to aim to get the best articles as cheap as they can be bought. While our soap chips and general laundry supplies are all low in price, we not only meet all honest competition, but invariably offer the best goods in the market. This has been our aim from the start, and how much we have lived up to it may be inferred from the fact that not only do our customers remain with us, but we add a large number to them every year, all over the United States. If you have not yet given us a trial, write us for our price lists, etc., and we shall try to convince you that we can make it mutually beneficial to trade with us. * * *

The following from the Geo. A. Schmidt Co., Chicago, is rather out of the ordinary line of argument, and perhaps for that reason the more effective:

What is your soap made of? is a question often asked by those who have been scared by certain sensational advertisements. Perhaps one of the one and one-half millions of inhabitants of Chicago is a friend or relative of yours; send him to our factory and we will show him through. He will report to you that our place is situated in the nicest, healthiest and cleanest part of the north side of Chicago, not three blocks from beautiful Lincoln park; when we moved there, plenty of vacant land was to be found all over, but our soap factory did not keep people from settling closely around us; that shows how we keep our establishment, and even if we were not as conscientious as we are, the neighbors would see to it that nothing but sweet, healthful material was boiled into soap. There are no other factories—only stores and residences—located in our neighborhood. Our factory is as different from what people usually imagine a soap factory to be, as day is from night. In healthful surroundings the best goods are made—another reason why you should deal with us.

The Hall-Moore Co. makes its point by means of the following:

Uncle Eli's Fables.—As two jackels and a fox were traveling in company they came upon a dead chicken lying on the ground, and at once there was a quarrel between the jackels as to which should have the prize. They finally settled it by dividing the chicken between them, leaving the fox entirely out of the affair. An owl who had observed the proceedings queried of the fox:

"But where do you come into this thing, Mr. Reynard?"

"Oh, I take my share in natural philosophy," replied the fox. "Firstly, that chicken was killed and placed here for an object. Secondly, the body was poisoned; and, thirdly, there go those jackels tumbling about and making their last kicks."

Moral.—"And I may say further," observed Reynard, as he scratched his ear with his paw, "that when you are offered something for nothing, it's a good idea to let somebody else sample it first."

* * *

And finally we have this month a circular, of which the following is a copy (omitting only a picture of several hundred dead horses en route to the Barren Island rendering plant):

"Bring out your dead!" Prof. W. H. Wieley, chief chemist of the Department of Agriculture, having secured data, finds that the cats, rats, dogs, horses and other animals that die of all kinds of diseases, are utilized for making fertilizers and soap fat.

The carcasses are boiled by intense steam heat, their grease saved for making soap and the refuse converted, by the use of sulphuric acid, into fertilizers. On this subject he further says:

"Horses that die of the glanders and cattle that die of tuberculosis are unfit for conversion into fertilizers. If a hog succumbing to hog cholera were manufactured into fertilizing material and spread over a field, the
chances are that the old germs of the disease would infect other animals as late as a year afterwards. These germs are very persistent and frequently escape destruction even when the body is burned.”

The supreme court of New York recently gave judgment against the writer for copying and giving credit to the New York Sun for an article stating that the board of health ordered seven horses shot, owing to their having the glands. Heading this article was a picture taken of these horses as they were being loaded on a barge en route to the Barren Island Soap Fat Works.

“Judge Samuel Sewell, in the early part of the eighteenth century, presided at some of the trials for witchcraft, and in accordance to the evidence, condemned some poor wretches to death. In latter years he became convinced that the whole thing was a delusion, and relieved his troubled conscience by a formal confession which was read by the minister in the church, while the judge stood with bowed head in the presence of the congregation.”—American Literature, p. 947.

Many soap manufacturers today extract the glycerin found in animal soap fat. It is a fact that a great number of cats and rata die of diphtheria.

No physician, who is an up-to-date chemist, will prescribe glycerin for your little children when they have sore throat.

Improved “Coal Oil Johnny’s” soap is free from animal fat. It is today the “Bell Cow.” No other soap can keep within hearing distance of this bell. It is a money maker for the retail grocer and a money saver for the consumer. May we send you fifty boxes? Free samples mailed. Bell & Bogart Soap Co., New York, December, 1900. By Maross Jenkins. (To be continued.)

Askit—What is a convenient fall trip for me to take?

Tellit—You might step on a banana peel or try to balance on a cake of soap at the head of the stairs.—Baltimore American.

The Use of Sugar for Filling Soap.

Sugar has been especially recommended of late as a filling for soap, a recommendation in which I desire to join. Apart from the advantages of ready solubility and perfect harmlessness it has the important property of permitting of use in large quantities without affecting the hardness of the soap, as has been shown by experiments made in one of our largest factories. The trials made in this factory were with soaps of the following composition:

a) 1000 parts cocoanut soap +25 parts of a 50 per cent. sugar solution.

b) 1000 parts cocoanut soap +50 parts of a 50 per cent. sugar solution.

c) 1000 parts cocoanut soap +100 parts of a 50 per cent. sugar solution.

d) 1000 parts cocoanut soap +250 parts of a 50 per cent. sugar solution.

e) 1000 parts cocoanut soap +500 parts of a 50 per cent. sugar solution.

f) 1000 parts cocoanut soap +100 parts filling (consisting of 360 sugar, 200 potash, 150 salt, 1429 water).

g) 1000 parts cocoanut soap +200 parts of the same filling.

h) 1000 parts cocoanut soap +500 parts of the same filling.

i) 1000 parts cocoanut soap +140 parts water +260 parts sugar, +100 parts soda lye of 40° B.

j) 1000 parts cocoanut soap +400 parts water +500 parts sugar, +100 parts soda lye of 40° B.

k) 100 parts cocoanut soap +1000 parts rosin soap +100 parts 50 per cent. sugar solution +50 parts lye of 20° B.

l) 1000 parts rosin soap +100 parts sugar solution (50 per cent.) +50 parts lye of 20° B. +50 parts salt water of 16° B.

All the samples possessed a sufficient consistency. The result is a very favorable one, as even a strongly alkaline reaction of the soap does not interfere with the filling with sugar. (Extract from the Seifenfabrikant.)

On the Boards.

The following article was written for Printers' Ink by a well-known advertiser who desires his name withheld.

Josh Billings said “the humbug was an insect that had a habit of appearing at different times under different names.” He declared he had been bitten often by this bug, but never twice in the same place.

I have been bitten by the humbug, called billposting, but it will never get another bite out of me. I was up against the game good and hard. I was uppercut, undercut, hit in the breakaway, solar-plexused, and when the referee counted ten I was still down.

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.


Trade-Marks—None.
Now that I have come back to my senses, I can give only recollections. The Lord knows what happened while I was unconscious.

To start with, an order was given a billposter in a great city for a "chance-may-offer" showing. I hereby offer a reward of a cake of soap to the man who can tell what that is. I was to have a month's showing of 200 posters, and the billposter was to put up the paper anywhere and everywhere he had a spare board. Three or four of our men kept a sharp lookout for these posters, and at the end of a week three were found. A protest was lodged with the billposter, who said we didn't know how to look. The paper, he declared, was posted, and it was "up to us" to find it. It couldn't be found, so at the end of three weeks I shouldered a club and started out to make trouble. At the billposter's office I found a lot of my paper lying untouched. It was explained to me by a suave understudy that no chance had offered for that paper—that if there was no chance for the paper on the billboards, it had to take its chance in the office. All of which is respectfully referred to the funny pages of the New York Sunday papers.

I weekly inquired if I was expected to pay for something I didn't get, and the understudy said "Certainly." I had bought a lot of expensive paper from the lithographer, and knew this bill had to be paid, or that paper could never be used. There is a billposter's association, you know, and it's a trust to be feared. The Standard Oil people don't stand deuce high to it. So I paid that bill. It was my "chance," and I "offered."

Then it was explained to me that what I ought to take was a "listed and protected showing." I hereby offer two cakes of Babbitt's soap for a satisfactory interpretation of this definition. I was told that the billposters' association guaranteed that I'd get everything that was coming to me, and maybe a little bit more. Well, I got it all right.

I was shown a big list of towns and cities, opposite which were the names of the billposters in those cities, and in the last column was the price per sheet it would cost per month to post those localities. I noticed that the biggest prices appeared opposite the names of men who were chief cooks and bottle washers of the organization.

A Chesterfieldian individual, with a softly-purring voice and an immaculately white vest, told me he was a broker or an agent or some sort of a go-between, and said the easiest way to post a lot of cities was to give him an order for all of them, and he would do the trick—the "listed and protected" trick.

I said: "What do you get out of it?"
He said: "Sixteen and two-thirds per cent."
I said: "Split that commission with me, and the order is yours."

He said: "I can't. The association won't permit it. If I did it, I'd be fired out."

Well, he did it, and he wasn't fired out. I thought I was beating the game, and began smoking better cigars on the strength of my "saving." How much wiser a man is after the event than he is before! I started in with my teeth set. I was going to get service if it took the hide and hair off. The paper was sent out, and I waited for the various billposters to send in their lists and reports. Slowly they began to come along. I at once sent these lists to the publishers of papers in the towns they came from, and asked them to detail a reporter or collector to make a thorough inspection. The very first town inspected showed me what to expect. The inspector wrote: "Your paper was up one day, and was then covered up with 'Wild West' posters."

The next report was precisely the same. And so it went. There were seventy different cities on the list. In some instances the billposter wrote back that my inspectors were liars. Others wouldn't write anything. Here and there a list was not sent in until the end of the month, and the paper was gone when my inspector went around to the boards. Some paper was posted on the back side of the boards. The winds and rains destroyed hundreds of the stands. The excuses offered by many were so shallow that a blind man could see through them at midnight.

In one large city the service was particularly faulty, so I kept an inspector on duty there constantly for three months. When settling up time came, this billposter, I learned, had kept no record of the service himself, because it was so bad he couldn't, and he meekly asked me to send in my inspector's reports, and made up his bill from them. This is the first time I ever came across a man who let the buyer of his goods make out the invoice.

For three long summer months I kept after these fellows, while other people were laving in the surf and playing lawn tennis. I nearly wore out my sweet young life keeping tab. This was a "listed and protected showing," mind you, and I paid only for what I found, or thought I found. The broker's bill looked like a map of the Indian Archipelago when I got through with it. What I cut off, however, wasn't one cent on the dollar compared with the loss of time and sleep. I would have been better off if I had shut my eyes and said: "It's coming to me—let me have it."

There was just one billposter on the list who did his duty. His service was faultless. I wrote and told him he was the one grain of sugar in a bagful of sand.

I had more posters left, and spit on my hands and tried again. This time I went after big game. No more brokers for me. I tackled the billposter in a great city. I asked for all the broker's commission, and I got it. Things were looking up, I thought. If you want
to get the commission from a billposter, try and see how hard you'll get hit. I mean now. My experience has made the billposter wary.

I wasn't going to be fumigated this time, so I picked out my own locations beforehand. No more back-sides of boards for me. When my list was made up, I went to the billposter and said:

"Here are the boards I want."

He said: "Why, you have picked out a lot of 'specials.' They cost three or four times as much as 'regulars.'"

I wouldn't pay special prices, so I had to take the best regulars. I insisted that I wanted no paper on cross streets. Every bill must be on a main thoroughfare. The billposter said "All right," and I gave him the paper, telling him to notify me at once when the posters were all up. The notice came, and I at once sent out two absolutely reliable inspectors on an automobile. They reported that less than half the paper was posted. I don't remember what excuse was given, but you can gamble that billposter didn't get paid a cent until every bill was posted. And to make things interesting quite a number of posters were stuck around corners on side streets. I protested. The billposter said he would move them to the main thoroughfare. That was all very nice, but where did I come in for the extra paper thus wasted? I haven't found out yet. Can you tell me?

And still I wasn't knocked out, but I was getting groggy and clinching until the bell rang.

I contracted with another famous billposter for about 400 sixteen-sheet stands, and sent him 500 stands, the extra 100 being for renewals. The paper cost four cents a sheet, or sixty-four cents for each poster. Up went the paper, and out went my inspector. He found three-fourths of the bills up, and while I was fixing up matters with the billposter about the other one-fourth, a good old-fashioned storm mowed down my paper like the Boer sharpshooters picked off the English. More paper was needed. It had to be shipped from another city. First I was asked for 100 extra stands, then for another 100, then for another 100, then for another 100, and finally for 800, making 1,100 stands altogether. What under heavens that man did with my paper I shall never understand. That city must have run short of kindling wood. The paper on this deal cost me over $700, and in all that month I don't believe I got seven days' full showing.

Now, I'm done with billposting. It took me nearly a year to find out that you can't beat a man at his own game, when he is backed up by the winds, rains and an easy conscience.

If there are any commercial clubs, or boards of trade, or business colleges, or missionary societies which want a competent person to deliver a lecture on billposting, I herewith apply for the job.

I want to wind up by saying that no mortal man who posts can tell whether the paper he pays for is up on the boards, or lying in the gutter or starting fires in stoves. He may see it up today, but a hundred Janus-faced inspectors can't tell where it may be tomorrow.

Billposting is all right for the man who doesn't inspect and who doesn't care particularly whether he is getting full service or not.

But for the man who insists on getting a full and complete showing—who wants a good run for his money— billposting is all wrong. It will hasten the wrinkles of old age and care, and put words in his mouth commonly allotted to pirates and losers at prize fights.

My experience on the boards has raised the newspaper and street car to my most distinguished consideration. I can check advertising in those mediums, and advertising that can be checked is the kind of advertising to stick to.

White Tar Soap.

New York, Dec. 21, 1900.

Dr. Henry Guthman, Milwaukee, Wis.:

Dear Sir—The American Soap Journal for the month of December came to hand, and has been carefully read with interest. I quite agree with the statement referring to a soap being sold on a grease basis. The amount and kinds of adulterations, if any are used, should also be named.

By this mail will be sent you a cake of white tar soap, the wrappers and circulars for the same are in the hands of the printers. This soap contains no coloring matter, and if exposed to the sunlight will become perfectly white. Kindly test it, and you will find that it will not soil the soap dish. Other novelties in the soap line will be brought out before many weeks. The enclosed circular should interest the retail grocer.

Under separate cover, I mail you the bulletin issued by the New Jersey Agricultural Experiment Station. It will show you how carefully the government guards the interests of the farmer in the line of fertilizers. You will say that an ordinarily intelligent person can, by its aid, purchase fertilizers without taking any chances of being defrauded.

If the consumers of soap were made aware of the value of the various kinds of soap they purchase, they would be able to distinguish such soap that would rot the clothes, make them yellow, fade and give them a bad odor. They would know how much actual soap they are paying for.

Yours very truly,

Maross Jenkins.
Estimates of Alkali Carbonates in the Presence of Bicarbonates.

By Frank K. Cameron.

Introduction.

In an aqueous solution sodium carbonate is hydrolyzed to a definite extent, depending upon the concentration and temperature conditions. This may be represented thus:—

\[ \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} = \text{NaHCO}_3 + \text{NaOH} \]

Of the four electrolytes then present in the solution only the sodium hydroxide is dissociated or ionized to any considerable extent, and in consequence the solution presents the characteristic features of a solution of this substance—it is markedly alkaline. Shields \((\text{Ztschr. Phys. Chem.}, 1893, \text{xii}, 167)\) has found the amount of this hydrolysis for a tenth-normal \((\times 10)\) solution of sodium carbonate at 25°C to be about 3.17 per cent. For certain purposes it is desirable to determine the "alkalinity" of such a solution, that is to say, the amount of sodium ions which may possibly result from this hydrolytic action, or one-half the sodium which has been brought into the solution with a standard acid solution. But this procedure usually requires that the solution should be heated to the boiling temperature. At the ordinary temperature the acid reacts with the sodium carbonate to some extent to form the bicarbonate, thus:—

\[ \text{Na}_2\text{CO}_3 + \text{HCl} = \text{NaCl} + \text{NaHCO}_3 \]

and this formation of the bicarbonate may possibly be augmented by some of the liberated carbonic acid acting on the still undecomposed carbonate. Acid sodium carbonate is itself neutral towards indicators, and in consequence totally misleading results are inevitable. Furthermore, the presence of bicarbonates in the solution, other than that formed by the hydrolytic action of the water, will render an estimation of the sodium alone useless. The problem has been presented in this laboratory to estimate the amount of sodium carbonate in mixtures containing also the bicarbonate, and, further, to do this without heating the material. Many attempts have been made by others to devise a method for this purpose. That proposed by Winkler has probably proved the most satisfactory. A good description of it has been given by Küster \((\text{Ztschr. Anorg. Chem.}, 1896, \text{xiii}, 127)\). But this method was not adapted to our purposes for several reasons. The method of Sundstrom described by Lange \((\text{Ztschr. Angew. Chem.}, 1897, 41)\), as well as that devised by Lange \((\text{Ztschr. Angew. Chem.}, 1897, 169)\) himself, were also found to be impracticable under the conditions which confronted us. Without going into greater detail it may be said that no method of which a description could be found in the literature was free from serious objections. This appeared most surprising in view of the probable technical value of such a method in the manufacture of sodium carbonate. The problem has been satisfactorily solved, and an account of the preliminary work on it may be found elsewhere \((\text{Report No. 64, U. S. Department of Agriculture, Division of soils})\). It was deemed advisable, however, to give the method a more critical examination. The results are recorded in this paper.

Acid potassium sulphate is a well-characterized strong acid. With sodium carbonate it has been shown to react as here indicated:—

\[ \text{Na}_2\text{CO}_3 + \text{HK}_2\text{SO}_4 = \text{HNaCO}_3 + \text{NaKSO}_4 \]

The reaction-products, sodium bicarbonate and sodium potassium sulphate, are neutral towards the ordinary indicators. Therefore, by titrating a solution containing sodium carbonate with a standard solution of sodium or potassium bisulphate, the amount of sodium carbonate present can be determined directly. Obviously the same statements may be made regarding potassium carbonate. Many indicators have been used with this method, but it may be said at once that, while good results can be obtained with others, phenolphthalein lends itself pre-eminently to the purpose here in view, and it alone is now used in this work in this laboratory. It is to be regretted that the reverse procedure from that just stated cannot be followed, for to the majority of analysts it would certainly be easier to titrate to the appearance of color rather than to its disappearance. But in this case such a procedure is entirely inadmissible because the sodium carbonate, on being brought in contact with an excess of the strong acid, is more or less decomposed, with the evolution of carbon dioxide, and misleading results that are not comparable are obtained.

It has become evident, in the course of the investigation, that acid sodium carbonate is a very unstable salt, especially in water solutions. The sodium carbonate solutions which had been titrated to loss of color, immediately began to color again on standing, the rate of this "inversion" being a function of the concentration and the temperature, as well as time. Some solutions which had been titrated just to loss of color at 1°C, had practically no color at the end of an hour, but on being gradually warmed over a Bunsen flame very soon became strongly colored from the reaction of the regenerated sodium carbonate on the phenolphthalein present. A tenth-normal solution, titrated just to loss of color, at the room temperature \((\text{about} 25°C)\) will show a marked pink color within five minutes, and a strong color within half an hour.

A solution of sodium carbonate was divided into a number of portions in small Erlenmeyer flasks, and colored by the addition of phenolphthalein or litmus. Carbon dioxide was passed in until the solutions no longer showed any alkaline reaction with the indicators. They were then allowed to stand for several days.
Some of the flasks were closed with rubber stoppers. The open flasks very soon showed a strong alkaline reaction. In the closed flasks, while a faint alkaline color appeared within a very short time, the color became more intense, but very slowly, showing the influence of the carbon dioxide in retarding the inversion. Nevertheless, it would appear that the inversion does take place, even though some carbonic acid must be present. This phase of the subject is now being studied in this laboratory, and the investigation will be continued as time and opportunity may permit.

In a qualitative sense precisely similar results were obtained with potassium carbonate and with sodium silicate, of which both yield acid salts which are unstable in water, and at once invert to a greater or less extent. Sodium borate and disodium phosphate, being salts of weak acids, give an alkaline reaction in water solutions, and can be very conveniently titrated to neutrality with acid potassium sulphate, but in neither case was any subsequent inversion observed.

**Description of Experiments.**

After some preliminary work it was deemed advisable to test the method by referring all solutions to a standard alkali solution, rather than by making the numerous gravimetric determinations which would otherwise be required. All the titrations were made from two burettes, which previous experience had shown to be quite reliable. It was not thought necessary to calibrate them. The burettes were graduated to tenths (0.1 c.c.) and smaller readings could be estimated. It was thought preferable, however, not to attempt readings closer than one-half a scale division (0.05 c.c.), but to depend upon the average of a series of readings.

The standard for reference was a solution of potassium hydrate, accurately prepared and carefully freed from carbonates or other impurities. It was so prepared as to contain 18.17106 grms. of potassium hydroxide per litre. A solution of approximately tenth-normal acid potassium sulphate was then made up and compared with the standard potassium hydrate solution. It was found, as a result of a satisfactory series of titrations, that 1 c.c. of the potassium hydrate solution was equivalent to 6.764 c.c. of the acid potassium sulphate solution. It follows that 1 c.c. of the acid potassium sulphate solution contained 0.006528 grms. of the acid salt, whereas a tenth-normal solution (N/10) would contain 0.006758 grms.

Reasonably pure potassium bisulphate is not difficult to obtain. But one cannot always be certain that an otherwise satisfactory sample contains precisely those proportions of the elements involved, which are required by the formula HKSO. A small excess of either sulphuric acid or the potassium sulphate will not materially alter the value of the re-agent for the purposes under discussion, but it is obvious that for very accurate work it is safer to determine the concentration of the solution in the manner just described, rather than depend on either a gravimetric determination of the sulphuric acid alone or of the potassium it contains.

A solution of potassium carbonate (approximately tenth-normal) was then prepared and titrated with the results here given, the first column indicating quantity of potassium carbonate, the second column the quantity of potassium bisulphate, and the third column the ratio of the readings:

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<td>10.00</td>
<td>12.70</td>
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<td>18.90</td>
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<td>30.00</td>
<td>35.20</td>
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These titrations were made in the usual manner by adding a little of the acid solution, shaking, and waiting a few moments to see if color disappeared before proceeding.

The potassium carbonate was then analyzed in the following way: The solution was treated with an excess of hydrochloric acid, boiled to drive off all the carbon dioxide liberated, and the excess of acid determined by titration with the standard potassium hydrate solution. The figures follow. The first column represents amounts of potassium carbonate, the second column hydrochloric acid, and the third column potassium hydrate:

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By a careful and satisfactory series of titrations 1 c.c. of the hydrochloric acid solution was shown to be equivalent to 1.0461 c.c. of the potassium hydroxide solution. Therefore:

\[ 20 \text{ c.c. HC}_1 \text{ solution} = 20.928 \text{ c.c. KOH solution}. \]

\[ \text{Excess HC}_1 \text{ solution} = 7.166 \text{ c.c. KOH solution}. \]

\[ 40 \text{ c.c. Na}_2\text{CO}_3 \text{ solution} = 13.762 \text{ c.c. KOH solution}. \]

\[ 1 \text{ c.c. Na}_2\text{CO}_3 \text{ solution} = 0.344 \text{ c.c. KOH solution}. \]

It has been shown that 1 c.c. KOH solution was equivalent to 6.764 c.c. HKSO solution; therefore, 0.344 c.c. KOH solution was equivalent to 2.327 c.c. HKSO solution, but since only one-half as much acid potassium sulphate is required to convert the potassium carbonate to bicarbonate, it should have required 2.327 x 2, or 1.163 c.c., instead of 1.262 c.c. as actually found. This disagreement was startling in view of the good results previously obtained with the method.
A sodium carbonate solution of about the same strength as the potassium carbonate solution just described was prepared and a long series of titrations made in the manner as with the potassium carbonate solution. It was found that 1 c.c. of the carbonate solution was equivalent to 1.137 c.c. of the acid sulphate solution, though an analysis made in the same manner as in the case of the potassium carbonate showed that 1.035 c.c. of the acid sulphate solution should have been required. The disagreement was practically the same in both cases.

(To be continued.)

Testing Disinfectants.

Dr. F. W. Alexander gives in the Lancet the following methods as those used for the analysis of carbolic preparations by the analyst to a large firm of disinfectant manufacturers:

Method of Testing 35 per cent. Disinfecting Fluid

—One hundred c.c. of the fluid to be tested is placed in a small flask and enough dilute sulphuric acid (one part of acid in three) added to neutralize it. About 9 c.c. will be found to be necessary. It is warmed and well shaken, then put into a separator, and then, after standing a few minutes, the lower aqueous portion is drawn off. The increase in volume being noted, it is neutralized with dilute caustic soda (sp. gr. 1.210) and the volume of the resulting pyridine bases read. By subtracting this from the increase in volume the amount of water (first portion) is obtained. The oily upper portion is then run into a Wurtz flask fitted into Leibig condenser and distilled up to 270° C. To prevent bumping, some pieces of marble or lime-stone are put into the flask before commencing to distill. When all the water is distilled over (which may be noted by the cessation of frothing) the distillation is slackened for a moment to allow of the water being read. This, added to the first portion, gives the total water. The distillation then does on up to 270° C. and the tar-oils come over with the acids in solution. The total distillate is then placed in a small flask and washed with three washes of dilute caustic soda—(1) of a specific gravity of 1.125 (30 c.c.), (2) of a specific gravity of 1.210 (20 s.s.), and (3) of a specific gravity of 1.210 (20 c.c.). The distillate is warmed and well shaken with each wash, then put into a separator, and after standing a few minutes the lower portion is drawn off each time into a graduated cylinder (stoppered) in which it is neutralized by the careful addition of dilute sulphuric acid, and in which the tar acids obtained may be read. A further wash of 20 c.c. of dilute caustic soda (1.210) may be given to see if all the tar acids are removed, and after this a wash of 15 c.c. of dilute sulphuric acid is put in the oil, the mixture warmed and shaken, separated into a graduated cylinder, neutralized with soda (1.210), and the resulting pyridine bases added to those formerly obtained give the total percentage of pyridine bases in the fluid.

Method of Testing Disinfecting Powder—Fifty grams of the powder is weighed into an ordinary retort, and directly distilled into a 100 c.c. graduated measure (or a 50 c.c. measure will do). Care must be taken to apply the heat gradually at first, so as not to crack the retort. First, the water distills off, and secondly, the phenols. The heating is continued as far as possible, and the resulting volume of water and phenols is read in the measure. Before finally discontinuing the distillation it is usual to shake the powder in the retort up well and again heat. Then the percentage of phenols in the powder is to the amount read as 10.5 : 10; 10.5 : : amount of c.c. of phenols read X2 : percentage of phenols in powder by weight. This is necessary, as the specific gravity of phenol is about 1.050. This method is not applicable to a powder in which the phenols are combined with the base, or to a powder having as a base peat or any other substance which can be destructively distilled. To find if the distillate be phenols or neutral oils, dissolve in about seven times its own volume of caustic soda (sp. gr. 1.125), when, if phenols, they should dissolve.

The Melting Point and Titer Tests of Fats.

By George H. Hurst, F.C.S., in Oils, Colors and Drysalteries.

Fats vary in their consistency very much, even when they are supposed to be the same fat; in tallow there is a considerable difference, some being hard, others soft. For certain trades and for producing certain effects it is advisable, when buying, to always be able to obtain the same quality of material, so that when used the results can be depended upon. For instance, in candle making a hard tallow is necessary, and if a soft tallow were supplied good candles could not be made.

With this object in view the fats are tested, either by determining the melting point or what is known as the titer of the fat.

Melting Point of Fats and Greases—Various methods have been proposed for determining the melting points of fats, but none are superior to that known as the capillary tube process, which is carried out in the following manner: Provide the following apparatus: Glass beaker of about five to six ounces capacity, a good thermometer, which is sensitive and shows at least half degrees, some thin glass tubing, a tripod stand and bunsen burner, support for thermometer. Select a piece of the glass tube a little smaller in diameter than a lead pencil and about four inches long. Hold it along the
flame of an ordinary gas burner, turning it round; soon it begins to soften, and then it can be pulled out as per sketch No. 1. After cooling, the piece can be broken in two in the center of the drawn-out part, where marked on the sketch, thus forming two tubes. By pressing the narrow or capillary end of the tube into the fat or grease whose melting point is to be determined, it can be filled with the fat. Now take the thermometer, and tie the capillary tube to it with the end where the fat is in contact with the bulb of the thermometer. The glass beaker is now filled with water, and placed on the tripod stand, the thermometer and capillary tube being supported in the center of the water. The sketch No. 2 shows the complete arrangements. Now heat the water slowly, watching both the fat in the capillary tube and the thermometer at the same time. Presently the fat, which is at first opaque, becomes clear and rises in the tube; the temperature at which this happens is the melting point of the fat.

The Titer Test—The titer test is due to Dalican, and is much referred to by buyers of fats, especially of tallow to be used in making candles. The titer test really consists in ascertaining the solidifying point of the fatty acids of the fat in question, and resolves itself into two parts—first, the preparation of the fatty acids; and, second, the determination of their solidifying point. About 100 grammes of the fat are placed in a basin, and there is added about sixteen to seventeen grammes of 77 per cent. caustic soda, dissolved in 300 c.c. of water. The whole is thoroughly boiled and the fat completely saponified; this latter is of importance, as if any unsaponified fat were left in it would affect the test. Using the quantities of materials given above, there should be no difficulty in ensuring this by frequent stirring and a good boil. When the fat is saponified there is added dilute sulphuric acid, sufficient in amount to decompose the soap; the mixture is heated, when the fatty acids will collect in a clear layer on the top of the aqueous layer. The whole is then allowed to cool, when the fatty acids set in a solid cake. The aqueous layer is poured off, fresh clean water poured into the beaker, and the whole heated up with a thorough stirring, after which the fatty acids are again allowed to set in a cake. This cake is taken and pressed between filter paper to remove the water, and is then melted in a basin and allowed to stand all night to cool. There is provided a test tube six inches long and one inch in diameter. Melt the fatty acids in a basin on the water bath, and fill the tube about half full. The tube and its contents should be hung in the neck of a large flask. A thermometer marking half degrees is fixed in the tube, so that the bulb is in the center of the mass of fat. Soon, as the fat cools down, a few crystals begin to form on the bottom; the thermometer is carefully watched; at the same time it is used to stir up the mass, giving three turns to the right, then three to the left. The temperature falls slowly, but in a short time it will rise suddenly half a degree or so, and remain at a higher temperature for a short time before it begins to fall again. The highest temperature to which it reaches is the titer of the fat. By using care very accurate results can be obtained by this method. A delicate thermometer is required, and not too little of the fatty acids, otherwise the results are rather irregular.

**Around the Soap Factories.**

News items sent us by our readers will find prompt attention in this column.

About the middle of December three masked men one day entered the office of the Peet Bros. Soap Manufacturing Co. and at the point of an array of revolvers helped themselves to about $800 cash. They probably had a merry Christmas, but we trust they will not have a prosperous new year, if they should stay in that business.

We are in receipt of a handsome wall calendar from the Welch, Holme & Clark Co., of New York, which reminds us that this old-established firm is still doing business in the good, reliable way we have known so long.

William A. Proctor, of Cincinnati, has presented the Cincinnati University with an elaborate chemical laboratory.

Kansas City parties are said to be investigating conditions in Tucson, Arizona, with a view to establishing a soap factory there.

Armour & Co. have purchased a salt mine in Michigan to obtain salt for their own consumption.

August Kelly, E. W. Colby and W. C. Borden, of Chicago, have incorporated the National Soap Works. Capital $5,000.

The Pacific Soap Co. is successor to the Van Horn Soap Co., of Tacoma, and the capital has been increased to $10,000.

Among the new incorporations is the Rexine Mfg. Co., Toledo, O., incorporated for the manufacture of soap by W. A. Stephens, J. P. Rex, G. F. Wells and others. Capital $10,000.

The Lilly-Lange Chemical Co. have incorporated to do business in Chicago. Capital $2,500; to manufacture drugs and chemicals. Incorporators, Geo. P. Cary, C. P. Wilson and Robert W. Millar.

The Standard Chemical Co., Portland, Me., has been incorporated for the manufacture of soap, etc.; capital stock $35,000.
The candle department of the factory La Nacional, Chihuahua, Mexico, is to be enlarged to double its present capacity.

Suit has been brought by Enoch Morgan's Sons Co. against the Whittier-Colwin Co., of San Francisco, for infringing upon their brand Sapho. The complaint states that defendants are selling a sand soap which is packed so as to very closely resemble complainant's product.

Notes for the Manufacturing Chemists.

A NEW TANNING MATERIAL.

The roots of certain bushes called "tara," found in Burmah and Assam, yield a tanning material said to be superior to quebracho and cheaper.

FERTILIZER FROM PUTRID FLESH.

For converting condemned meat and other flesh unfit for purposes of food, into superphosphates, a Frenchman has devised a process in which the nitrogenous products are separated from the fat by sulphuric acid. After remaining in the acid (in lead-lined vessels) for forty-eight hours, the latter has taken up the nitrogenous matter and is run off to be further treated for making a rich fertilizing material.

GUANO.

The Chincha Islands, in the South Sea, a series of rocky peaks simply, of but small surface above the water, were until recently one of the richest territories in the world, owing to their extensive guano beds formed by the innumerable sea-birds inhabiting these rocks. Seven million tons of guano have been shipped from these islands, the deposit having been over ninety feet in thickness, and in places twice as much. Since 1870, however, the deposits have been exhausted and the islands deserted. But seals in great number still inhabit the islands.

AMERICAN VS. ENGLISH COAL.

Experiments with American Coal.—The managing director of an English gas works states that his experience of American coal enabled him to say that it was superior to the best English gas coal. It was freer from sulphur and more easily purified, and was also an excellent household coal. It would certainly reduce the demand for English coal in the Mediterranean and elsewhere; but for the present it would not compete seriously with English coal in England, as it was higher in price by some shillings a ton. It had cost him 12s a ton free on board ship, but the freight was 10s.

ASBESTOS.

Nine-tenths of the world's supply of asbestos comes from Canada, the remainder coming chiefly from Siberia, with a small amount of special quality from Italy and the Cape. The Canadian supply has risen from fifty tons in 1878 to 13,000 tons during 1899.

WOOD PRESERVATIVE.

A process has been adopted in Germany which claims to possess all the qualities essential to preserve wood. It is the invention of Mr. Fritz Hasselmann, and consists briefly in extracting from the timber the sap, and then impregnating it with a solution of sulphates of copper and iron crystallized together in the proportion of 20 per cent. of the former to 80 per cent. of the latter—alumina and kainit.

The timber to be treated is run on a trolley into a large cylindrical vessel which is afterwards hermetically sealed, and if the wood is hard, steam is turned in for softening. Next a vacuum is created in the vessel by means of a steam pump, and this extracts the sap from the material, which is then ready for impregnation with the chemical solution. The solution flows in under atmospheric pressure, and when the vessel is fully charged, steam is turned on to give it the required heat. After standing for a few hours in the vessel the timber is removed and dried ready for use. The whole process is carried out in about five or six hours.

Timber treated by this process has no corrosive action on nails and screws, will take paint, and can be worked by ordinary tools.

DYNAMITE MANUFACTURE.

The De Beers Company has obtained a license to establish a dynamite factory on the coast near Somerset West Strand, South Africa. Some 1,200 workmen are to be employed.

ARTIFICIAL SLATE.

According to a German contemporary, artificial slate is tin-plate coated with a mixture of finely ground natural slate, lampblack, and a solution of water glass. The soluble glass solution is prepared by finely powdering one part by weight of solid potash water glass and one part of soda water glass in a mortar and pouring over this twelve parts of soft or distilled water; after boiling ninety minutes, the water glass dissolves completely. Seven parts of slate ground with water to an impalpable pulp are mixed with one part of lampblack and added to the water glass solution; the rather stiff mass which results is brushed upon tin plates previously roughened with sandstone.
Trade Marks in Germany.

To the Editor of the Times:

Sir—So large a number of British manufacturers have trade interests in Germany that their position in respect of their trade-marks in that country is of considerable importance.

A recent case has emphasized the great hardship which may be inflicted under the German law on British trade-mark owners, and we venture to ask for publicity in your journal, so that due warning may be given.

Under the German law priority of right to a trade-mark can only be obtained by registration, and the use of a trade-mark, apart from registration, gives no priority of right. The first person, therefore, to obtain registration of a trade-mark has the right to the exclusive use of the same, even as against the true owner who has actually used the mark in Germany, but has neglected to register it.

Instances are constantly occurring where a German subject has, without the knowledge of the real owner, obtained registration in Germany in his own name, and such person then declines to cancel or transfer such registration without the payment of a considerable sum of money, and if his terms are not complied with, he is actually able to put the German trade-mark law in motion and cause the goods of the real owner of the trade-mark to be seized on their importation into Germany. This position of matters (which has already arisen in a number of cases) leaves the trade-mark owner no alternative but to give up the use of the mark in that country unless he is prepared to submit to the demands of the person in whose name the registration has been obtained.

Yours faithfully,
The Trade-Mark Owners’ Mutual Protection Association (Limited), 17 and 18 Basinghall Street, E.C.

Are Your SOAP BRANDS on our Records?

NO CHARGE! WORTH MORE!

In writing to any of our advertisers please mention the American Soap Jnl. & Mfg. Chemist.

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The Patent Plate saves clothes, produces a dryer cake, and is altogether better than the old form, WRITE FOR INFORMATION.

D. R. SPERRY & CO.,
Manufacturers of Vacuum Fans, Steam Jacket Kettles, Caldrons, Etc.

BATAVIA, ILL.
The Scientific American, a paper known probably to every one of our subscribers, in a recent issue, says:

"The first edition of "American Soaps" appeared in print seven years ago and was well received, and since that time the author has continually collected all the available new information that could assist in making a later edition of the book more complete, and the author has had the benefit of the experience of many of the original purchasers of the book.

There is an extensive literature upon soap making, but most of them are adapted from foreign practice or deal with antiquated methods. The present book cannot be placed in this category. It is an excellent contribution to technical literature by a man who thoroughly understands modern American soap making and is in no sense a compilation. To those who are looking for a thoroughly practical book on soapmaking of all kinds, with special reference to modern practice, we can heartily recommend this book. It is freely illustrated, and the number of formulas for soaps of various kinds are large. The section devoted to the actual processes used in the manufacture of soaps of all kinds occupies three quarters of the volume. It is an admirable book."

If you have a second-hand machine for which you have no use, or expect to buy a new one if you can dispose of a smaller one now in use, or any similar need, remember that an advertisement in our "For Sale" column will convey that information to one or more looking for just such opportunity—if there is any use for such apparatus at all.

An Australian subscriber to the Soap Journal and purchaser of the work "American Soaps," writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file, in black and white.
THE PREPARATION OF

Caustic Lye
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STRUNZ PATENT LYE APPARATUS
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reduces the process to a very simple and profitable operation. The expense for labor, fuel, and lime being less than by any other process now available, for the following reasons:

The entire process is completed in a single operation.

No Driving Machinery. No Vacuum Pumps.
No Air Pumps to operate by my method.

F. B. STRUNZ,
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Advertisements under this head will be inserted at the following rates, strictly payable with the order in every case:

**Situation Wanted**: $1.00 the first time, and 50 cents for each subsequent insertion.

**Help Wanted**: $2.00 the first time, and $1.00 for each subsequent insertion.

**Factories and Machinery For Sale Or Wanted**: $2.00 the first time, and $1.00 for each subsequent insertion.

These rates are for ads, up to five lines in length; additional lines more in proportion.

In answering any of these advertisements never send original documents, testimonials, etc., especially when the advertisers’ identity is not disclosed.

Don’t waste time asking us for the names of parties advertising in this column without giving their address, as they will not be revealed.

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**BRANTFORD SOAP WORKS FOR SALE.**

The BRANTFORD SOAP WORKS COMPANY, Limited, are retiring from business and offer FOR SALE all their well-known TRADE MARKS including “IVORY BAR,” Boxes, Wrappers, Labels, Advertising Matter, Dies, Formulas, Goodwill, &c. The large FACTORY, GROUNDS, PLANT AND MACHINERY will be sold at a low price on easy terms. The FACTORY is in first-class running order. Immediate possession can be obtained. Full information can be obtained on application to Harry A. Genet, Secretary-Treasurer, Brantford, Ont.

**SOUTH BEND SOAP FACTORY For Sale or Rent.**

The South Bend Soap Factory for sale or rent. Easy terms, or rent very reasonable. The best opportunity in the country. A town of 40,000 and a splendid home trade, and a fine chip soap trade with laundries. Over 500 special brands and special wrappers. The owner being in other business, cannot attend to the business. Address, S. B. S. Co., care M. S. Rogers, City Water Department, South Bend, Ind.

**WANTED TO BUY.**

A second-hand Hand Cutting Machine. Must be No. 1. Address, P. O. Box 423, Chattanooga, Tenn.

**SOAP BOILER WANTED.**

One who understands to make perfectly neutral milled soap stock. Please state age, past experience and wages expected, addressing C. S. & Co., this paper.

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**SITUATION WANTED.**

Situation wanted by a practical soap maker, makes laundry floating, mill, boiled and half-boiled toilet, red oil, olive oil, chip, tar and castile soaps, light colored soap from cotton oil, fine settled resin soap. Twenty years experience. Address: J. E., care of this paper.

Situation wanted by a practical soapmaker; over 25 years experience in all kinds of soaps. Laundry, Family, Mill, Castile, Chips, Powder Floating, and all leading brands on the market. Address, J., care The Shelly Press, 163 Clinton street, New York, N. Y.

Situation wanted as superintendent of a soap factory by a thoroughly competent and experienced man of the best of habits. First-class references as to ability and character. Address, D, care of Soap Journal.

Situation wanted as superintendent of a soap factory; have had over 12 years experience in the Soap business; have had charge and accustomed to all factory details; can introduce economical methods. Would prefer N. Y. State and might invest after a few months from $1,000 to $2,000. Advertiser is in his prime, and references show clear business record for over twenty years service. Address, A. S. H., care American Soap Journal, Milwaukee, Wis.

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The latest complete edition of our

**LIST OF SOAP BRANDS.**

having been entirely sold out, we are not prepared to fill any orders for it at present. A new edition will not appear until a sufficient number of new brands will have accumulated in our Supplementary list now published in this paper.
THE REVISED and CONSIDERABLY ENLARGED new issue of the well-known work "AMERICAN SOAPS" is finished and now ready for delivery. (For a description of the book in its present form see circular mailed on request).

The increased number of pages in this book is due chiefly to new practical material collected from many sources during the years which elapsed since the appearance of the first edition, and will, no doubt, add greatly to the usefulness of the work.

The first edition of "AMERICAN SOAPS" having been so favorably received, that a copy of it may at present be found in almost every soap factory in any English speaking country, care has been taken in the new edition to adhere largely to the original plan, simply adding such material as the changes of time or the collection of new information suggested.

In offering this new work to the trade we confidently bespeak for it the same favorable reception which was accorded the original edition in so large a measure.

A copy of this new edition will be sent, EXPRESS PREPAID; to any address in the world, on receipt of $15.00. Address:

AMERICAN SOAP JOURNAL,
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Send Us Your Ideas and We Will Submit Designs and Estimates for Your Consideration.

Most Soap manufacturers or their Salesmen are occasionally asked for a special quality of soap which they do not make. Let us not here refer to the multitude of BRANClI, but mean special QUALITIES for distinct purposes, none of which can be replaced by another kind and be a credit to the party selling it.) To say "we do not make it" does not speak well for the enterprise, knowledge, skill or facilities at the command of the firm asked to supply the desired article.

It has been our principal business for twenty odd years to make just such kinds of soap which other firms usually do not bother with . . . . . .

Shaving Soaps and Creams,
Shampoo and other Soaps
in cake, semi-solid and liquid form,
Polishing Soap in any variety.

Tooth, Harness and all kinds of Medicated Soaps, in short, anything in the line of soap not made in the average soap factory.

Better correspond with us, giving us every detail possible such as qualities and quantity desired, prices you can afford to pay (we cannot analyze every sample sent us and figure out prices), we make lowest prices anyway in order to retain customers. If price given is too low it is useless for us to go further into details.

ADDRESS
GEO. A. SCHMIDT CO.
Established 1875.
405-407 NORTH AVENUE,
CHICAGO, ILL.
The American Soap Journal & Manufacturing Chemist.

A MONTHLY JOURNAL OF THE MANUFACTURING CHEMICAL INDUSTRIES.

DR. HENRY GATHMANN, Publisher.
322 Windsor Place.
MILWAUKEE, WIS., February 1, 1901.
VOL. XI. NO. 6.

THE AMERICAN SOAP JOURNAL
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SPACE ON COVER DOUBLE RATES.

For Rates and other Information concerning small advertisements of WANTED and FOR SALE, see Announcement at the head of that page.

OFFICE OF PUBLICATION:
322 WINDSOR PLACE, MILWAUKEE, WIS., U.S.A.

The American Soap Journal and Manufacturing Chemist is devoted to the interests of all manufacturing industries of a chemical character, and is an absolutely independent publication. It is the only newspaper of its kind in America and has also a large foreign circulation.

For Subscription and Advertising rates see above.

Communications on industrial subjects, news items, and any information suitable for printing in these columns, are solicited and will have due attention.

Readers in search of machinery, supplies etc., not advertised in these columns, are invited to write us and we shall endeavor to supply the information.

Address all communications to
DR. HENRY GATHMANN, Publisher,
322 WINDSOR PLACE, MILWAUKEE, WIS.
U. S. A.

The "Seifenfabrikant" is publishing a list of trade marks registered in Germany for soap, toilet preparations, etc. Some of these marks may be interesting to note for those in search of the few names that can possibly be unclaimed in this country at this day—for nine times out of ten, when you think of a good name, you will find it already on our list. So we extract a few of these brands from the above-mentioned list:


Of the above names a few are translations into English of the true brands which are in German, but some are actually in English; among the latter we notice "Sweat-heart," which, we hope, is a printer's error and not actually on record in that form of spelling.

Another interesting item from the same source is the following, which we translate as literally as possible:

"HONEST MARRIAGE."

An efficient, competent soap maker, Israelite, 27 years old, desires to marry a soap manufacturer's daughter. The same must be able to cook and understand bookkeeping; would prefer to enter as partner into parent's business. Everything else immaterial. No anonymous offers. Answer to L. W. 100, care of Postoffice, Auspitz.

We are in receipt of a letter from a teacher of chemical technology in Colgate University, saying, among other things, that he is on the point of taking up the manufacture of soap. While from the information at hand this is a modest enough beginning, it is a sign in the right direction—so much so that we feel impelled to give further publicity to this bit of information.
A copy of the American Soap Journal has been requested sent to the Morris Brown College Reading Rooms, Atlanta, Ga., of which Rev. James M. Henderson is president. When the paper arrives it will surely be a case of "cleanliness being next to Godliness."

We have collected quite a little material for the continuation of our article "How Soap is Sold," but it has been laid over till next month, for want of space.

We have received during the past month no less than three enquiries from as many well-established soap factories for the name and address of a practical soap maker with a good knowledge of the chemistry of fats, oils and soaps, and a thorough knowledge of soap making in all its branches. The requirements of the firms in question are evidently more rigid than we were in the habit of having them stated, and it all goes to show that it is absolutely necessary to advance if a soap maker desires to "keep us with the procession." (To avoid useless correspondence we will add in parenthesis that we cannot reveal the names of the firms in question, but will write them at the request of subscribers who may wish to make connections.)

In the course of some remarks on the soap business in general an eastern soap manufacturer writes us:

"It would interest you to get samples of the soap furnished to the Indians by the government. I am reliably informed that the bids are awarded to the lowest bidder, regardless of the quality or amount of actual soap. It is said that the soap is so bad, that the Indians will not use it except for tanning buckskins, as they realize that their clothes are soon rotted when bad soap is used and they cannot afford to use the stuff furnished them by the government."

"If you will take the amount of soap purchased each year for this department, and the price, you will see that it runs into a large amount of money. To this must be added the cost of freight from here to the Indian reservations, which you know is a large item.

"By looking over the specifications for various articles bought by the government, you will find that the specifications are very exacting on some articles where the quantity amounts to but a trifle, as compared to the quantity of soap purchased. Yet, soap is allowed to go Scott Free, matters not, if it contains 50 per cent. of water, 10 per cent. of white earth, or 6 to 8 per cent. of free alkali, it is accepted as soap and paid for."

"'Sand in Sugar' is a saying as old as language, yet I question if any retail grocer ever added an ounce of sand to sugar. Had the old saying been, 'Sand in Soap' it would have hit the nail squarely on the head."

Some Further Details About Practical Co-operation of Soap Manufacturers.

It is to be regretted that such questions as came to me by letter were not put into the form of an essay to be published in the American Soap Journal, as in such a shape they would be of benefit to American soap makers at large. For this purpose I shall put my ideas in such a form that they ought to be read with interest by all those engaged in the manufacture of soaps.

The sum and substance of the various questions may be put in the few words, "put us in a position to profit by your suggestions and do it in a manner so we need not bother our heads about it." How business men can expect this I never could understand; every one must think for himself, especially with so complicated a subject as the one in question. I can now and then present a new side of the problem, but others must do their share of the work, must find out the way in which they can co-operate profitably with others. The advertisements appearing monthly on the last page of this paper over the signature of Geo. A. Schmidt Co. will set forth what we have to offer. We expect others to come out just as frankly as does the writer (either by an ad. or by letter).

In order to be more easily understood, and because the subject is a somewhat complicated one, it is well to recapitulate some of these things which I have said in those columns before. Let us investigate what classes or kinds of soap manufacturers we have got. There are, first, our largest concerns which have gone into the soap business in order to dispose of their by-products to the best advantage; amongst those are the cottonseed oil refiners and the big packing houses. While they have at their disposal the best chemists that the world produces, yet a knowledge of chemistry alone is not sufficient to produce what people ought to have, to supply the needs in the way of cleansers for the public. Most manufacturers endeavor to put their soaps into such shapes as are demanded by the public and do it at the least cost, but this should not be the principal aim of the real soap maker or soap chemist. It is hardly worthy of American enterprise to be satisfied with supplying what people ask for in the line of soaps. Other kinds of American goods lead the world in usefulness and fitness, their manufacturers or their assistants invent new and improved machinery, appliances and supplies, which do certain work better than anything else which has ever been produced in any other country.

The writer of this article is of the opinion that the same should be the case in the manufacture of soaps. We are now ahead of the other countries in the way of putting in convenient and pleasing shape the cakes of soap; no other country can compete with us in tasty styles, wrappers and advertising matter, as used in con-
connection with soaps. But to please by appearances or perfume is of secondary importance; the influence of soaps on the health, vigor, comfort and longevity of people is so decided that to make soaps which fulfill their real objects best should be the principal aim of American soap manufacturers. To do this neither the busy heads of the enormous concerns mentioned above can spare the time nor is the chemist who has studied the composition of the various materials able to give advice, much less to himself make practical improvements; no one else can do so excepting that class of soap makers who follow their calling with a full understanding of the possibilities to be attained by a better adaptation of soaps to the manifold purposes for which soaps are used or can be used.

I have in previous essays pointed out the necessity of employing different kinds of soaps for the various purposes and do not wish to repeat here how, for example, the ordinary laundry soaps may answer for superficial work, how it needs but a few simple trials to become convinced how utterly unfit they are for special requirements. Intelligent, educated people smile contemptuously at the average claims made in the usual soap advertisements, the claims made therein are not born out by facts and exaggerations or misrepresentations will not suffice to maintain good reputations for any great length of time.

As further illustrations what can and must be done, and is being done by a very few pioneers in the field of American soap manufacture I will select a branch of our calling which has lately come into prominence, i.e., the combination of chemical and mechanical cleansers, of which the many scouring soaps, Sapotio, Scourene, etc., etc., are old-fashioned examples. Their manufacture and composition has been described in the book "American Soaps," but nowhere have I ever met a printed explanation of the principles upon which the various grades of this one class of soaps ought to be made, and therefore it may be well to do so here.

The purpose of all soaps is, we repeat, the removal of everything undesirable with as little damage as possible to the surface from which "dirt" is to be taken away.

Any apprentice, who engages to learn a trade in which superfluous material has to be removed (and such is the case with carpenters, turners, grinders, etc., etc.), is first taught that in order to do good work he must take care to select and use properly such tools as best suit each particular case.

We hardly need to mention that these differ materially with the nature of what is to be removed; thus the woodworker uses different implements than the stonecutter, etc. We will, however, restrict ourselves to one trade only, that of the ironworker, and will even here leave out of the question those appliances which remove the larger particles, such as the planers, turning lathes, drills, etc., even files we will leave unconsidered, although the latter might serve to illustrate the influence of the size and shape of the cutting edges or teeth, on the work done; we will here only call attention to the proper selection and use of corundum or emery, because that material best serves our purpose of illustrating the action of scouring or grit soaps, or by whatever name a mixture of scouring material with soap, soda, silicate and other ingredients, may be called. To an inexperienced apprentice, who is told to polish a surface with emery powder, there does not seem to be much difference in the various grades of this much used abrasive, but soon he learns to use the coarse grains for one kind of a job, and finds that he would do much injury to other work if he would not be careful to select the finest grade; the expert mechanic knows that not only the size of the grains but many other qualities effect results, it pays him to purchase carefully selected kinds, because he can do better work in less time.

For polishing hard metals we find it profitable to carefully select the polishing material, yet soapmakers are satisfied to recommend one kind of scouring soap for use on the great variety of surfaces on which same is to be used. Any intelligent person must acknowledge that there is room for improvements. Instead of making soap according to formulas we ought to give more attention to the principles upon which each class of soap does its work. To keep on with the example chosen here, the different "gritty" substances in connection with the action of chemical solvents form the best cleaning compounds very much to be preferred to the old-fashioned way of spreading ordinary soap on brushes, rags, sponges, etc., because the latter method is not only slow and tedious work, but all too often, dirt only changes its position, clings to whatever is used for the purpose of removing it, and decomposition goes on uninterruptedly, while if the proper grit soap mixture is used, the most tenacious dirt is not only scraped off, but also, by preference, clings to the grit and is washed away with the same into the sewers and there rendered harmless.

Above are a few details of one class of soap, how much more remains to be said about the many other classes and their innumerable varieties the thinking reader can easily imagine, and those salesmen handling the better qualities of soaps and doing business with the most intelligent customers can testify to a constantly growing demand for special qualities, for soaps with certain distinct properties. No amount of persuasion can convince the knowing ones that any other quality will answer. Soaps, used on so limited a surface as the human head, are quite distinct from each other, not one kind can be used with the same results and satisfaction in place of the other, tooth soaps will not do to wash the face or hair, "soapy preparations" used for removing dandruff.
and cleaning the scalp will not do for other parts of the head, the soap used for shaving does not clean quick enough; most people prefer a good toilet soap for the face; there are four kinds of soap needed by refined discriminating people to complete the toilet of the seat of their intellect, and each of these four kinds may be modified according to individual peculiarities or fancies, in color, perfume, shape, style, etc.

Not any one factory can make all these varieties; here is where co-operation between the different classes of soap manufacturers becomes profitable; if we make known through the columns of our trade paper wherein each manufacturer, who sees the advantage of our plan, explains what he has to offer or what he desires, we can exchange goods or services. If practical examples are desired, here are a few: The writer has long since been convinced that the largest concerns only would eventually be able to make the ordinary soaps to good advantage, so he gave his attention solely to specialties, but those customers who buy the latter, also need laundry, etc., soaps and he prefers to exchange with manufacturers of such and in need of special qualities of soap, to make which, they have neither the experience, skill, knowledge or facilities. When the demand for such specialties increases we make such arrangements that the large manufacturer can make them himself, in other words, we exchange our knowledge, etc., against his goods, or co-operate with manufacturers of other grades of soap than we make, in any way agreeable. There are hundreds of ways in which co-operation between the various classes of soap manufacturers can be made mutually profitable. The managers of the big concerns may shrug their shoulders at the suggestions to co-operate with small concerns; don't let them forget the example of the pioneers who opened the wilderness for great enterprises; without these beginners in a small way, the great concerns of today would be impossible.

The same thing is happening in the manufacture of soaps, pioneers here open up new territory and those who co-operate with them, exchange ideas and goods will be the first ones to be benefited.

Geo. A. Schmidt.

Fertilizing Materials.

(Continued.)

Nitrate of Soda.—This is a material quite uniform in composition, an inferior sample being exceptional. Such a sample was received in 1898 for the first time since the organization of the station. The samples examined this year range from 15.34 per cent. to 15.87 per cent. of nitrogen, or from 93 to 95 per cent. of purity. This is slightly below the average, but, nevertheless, it may be said that, in general, it is safe to purchase this material without special chemical examination, although, of course, it, as well as every other material, should be accompanied by a guarantee. Attention, then, need be paid simply to obtaining it at the lowest price possible. The cost of nitrate of soda this year ranges from $40 to $46.60 per ton, a variation due not at all to the quality of the goods, but arising from the business methods and other conditions attending their purchase. These remarks apply in a similar manner to sulfate of ammonia, of which, however, comparatively little is used.

Animal Matter.—The animal fertilizing materials, such as dried blood, dried and ground fish, tallowe, etc., are always more or less variable, and the samples of these materials this year are found to be no exception to the general rule. Thus the samples of blood vary in composition from 11.63 to 13.10 per cent. of nitrogen; those dried and ground fish vary from 4.89 to 8.83 per cent. of nitrogen, and from 5.16 to 9.01 per cent. of phosphoric acid, with no relation between the amounts of nitrogen and phosphoric acid in the different samples, nor between them and the cost of the material. All these should be purchased, therefore, with a strict reference to guarantee and a comparison of the selling price therewith, or, better, on the “unit system” of purchase. Allowing 80 cents per unit for all the phosphoric acid they contained, dried blood cost, on the average this year, $2.83, and dried and ground fish $2.73 per unit of nitrogen. This is respectively equivalent to $2.32 and $2.41 per unit of ammonia. Extreme prices were $3.03 per unit of nitrogen in dried blood, and $3.69 in dried and ground fish, equivalent to $2.48 and $3.03, respectively, per unit of ammonia. The Station rates this form of nitrogen, when found in complete fertilizers, at $3.10 per unit of nitrogen, equal to $2.54 per unit of ammonia.

Plain Superphosphates.—As usual, there is observed the same variation in composition and lack of relation between the composition and the price of the acid phosphates examined. They vary from 12.42 per cent. of “available,” at $17.50, to 15.17 per cent., at $16 per ton, while the range in price is from $9 to $17.50. In the case of this material, also, the “unit system” will prove the more satisfactory method of purchase. The average cost per unit of “available” this year, excluding those samples of notably-deficient quality or excessive price, was 82 cents, ranging from 64 cents to $1.41.
The Station's allowance for this material in the valuation of mixed fertilizers is 90 cents per unit.

Sales of acid phosphate between large dealers and the smaller firms are made on the unit basis. The examination of the samples this year emphasizes the value of this system. It lies entirely with the farmer to receive the advantage of this method of purchase, as no difficulty will be experienced in making contracts with the manufacturers on this basis.

**Potash Salts.—** The potash salts, while usually of good quality, nevertheless often show considerable differences in chemical composition. The guarantees accompanying them are, however, somewhat of a guide as to their purity, and possibly as much could be gained in their economical purchase by accepting the guarantees as correct, and endeavoring to secure a lower ton price, as by insisting on the analysis and allowing the price to take care of itself. Muriate of potash is often purchased on the basis of 80 per cent. purity. If the analysis shows a variation above or below 80 per cent., the purchaser pays for the excess or is remunerated for the deficiency at the same rate of purchase. This is similar to the "unit basis," is fair alike to the purchaser and the dealer, and requires a chemical analysis. The average price this year has been about $41 per ton for muriate of potash of 80 per cent. purity, or 82 cents per unit of actual potash. The Station values this in mixed goods at 85 cents per unit.

**The Unit System of Purchase.**

The unit system of purchase, referred to above, is the system upon which the manufacturers of mixed fertilizers buy these same materials for themselves. It is simply "buying upon analysis," since the purchaser pays a certain sum, previously agreed upon, for every per cent. of the essential kind of plant-food actually contained therein, and for fractions of a per cent. in proportion. With this agreement the goods are delivered, an analysis is made and the correct amount paid over. The purchaser, therefore, pays for what he gets, and gets what he pays for; the only part that is left for him to control is the rate or amount per unit to be paid. The average cost per unit of nitrogen this year has been $2.59 in nitrate of soda, $2.83 in dried blood and $2.73 in dried and ground fish; that of "available" phosphoric acid has been 82 cents, and that of potash has been 82 cents. The actual price to be paid depends, as do prices under any system, upon the business methods of the individual purchaser, together with various other conditions, such as the distance from market, the state of trade, the time of year, the size of order, and the length of credit. Those who study the conditions of the market, make up their orders early, and by combining with others purchase in considerable quantities and for cash, will undoubtedly secure better quotations than those who buy at the busiest season of the year, in small lots at a time, upon long credit and from the first-comer.

**The Examination and Valuation of Manufactured Brands, Home Mixtures, Special Compounds and Miscellaneous Products.**

Following will be found reported the analyses of

300 samples of Complete Fertilizers,
5 samples of Home Mixtures,
12 samples of Special Mixtures,
25 samples of Ground Bone, and
31 samples of Miscellaneous Products.

The main object of this work is to determine by chemical analysis whether the actual composition of each of the various manufactured products corresponds with its guaranteed composition, as required by law. By a comparison of the two it is shown whether the material fulfills the claims of the manufacturer, and how far the guarantee given is a guide as to the amounts of plant-food actually delivered to the consumer. In addition, the application of the Station's schedule of values, which has been adopted for the various kinds and forms of fertilizer constituents, previously published, demonstrates comparatively whether the selling prices are justified, and the amounts by which the latter exceed the commercial values derived from the analyses represent the comparative charges of the different manufacturers for mixing and bagging their goods and effecting their sale.

This work is of direct value to the intelligent and experienced purchaser in furnishing definite information relative to the composition and value of the different brands to which his attention may be called, and is of indirect value to all purchasers in that it tends to reduce to a minimum the amount of worthless material offered for sale.

I.—**Complete Fertilizers.**

The number of distinct brands of complete fertilizers, the analyses of which are herewith reported, is not as great as last year. They are the product of eighty-four manufacturers, which is an average representation of three and six-tenths brands per manufacturer, the same as in 1899. Thus it is evident that the reduction in the number of brands analysed is due to a decrease in the number of manufacturers represented, rather than to any decrease in the multiplication of brands. The average number of brands apiece continues to be practically four, and there are sixty-four manufacturers represented by this number or less, twelve represented by from five to eight, five by from nine to eleven, and three by from twelve to fourteen brands.

The extent to which multiplication of brands is in some cases carried would seem to be in excess of that needed for a range of choice, especially in those cases when the differences, to all practical purposes, are in name only. Whether it is warranted by commercial
reasons is another question, for it is undeniable that manufacturers supply, as a rule, only that which consumers demand. The inspectors who represent the Station in the different counties have instructions to send a sample of every distinct brand they can find in their locality or district. Samples from any one manufacturer, and indeed of the same brand, are thereby received in many cases from different counties and this representation may be taken as a measure of this demand. From the limited extent to which many brands are found distributed throughout the state, it is a question whether this demand is as great as might be supposed.

**THE CHEMICAL COMPOSITION.**

The complete fertilizers examined this year show a great diversity as regards composition, for they include the association of almost every amount of nitrogen from 0.17 to 7.28 per cent. (equal to from one-half per cent. to nine per cent. of ammonia), with almost every amount of phosphoric acid (available) from 4.47 to 14.33 per cent., and almost every amount of potash from 0.53 to 14.39 per cent. The complete examination which has been made of every brand discloses also that still further differences in composition exist, in that some manufacturers use nitrate or ammonia salts as a partial source of their nitrogen, and others use animal matter entirely, such as blood, or meat; some use sulfate of potash, and others the muriate or kainit; some supply a relatively larger amount of water-soluble phosphoric acid, and others of citrate-soluble, accompanied by more or less of insoluble phosphoric acid, of which the guarantee takes no account in many instances.

The proportion of the phosphoric acid which each of the various brands supplies can be readily learned from an inspection of the tables which follow. The average analysis of all the brands is 4.96 per cent. of water-soluble, 3.48 of citrate-soluble and 2.59 of insoluble (or acid soluble) phosphoric acid. The use of sulfate of potash as the source of any considerable portion of the potash is indicated by an asterisk (*) in the potash column. There are among the 300 brands but 46 in which this is the case. Potash as sulfate receives a higher valuation than when in the form of muriate, since it costs somewhat more.

Nitrate of soda is used as a partial source of nitrogen in 148 of the brands, and salts of ammonia in 58, both being used in 28 of them. The nitrogen supplied as nitrate has ranged from traces not reported to 5.56 per cent., the average being 0.90 per cent., and that supplied as salts of ammonia has ranged from traces not reported to 2.62 per cent., the average being 0.71 per cent. These have been associated with varying amounts of organic nitrogen, ranging from 0.44 per cent. to 4.54 per cent., and averaging 1.73 per cent.

*(To be continued.)*

**Experiments with Cottonseed Oil.**

*(From the German of P. Rairow in the Chemiker Zeitung, After Oil, Paint & Drug Reporter.)*

Having ascertained some time since that sulphuric acid could be easily detected in organic substances by means of a phloroglucine-vanilline mixture, I have submitted to this test different oils of vegetable origin. Among these, cottonseed oil gives the characteristic red coloration in a very decided manner, seeming to confirm the view of Dupont relative to the presence of sulphurated compounds in cottonseed oil. As olive oil and nut oil give no trace of red coloration, it occurred to me to seek in their reaction for the base in a new method for ascertaining the presence of cottonseed oil in other oils. The most thorough investigation has, however, demonstrated that the red coloration produced in that oil by the phloroglucine-vanilline mixture is due, not to sulphurated compounds, but to chlorated compounds.

The presence of chlorine may be detected by burning cottonseed oil and collecting the products of combustion in a moistened cup of caustic potash free from chlorine and sulphur. The solution is acidulated with pure nitric acid, and precipitation effected with silver nitrate. To detect the presence of sulphur, the solution obtained is boiled, acidulated, and a solution of barium chloride added.

In a great number of trials with cottonseed oil from different sources, I have always found that the products of the combustion of the oils contained chlorhydric acid, and were entirely free from sulphuric acid. This result is not in accord with the view of Dupont, who holds to having taken a sulphurated compound from cottonseed oil.

To decide the question more conclusively, I repeated the experiments of Dupont. 100cc. of cottonseed oil were treated for several hours with a current of steam, and 200cc. of the condensed portion were collected. Another portion of cottonseed oil was treated in the same manner, and the condensed liquids (about 400cc.) were drawn off by ether. The etherized extract furnished about 0.2cc. of an oil. This was destroyed by boiling with potassium chlorate and nitric acid, the liquid was filtered, and treated with a solution of barium chloride. Not a trace of sulphuric acid was discovered. Several other trials gave the same result. It is certain that the cottonseed oils I have examined do not contain a sulphurated compound, but do contain a chlorated compound.

To determine the nature of the chlorinated compound was the object of the following experiments:

1. Twenty cc. of cottonseed oil were shaken with 20cc. of pure water, and the mixture left to itself until it became perfectly clear. The aqueous layer was drawn off and filtered several times with wet filters. The
water, quite limpid, presented a reaction slightly acid, and was not clouded either by silver nitrate or by barium chloride.

After several washings with water, the cottonseed oil was burned, and the products of combustion gave, without appreciable change, the reaction with phloroglucine-vanilline. The same result was reached by repeating the experiment with other evils. It results from this that the chlorated compound contained in cottonseed oil cannot be extracted with water. It is, therefore, neither free chlorohydric acid nor a metallic salt soluble in water.

2. Ten cc. of cottonseed oil were shaken well with 10cc. of ethyl alcohol. After the separation of the alcoholic layer, a portion of this was treated by a phloroglucine-vanilline mixture. No trace of red coloration appeared, whilst the oil treated gave the characteristic coloration as intensely as before the treatment. The chlorated compound in cottonseed oil is, therefore, entirely insoluble in alcohol.

3. After eight hours of treatment by steam at 100°, the cottonseed oil gave the same coloration with phloroglucine-vanilline, as the oil not treated.

4. The manner in which cottonseed oil would act with highly superheated steam, remained to be determined. 250cc. of oil were treated for four hours by a current of steam, which had passed through the Lassar-Kohm apparatus for the superheating of steam. The condensed water contained about 1cc. of oil, which was composed principally of cottonseed oil, drawn off by the current of steam. The oil extracted from the condensed water by means of ether was completely chlorate and nitric acid; the solution obtained was filtered several times with wet filters, and treated with a solution of barium chloride. No trace of barium sulphate appeared. This experiment demonstrates that the oil, treated with a current of superheated steam, does not contain a volatile sulphurated compound.

The oil which remained in the balloon, as well as that extracted from the condensed water, gave a red coloration with phloroglucine-vanilline. But in the latter case the coloration was much more intense, which tends to show that the chlorated compound of cottonseed oil will not volatileize up to a certain point in a current of steam highly superheated. But it does not yet appear whether this chlorated compound can be separated completely by treating the oil with superheated steam.

Olive oil and nut oil, which give no coloration with the phloroglucine-vanilline mixture, are free from chlorine and sulphur. This fact confirms the results of the researches of Wm. Fox and D. Riddick, who burned large quantities of olive oil, and found that the products of combustion contained no sulphur. It does not accord with the position of Dupont and Charabot, who claim to have drawn from cottonseed oil a sulphurated compound by a current of steam.

Among the oils which give the characteristic coloration with the phloroglucine-vanilline mixture, cottonseed oil and rape oil contain sulphur and are free from chlorine. In treating these oils with a current of steam, I have drawn from the water of condensation a small quantity of oil, which, destroyed by sulphuric acid and potassium chlorate, has furnished a notable quantity of sulphuric acid.

Admitting that the results I have described are general, that is, that every cottonseed oil contains organic chlorated compounds, they furnish the base of a new method for the identification of this oil. The experiments I have instituted in this direction furnish a satisfactory issue. In the case of large adulterations, it is sufficient to search for chlorine by means of the phloroglucine-vanilline mixture, or by burning the oil and collecting the products of combustion in a moistened cup of caustic potash. But, when the adulteration is slight, it is necessary to burn larger quantities of the oil; in this case, the products of combustion must be collected by aspiration and passage through a wash-bottle containing a potash lye. The quantity of oil to be burned depends, of course, on the proportion of cottonseed oil. Thus, with an experiment with an olive oil containing 6 per cent. of cottonseed oil, it was sufficient to burn 1cc. of the mixture, to be able to detect in the products of combustion the presence of chlorine.

So long as, after the combustion of the chlorated and bromized compounds, the halogen can be recovered in a state of hydric, which is easy to collect, the chlorine and the bromine in the oils can be determined by the method that has been described.

The quantities of chlorine in different cottonseed oils vary largely. It cannot be said with certainty the chlorated compounds pre-exist in the oil, or are formed at the time of its preparation.

The Importance of Registering Trade-Marks.

We have from time to time called the attention of our readers to the importance of registering their trademarks in any foreign countries with which they may be carrying on export trade. It is not thoroughly understood that in many foreign countries the first applicant receives the right of using the mark, although he may not have originated the same and may not be the rightful owner. The hardship which arises from such instances is very great and cannot be too fully understood by our manufacturers who are now engaged in export trade. The following cases have been reported by the United States consul at Berlin:

"For several years past the Griffin Manufacturing Co., of New York, has been selling to the German trade
through its agents—a German firm in Hamburg—a polishing paste for leather, each box of which bore its duly registered American trade-mark, viz., a “griffin,” the fabulous antique monster, with the body of a lion and the head and wings of an eagle. As the Hamburg agents neglected to register this trade-mark in Germany, a certain maker of varnishes and similar goods in Berlin did so in his own name, and then, in April last, warned the Hamburg firm that they must not handle or sell in Germany any more goods bearing the griffin trade-mark without first purchasing his right to do so. As proceedings were threatened to enforce this mandate, the manufacturers in America, not choosing to submit to what they considered a species of blackmail, sought to avoid further complications by devising a new trade-mark for their goods intended for Germany, in which the picture of the animal was omitted and a device substituted consisting of a capital “G” with the legend “Mfg. Co.,” printed on a scroll across the letter, the whole showing that the preparation was made by the “Griffin Manufacturing Co.” of New York. Thereupon the Berlin claimant returned to the attack, declaring that he had obtained exclusive legal right to the word “griffin,” and threatening proceedings if any further goods were sold under the name of the Griffin Manufacturing Co. This latter claim is probably untenable, as article 13 of the German statute for the protection of trade-marks clearly proves that no person can be prevented from using his name, the name of his firm, his place of business, etc., either in full or abridged form on his products, or on the wrappings or packages which cover or contain the same.

The second instance is technically similar but morally somewhat less aggressive, as the claimant acted under different antecedent conditions. This was a case in which a merchant in Berlin who had several years ago imported, advertised, and introduced a certain American fruit syrup found that it was being imported and sold by other dealers, and sought to obtain from the makers the exclusive handling of their product for the trade in this country. This being refused, he had the special name of the syrup registered as a trade-mark under the German law, and sought thereby to enforce his claim to exclusive control of its sale to dealers in this country, or, failing in this, to compel the American manufacturers to purchase his claim to their trade-mark. This he felt justified in doing for the reason that he had been instrumental in introducing their product in what had proved a profitable and permanent market.

All these complications may be avoided if Americans or other exporters who seek to introduce into Germany goods protected at home by a trade-mark will first register such trade-mark in Berlin.”

**Good and Bad Soaps.**

There seems to exist the very widest diversity of ideas as to what constitutes a good and what constitutes a bad soap. While this is true, it is evident that in a process of manufacture such as that which has to do with textile fabrics there should be no hesitation whatsoever as to what qualities are essential in a soap that, by their absence, cause the soap that is employed to work to the detriment of the goods, rather than to their advantage.

It is absolutely necessary, especially in the finishing and in all the wet processes of manufacture, that the manager should understand the requirements of his soaps, and should also be thoroughly familiar with the extent to which they meet or fail to meet them.

The work that a soap is expected to accomplish in the finishing of woolen goods is very largely two-fold. It is expected to aid, first, in the loosening-up or softening of the foreign materials that are present in the wool fibres, and, second, it is expected to materially add to the ease and thoroughness with which these foreign materials can be finally removed. In a very large measure these two actions are practically co-ordinated, and really depend largely upon each other.

A soap that for any reason whatsoever is not calculated to soften the materials that are to be expelled cannot be very energetic in the actual expulsion of the material; and a soap that could remove the foreign materials with the greatest ease would be of little service if it were not capable, first, of loosening them from the fibres.

The other effects which follow the use of a soap, such as the softening of the fibre itself, the change in its feel, and the brightening of its natural appearance, are all the results of these two fundamental actions, and not the results of any direct influence of the soap upon the fibre.

If the soap is a success in the matter of loosening and removing foreign materials, the features above referred to will practically look after themselves, and will depend upon the nature of the stock and the way it is handled.

A soap that is to fulfill the requirements of almost any case in ordinary practice must possess one property at least, and that is, a body of sufficient strength and potency to hold together until the action of the soap is completed.

If the soap constituents begin to separate before the work that the soap has to do, is finished, it is evident that the work is going to be unsatisfactory and incomplete. It may be possible, by resorting to certain details of method, to reunite these constituents after they have commenced to separate, but it can only be done at the expense of the final appearance and value of the goods.
A soap must absolutely be of sufficient consistence and body to hold itself together until its work is done. Just at this point, perhaps, is where one of the great differences between a good and a bad soap appears.

When the finisher makes up his mind to secure a soap of the above description he generally makes up his mind at the same time that he will have to make it himself if he is going to keep within the range of economy. This is a natural conclusion, yet the facts of the case are that it is by no means a wise or a prudent move for the finisher to imagine that the soap that he makes himself is necessarily going to fill the conditions at a lower price than the one he buys. In order to make a cheap soap it is usually necessary to buy cheap materials, and it is here where the finisher’s danger lies; he imagines that, because he knows what he is putting into the soap, the soap will necessarily be what he wants, and yet, perhaps, in three cases out of four he is not getting what he wants after all.

If the actual figures could be determined, if he could find out, for example, exactly what it costs him to make his soap, counting time, materials, labor, power, and then if he could determine exactly how much of this home-made soap is required to do a certain definite amount of work and to do it exactly right; if, after he has done this, he should take a much higher-priced commercial soap, that has its own standard of purity and strength, and determine how much of this soap it takes to do the same work, and to do it just as well, he might be much surprised to find that there was a very appreciable difference in favor of the commercial article.

If a man starts out to make his own soap he may proceed somewhat as follows: He will take, for example, as his basis for operations, a gallon of saponified red oil, and with this he will make, perhaps, thirty gallons of soap that will work all right for an hour or an hour and a half in a fulling mill. The cost of this soap, without mentioning the other ingredients, or the expense of making, will amount to about, say, a cent a gallon. Now, if he were to purchase a first-class palm-oil soap at about five and a half cents, he could make a gallon of soap of about the same quality as that which he has made himself out of about two ounces of it. The cost of this can easily be determined, and he will find, if he figures it out, that by buying his soap he saves about one-third of a cent on every gallon that he uses, and this, too, without counting the expense of the alkalis employed and the labor of the soap-making. These, of course, are merely figures in the rough, and yet they are near enough to accuracy to give an indication as to the facts which we wish to bring out. — The Textile Colorist.

Levy & Co. are contemplating adding an increase of their tallow rendering plant at Williamsport, Pa.

Oils for Railways.

The following specifications are used on the Philadelphia & Reading railroads, and serve as examples of those insisted upon by large users of oil, etc. They are taken from Gill’s “Oil Analysis”:

**SPECIFICATIONS FOR LARD OIL.**

When a shipment of oil is received, a sample will be taken at random from each sixty barrels or fraction thereof, and forwarded to the test department. This sample will be examined and the entire shipment accepted or rejected on its merits. If rejected, the shipment will be returned at the shipper’s expense.

Two grades of lard oil will be used—“Prime” and “Extra No. 1,” the former for burning purposes chiefly and the latter as a lubricant. The material desired under this specification is oil from fresh lard of corn-fed hogs, unmixed with other oils. It should contain the least possible amount of free acid, and from 1st October to 1st May show a cold test not higher than 40° F.

**Prime Lard Oil.**

This grade of oil must not contain admixtures of any other oils or more free acid than is neutralized by four cubic centimeters of alkali, as described below.

Between 1st October and 1st May it must show a cold test below 40° F.

When tested with nitrate of silver, as described below, it must not show any coloration.

**Extra No. 1 Lard Oil.**

This grade of oil must not contain admixtures of any other oils or more free acid than is neutralized by 30 cubic centimeters of alkali, as described below.

Between 1st October and 1st May it must show a cold test below 40° F.

**The Cold Test.**—The cold test is made as follows:

About two ounces of oil are put in a four-ounce sample bottle, a thermometer inserted, and the oil frozen with ice, salt being used if necessary. When the oil is hard the bottle is taken from the freezing mixture and the frozen oil stirred thoroughly with the thermometer until it will flow. The reading of the thermometer is then taken, and this temperature is regarded as the cold test of the oil.

**Free Acid Test.**—The solutions required for this test are: 95 per cent. alcohol neutralized with sodium carbonate, caustic potash solution of such a strength that 31.5 cubic centimeters of it will exactly neutralize five cubic centimeters of a normal solution of sulphuric acid (49 grams per litre), and a small amount of phenolphthalein dissolved in alcohol and rendered neutral with caustic potash, to be used as an indicator.

Now weigh or measure into a four-ounce sample bottle 8.9 grams of the oil to be tested, add about two ounces of alcohol, warm to about 150° F., and add a few drops of the phenolphthalein.
Then run in the caustic potash from a graduated burette, with frequent shaking, until a permanent pink color remains after vigorous shaking. When this point is reached read the number of cubic centimeters used.

**Nitrate of Silver Test**—Solution of nitrate of silver is made as follows:

Nitrate of silver, 1 gram; alcohol, 2000 grams; ether, 40 grams. After the ingredients are dissolved and mixed, allow the solution to stand in a bright light until it has become perfectly clear; it is then ready for use, and should be kept in a dim place, and tightly corked.

Into a fifty cubic centimeter test tube put ten cubic centimeters of the oil to be tested, previously filtered through washed filter paper. Add five cubic centimeters of the above solution, shake thoroughly, and heat in a vessel of boiling water fifteen minutes with occasional shaking. If the oil is satisfactory it will show no change of color under this test.

**Specifications for Petroleum Products.**

When a shipment of oil is received, a sample shall be taken at random and forwarded to the test department. This sample will be examined, and the entire shipment accepted or rejected on its merits. If rejected, the shipment will be returned at the shipper's expense.

**150° Fire Test Oil.**

This grade of oil shall be water-white in color, showing a flashing-point not below 130° F., and a burning point not below 151°. The test will be made in an open vessel by heating the oil not less than 10° per minute, and applying the test flame every 7°, beginning at 123°. The gravity may be from 46° to 50° Baume. Oil will not be received that is cloudy from the presence of glue or suspended matter of any kind.

**300° Fire Test Oil.**

This grade of oil shall be water-white in color, showing a flashing-point not below 256° F., and a burning point not below 293°. The test will be made in an open vessel by heating the oil not less than 15° per minute, and applying the test flame every 7°, beginning at 249°.

When heated to a temperature of 425°, and held there for five minutes, the oil must remain clear and transparent, showing but a slight darkening and no separation of floeculent or other matter—either at this temperature or on cooling.

When the oil is cooled to the temperature of 32°, and held there for ten minutes, it must remain clear and transparent, showing no cloudiness. The gravity may be from 38° to 42° Baume.

Oil will not be received which is cloudy from the presence of glue or suspended matter of any kind.

**Car Oil.**

This grade of oil, commonly known as well oil or black oil, should have a gravity of about 29° Baume, and must not show a flashing-point below 325° F. The test will be made in an open vessel by heating the oil not less than 15° per minute, and applying the test flame once in 7°, beginning at 304°.

Oil received during the months of August and September must have a cold test not above 50° F. when determined as described below.

From 1st August to 1st April, at 60° F., the oil must show a viscosity not lower than that of a pure cane sugar solution containing eighty grams of sugar in one hundred cubic centimeters of the syrup, and at 150° F. a viscosity not lower than that of a pure cane sugar solution containing sixty-six grams of sugar in 100 cubic centimeters of the syrup, the viscosity of the sugar solution being taken at 80° F.

From 1st April to 1st August, at 80° F., the oil must show a viscosity not lower than that of a pure cane sugar solution containing eighty-eight grams of sugar in 100 cubic centimeters of the syrup and at 150° F. a viscosity not lower than that of a pure cane sugar solution containing sixty-eight grams of sugar in 100 cubic centimeters of the syrup, nor higher than that given by a pure cane sugar solution containing seventy-five grams of sugar in 100 cubic centimeters of the syrup, the viscosity of the sugar solutions being taken at 80° F.

The oil must be transparent with a reddish-brown or greenish color, free from lumps or specks.

No oil will be accepted which shows more than 5 per cent. of floeculent or tarry matter settled out after five cubic centimeters of the oil have been mixed with 95 cubic centimeters of 88° gasolene, and allowed to stand for an hour.

**Cylinder Stock.**

This grade of oil shall show a flashing-point not below 525° F., and a burning point not below 600° F. The test will be made in an open vessel by heating the oil not less than 20 degrees per minute, and applying the test flame every 7 degrees, beginning at 504°.

This oil must flow freely at 60° F., and at 350° F. must show a viscosity not lower than that of a pure cane sugar solution containing fifty-eight grams of sugar in 100 cubic centimeters of the syrup, the viscosity of the sugar solution being taken at 80° F.

The oil must be transparent, with a reddish-brown or greenish color, free from lumps or specks.

No oil will be accepted which shows more than 5 per cent. of floeculent or tarry matter settled out after five cubic centimeters of the oil have been mixed with 95 cubic centimeters of 88° gasolene, and allowed to stand for one hour.

**Cold Test**—About two ounces of oil is put in a four-ounce sample bottle, a thermometer inserted, and the oil frozen with a mixture of ice and salt. When the oil is hard the bottle is taken from the freezing mixture.
and the frozen oil is stirred thoroughly with the thermometer until it will flow. The reading of the thermometer is then taken, and this temperature is regarded as the cold test of the oil.

Note.—The viscosity tests will be made upon the Torsion Viscosimeter.

Manufacturers not having this instrument may submit a sample of oil to the test department, and will be furnished with the information necessary to standardize the viscosimeter they may have in use.

Specifications for Compound Oils.

When a shipment of oil is received, a sample shall be taken at random and forwarded to the test department. This sample will be examined, and the entire shipment accepted or rejected on its merits. If rejected, the shipment will be returned at the shipper’s expense.

Cylinder Oil.

This oil shall consist of a high grade cylinder stock, compounded with not less than 20 per cent. by weight of acidless animal oil, tallow or tallow oil being preferred.

The compounded oil shall show a flashing point not below 525° F., and a burning point not below 600°. The test will be made in an open vessel by heating the oil not less than 20 degrees per minute, and applying the test flame every 7 degrees, beginning at 504°.

The oil must flow readily at 60° F., and at a temperature of 350° F. must show a viscosity not lower than that of a pure cane sugar solution containing fifty-eight grams of sugar in 100 cubic centimeters of the syrup, the viscosity of the sugar solution being taken at 80° F.

The oil must be transparent, with a reddish-brown or greenish color, free from lumps or specks.

No oil will be accepted which shows more than 5 per cent. of floeculent or tarry matter settled out after five cubic centimeters of the oil have been mixed with 95° cubie centimeters or 88° gasolene, and allowed to stand for one hour.

Signal Oil.

This grade of oil shall be prime white in color, shall contain not less than 40 per cent. by weight of prime lard oil, and shall show a flashing point not below 200° F., and a burning point not above 300°. The test will be made in an open vessel by heating the oil not less than 15 degrees per minute, and by applying the test flame every 7 degrees, beginning at 193°.

When heated to a temperature of 450°, and held there for five minutes, the oil must remain clear and transparent, showing but a slight darkening and no separation of floeculent or other matter, either at this temperature or on cooling. The gravity may be from 31° to 34° Baumé.

Oil will not be received which is cloudy from the presence of glue or suspended matter of any kind.

Specifications for Tallow.

Tallow to be used for cylinder lubrication should be rendered as soon as possible after the animal is killed, in order to have the amount of free acid as small as possible.

Tallow which on examination is found to contain dirt or creaklings disseminated through it, or which has a layer of dirt or creaklings in the bottom of the barrel more than an eighth of an inch thick will be rejected.

Tallow will not be accepted which has more free acid than can be neutralized by three cubic centimeters of the alkali solution used for this determination, or which contains any foreign substance not properly belonging to tallow.

Regenerating Air.

MM. Desgrez and Balthazard, of Paris, have been carrying out some elaborate experiments with the object of regenerating respirable air in a confined space, and have communicated the results of their researches to the Academy of Sciences. They have constructed a diving dress of aluminum which weighs in all about twenty-five pounds. Inside this dress they place a quantity of bioxide of sodium, and a diver wearing this apparatus can walk about for a considerable length of time under water, without coming to the surface to replenish his supply of air. It is claimed that the invention will be of inestimable value to persons engaged in mines, chemical industries, or to reach certain points surrounded by a poisonous atmosphere.

Washing Pomade for Perfumes.

Written for the American Soap Journal.

In making perfumes, it is very essential to get good pomades, and to work the material with the best machinery. Great care should be taken in keeping the pomades in a cool place, so as not to cause the least rancidity.

To extract the perfume, it is placed in an agitator. A good way in starting an agitator is to melt the pomade in a hot water bath and place the amount of spirits required in a very cold place, then pour spirits in agitator and hot pomade on top, then start machinery in motion; in working it in this manner, the spirits coming in contact with the grease, it readily extracts most of the perfume in the pomade.

After the pomade has been washed, great care should be taken to get all the grease from the washings in freezing it, the harder it is frozen, the better, but caution should be taken in chilling rose and violet, as they are the most delicate of pomades.

After the washing has been chilled and filtered, it should be placed in glass or earthen vessels, and kept in a dark, cool place.
Estimates of Alkali Carbonates in the Presence of Bicarbonates.

BY FRANK K. CAMERON.

(Continued.)

Two series of titrations were then made with the potassium carbonate solution. In the first series, the potassium carbonate solution was heated to boiling in each case before titrating. In the second series, in each case the solution was filled with crushed ice and shaken until the temperature was lowered to less than 1°C. before titrating. The number of c.c. of the acid sulphate solution required to neutralize 1 c.c. of the potassium carbonate solution was:

At 0° to 1°C. .......................... 1.455 c.c.

Room temperature (about 26°C.). 1.262 c.c.

After boiling (about 97°C.). 1.210 c.c.

From these results it would appear that the reaction was more complete at the higher temperature, in spite of the fact that the inversion of the acid potassium carbonate is more rapid at these higher temperatures and might be expected to produce exactly opposite results. For instance, the solutions which had been titrated at 97°C were very strongly colored within five minutes after the titration was completed, while those which were titrated at 1°C. showed only a faint pink color after standing for upwards of an hour. The true explanation of the results, however, became apparent in the course of these titrations. It was found that it takes a measurable time for the reaction between the acid sulphate and carbonate to run to end, and that if the acid sulphate is delivered too rapidly from the burette a considerable excess may be run into the carbonate solution before the color of the indicator disappears, so that, with these two effects of inversion of the acid carbonate and the relatively slow reaction velocity between the carbonate and acid working against each other, it would be possible to run in the solution at such a rate as to obtain any desired result within quite wide limits, and, in fact, beautifully comparable results were thus obtained. The value of the method would be very slight if the personal equation could not be eliminated in the titration. That this can be done, however, was clearly demonstrated. If the acid potassium sulphate solution is delivered from the burette at about the rate of two drops per second, and the vessel containing the alkaline carbonate is constantly and vigorously shaken, markedly lower readings will be obtained than by any other procedure; furthermore, the readings thus obtained were found to be quite independent of the temperature at which the titrations were made. These facts were confirmed by several long and satisfactory series of titrations. This point having been clearly established, a solution of sodium carbonate was carefully prepared and boiled for some time to complete the inversion of any acid sodium carbonate which might be present. After being cooled to room temperature and made up to the desired volume, it was titrated with the following results: The first column represents the amount of carbonate, the second column the amount of acid sulphate, and the third column the ratio of the readings.

<table>
<thead>
<tr>
<th>TABLE III.</th>
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<tbody>
<tr>
<td>20.00</td>
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<tr>
<td>20.00</td>
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<tr>
<td>30.00</td>
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<td>30.00</td>
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</table>

1.077

The sodium carbonate solution was then analysed by boiling with an excess of acid potassium sulphate and titrating the excess of acid with a solution of potassium hydrate of known concentration. The results are here given: The first column indicating amounts of carbonate taken, the second column amounts of acid potassium sulphate, and the third amounts of potassium hydrate required to neutralize the excess of acid:

<table>
<thead>
<tr>
<th>TABLE IV.</th>
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<tbody>
<tr>
<td>20.00</td>
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<tr>
<td>20.00</td>
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<tr>
<td>20.00</td>
</tr>
<tr>
<td>20.00</td>
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<tr>
<td>1.00 c.c. KOH solution = 1.352 c.c. HKSO₄ solution.</td>
</tr>
<tr>
<td>5.50 c.c. KOH solution = 7.436 c.c. HKSO₄ solution.</td>
</tr>
<tr>
<td>20.00 c.c. Na₂CO₃ solu. = 43.564 c.c. HKSO₄ solution.</td>
</tr>
<tr>
<td>1.00 c.c. Na₂CO₃ solu. = 2.128 c.c. HKSO₄ solution.</td>
</tr>
</tbody>
</table>

But since only one-half as much acid potassium sulphate would be required to convert the carbonate to acid carbonate, 1 c.c. of the Na₂CO₃ was equivalent to 2.128 c.c. or 1.064 c.c. of the HKSO₄ solution. Comparing the value found by direct titration, 1.077 c.c. the error for 1 c.c. was about 1.2 per cent. More accurate results have, however, been obtained for both sodium carbonate and potassium carbonate. This error would amount to 0.10 c.c. in reading for 10 c.c., about 0.25 c.c. for 20 c.c., or nearly 0.50 c.c. in reading a titration of 30 c.c. But it has been shown repeatedly that readings for this amount could be obtained by different observers agreeing to within less than 0.20 c.c., and it may be said that the probable error for such an amount is certainly no greater than this. Considering the number and nature of the operations involved, the agreement obtained above was considered satisfactory, and it was not deemed worth while to repeat the work merely for the purpose of being able to present more refined figures.

In order to demonstrate that the presence of sodium bicarbonate in the salt analysed does not affect the accuracy of the method, mixtures of the carbonate and bicarbonate were prepared. Before titrating these mixtures with the acid potassium sulphate solution, the solutions of the carbonate and bicarbonate were separately
titrated with this reagent. In Table V the first column represents amounts of sodium carbonate taken, the second column the amounts of acid potassium sulphate required to neutralize them respectively, and the third the ratio of the readings:

<table>
<thead>
<tr>
<th></th>
<th>10.00</th>
<th>20.00</th>
<th>30.00</th>
<th>15.00</th>
<th>10.00</th>
<th>20.00</th>
<th>30.00</th>
<th>30.00</th>
<th>30.00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.90</td>
<td>17.50</td>
<td>26.30</td>
<td>13.29</td>
<td>8.90</td>
<td>17.60</td>
<td>26.45</td>
<td>13.29</td>
<td>8.75</td>
</tr>
<tr>
<td>Ratio</td>
<td>0.890</td>
<td>0.875</td>
<td>0.876</td>
<td>0.886</td>
<td>0.890</td>
<td>0.880</td>
<td>0.882</td>
<td>0.882</td>
<td>0.882</td>
</tr>
</tbody>
</table>

A solution of sodium bicarbonate was then prepared and allowed to stand until equilibrium had been reached with the inverted normal carbonate. It was then titrated with the results here given:

<table>
<thead>
<tr>
<th></th>
<th>25.00</th>
<th>10.00</th>
<th>10.00</th>
<th>10.00</th>
<th>20.00</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>14.60</td>
<td>5.90</td>
<td>6.10</td>
<td>6.10</td>
<td>12.50</td>
</tr>
<tr>
<td>Ratio</td>
<td>0.586</td>
<td>0.590</td>
<td>0.610</td>
<td>0.610</td>
<td>0.615</td>
</tr>
</tbody>
</table>

Mixture were then made by adding 10 c.e. of the sodium bicarbonate solution to 20 c.e. of the normal sodium carbonate solution and titrating as before. The first column represents the amount of acid potassium sulphate solution required, the second column gives the reading corrected for the sodium bicarbonate added, and the third column the corresponding amount of acid required to neutralize 1 c.e. of the sodium carbonate solution taken:

<table>
<thead>
<tr>
<th></th>
<th>23.70</th>
<th>23.75</th>
<th>23.70</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17.68</td>
<td>17.73</td>
<td>17.68</td>
</tr>
<tr>
<td>Ratio</td>
<td>0.884</td>
<td>0.886</td>
<td>0.884</td>
</tr>
</tbody>
</table>

The agreement of this figure, 0.885, with that found in Table V, 0.882, is very satisfactory, and may be regarded as establishing the point under investigation. It should be remembered, however, that when sodium carbonate is added to a solution containing sodium bicarbonate and consequently some inverted carbonate—the equilibrium between the two substances may well be materially altered. In solutions as dilute as those examined, this displacement was probably very small, and so did not interfere with the demonstration of the fact that the presence of acid sodium carbonate does not interfere with the estimation of the hydrolysed sodium in the solution. But when the concentrations are considerable, this equilibrium displacement may well become an important factor. Should this method ever commend itself to use in technical work, this displacement of the equilibrium corresponding to an apparent increase of the amount of normal carbonate present on dissolving mixtures must be considered.

(to be continued.)

**PATENTS AND TRADE-MARKS.**

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

**Issue of Dec. 18, 1900.**

**PATENTS.**


**Issue of Dec. 25, 1900.**

**TRADE-MARKS.**


**Issue of Jan. 1, 1901.**

**TRADE-MARKS.**

35,693. Laundry soap. N. K. Fairbank Company, Chicago, Ill. Essential feature.—The word "Soleil."

**Issue of Jan. 8, 1901.**

**TRADE-MARKS.**

35,737. Toilet preparations for teeth and hair and perfumed soap. Roger & Gallet, Paris, France. Essential feature.—The representation of a disk provided with an ornamental foliated border, with a monogram of the letters "R G" at the center.


Washing Khaki Cloth, Etc.

New York, Jan. 17, 1901.

Dr. Henry Gallman:

Dear Sir—The New York Sun of the 15th inst. contains an article referring to a paper read by Dr. H. W. Wiley, chief aspect of the United States Department of agriculture, on "The Legal and Medical Aspect of Food Adulteration." As an instance of the scandalous way in which manufacturers "doctor" food products, Dr. Wiley says that he has found sufficient salts of copper in a can labelled "Green Peas" to coat a pocket knife with the metal. He advocated the bills pending in congress, which call for a thorough chemical examination and true labelling of adulterated food products offered for sale.

I enclose a piece of Khaki cloth which was washed with soap, also an unwashed piece. You will see that the color is faded in the washed piece. Secretary Wilson has set a standard for the color of the Khaki cloth, but he neglected to set a standard for soap that would not fade the color of the cloth, rot it and give it a bad odor.

You must be careful not to bend the sample washed with the soap short off, as by so doing you will break the threads.

Yours very truly,

Maross Jenkins.

Candle Trade in the Levant.

The import of candles into Turkey is on the down grade, owing to the increasing demand for petroleum as an illuminant and the spread of gas-lighting in streets and private houses—at the village of Cadikeny gas is also used for cooking, but this is an exceptional instance. Apart from the Imperial Palace, the Public Debt Office, and one large hotel, there are no electric light installations in Constantinople. Only fairly well-to-do people use candles, and that merely in bed-rooms and, on state occasions, in the drawing-room, the consumption averaging not more than 2—4 lbs. a month per family. A large quantity is consumed in illuminations at public festivals, such as the Sultan's birthday and Accession Day, both in the capital and throughout the provinces. In fact, so great is the consumption of candles on these occasions that a witty Marseillais once christened one of them the "Festival of Saint Fournier" (the French firm of candle makers). Something like 80,000 (24-lb.) boxes of candles are annually received in Constantinople from abroad, Fournier, of Marseilles, supplying about 25,000, Gouda 15,000, Roubaix 15,000, Amsterdam 20,000, and Italy ("Electra" brand) 6,000 boxes. A cheap grade of Marseilles candle ("La Phocéenne") is largely sold in the provinces. Austrian candles, which were the first imported, have entirely lost their place in the Turkish market, and are no longer sold.

Although the standard weight of a box of candles is 11 kilos (24¼ lbs.), the senseless competition of dealers, in this as in other branches, has led them to require makers to supply 22-lb. boxes without any indication of weight; and boxes containing as little as 3½ kilos. (7½ lbs.) are sold in the provinces. Each box contains thirty packets of a fixed weight, the number of candles varying according to the size. The sizes most in demand are Nos. 3 and 4 for household use, No. 4 for churches, and Nos. 6 and 8 for illuminations. The terms of sale are usually e.i.f. Constantinople, less 3 per cent. discount, Fournier, however, selling f.o.b. Marseilles, less 2 per cent. cash against B/L. During the past eleven years prices have fluctuated from 80 to 150 francs per 100 kilos, the mean rates being 90—115 francs, which last-mentioned quotation is the current one at present. Belgian and Dutch candles fetch about 3 per cent. less than Fournier's brand; Italian and Dutch seconds about 10 per cent. lower.

Only one tallow-candle factory is at work in Turkey, namely, that at Eyoub; and the method of manufacture is exceedingly primitive. The wicks are long, and tied together at the end, to form a bunch, and the bases are dyed with aniline red. These candles are chiefly used for medicinal purposes and for greasing row-boats (caiques) when taken out of the water. The output of the Eyoub works is about 30,000 oka (70,000 lbs.) per annum, and the price 5—6 piastres the oka (about 8d per lb.).

There are four wax-candle factories; two at Stamboul, one at Tatavia, and one at Cassim-Pacha, the total production being about 50,000 oka, and the price 10—16 piastres per oka (7d. to 1s. per lb.). Wax candles play an important part in the religious ceremonies of the Greek church, each member of the congregation lighting a candle (generally a penny one) on entering the sacred edifice; in addition to which there are larger sizes consumed at weddings, funerals, etc. The waste candle ends are sold to dealers, who melt them down, and mould them fresh. Some of the Greek religious establishments import stearine and make their own candles. The largest weight as much as 3 oka (8½ lbs.), and the smallest as low as 1-1/4th of an ounce (600 to the oka). The materials used are wax, paraffin, and goat fat, and there are fourteen houses engaged in this trade at Stamboul, most of the stearine and stearine candles being imported from Marseilles.

Roumanie.—In 1898 the imports of candles into Roumanie amounted to 49,925 kilos. of stearine candles, 211 kilos. of paraffin or ozokerite candles, and 403 kilos. of tallow dips, the bulk (34,509 kilos.) of the stearine candles coming from Belgium, 11,414 kilos. from Austro-Hungary, 2,758 kilos. from France, 1,289 kilos. from Germany, and only 185 kilos. from England.
Bulgaria imported (1898) 124,766 kilos. of (stearine, ceresine, paraffin, or sperm) candles, Belgium supplying 67,043 kilos., Holland 24,438 kilos., France 17,144 kilos., and England 12,494 kilos.

Jerusalem.—The value of candles and candle materials imported into Palestine is about £6,000 per annum, principally for religious ceremonials, the greater part of the candles being made locally from imported ceresine, paraffin, etc., mainly obtained from Germany (Chemnitz and Halle). Paraffine scale sells at 70 to 102 francs per 100 kilos., according to quality, and ceresine at 120—130 francs. Although the canonical law prohibits the use of other materials than beeswax for church candles, that material is too dear for the purpose, and is only obtainable in small quantities, and at prices ranging from 9d. to 1s. 6d. per lb. For household use the consumption of candles is almost nil, petroleum being the general illuminant. The best grade and most in demand is that of Fournier, of Marseilles, the usual size measuring 12 inches by four-fifths of an inch, four in a bundle, and packed in 24-lb. (11 kilos.) boxes. Marseilles stearine candles, ten in a bundle, and a few sperm candles, are also sold. During the last fifteen years Belgian and Dutch makers have also sold in this market, Oedenkoven & Co., of Roubaix, supplying a quality ("Orientals") in good demand among the Hebrews of Jerusalem; and Schiedermann's "Apollo" candles are very similar to those of Fournier. The terms of sale are c.i.f., three months net, or 3 per cent. discount for cash.

Andrianople.—The use of tallow-dips for household illumination has been abandoned in favor of petroleum lamps, where any artificial light at all is employed, the peasants generally contenting themselves with firelight only. Wax candles are used in religious ceremonials, and those of French make are in best repute, but the total trade amounts to only some £1,800 per annum.

Odesssa.—Russia being well provided with stearine-candle factories, has no need to import; in fact, a certain amount of export trade is done with the Russian colonies and adjacent countries. In order to prevent fraud in connection with the wax candles used in churches, the Russian government retains, as a monopoly, the manufacture of these articles, under the surveillance of the Holy Synod.

Ismid.—About 1,800—2,000 boxes (of 10 kilos.) of "Apollo" candles are imported into this district, Ismid and Ada-Bazar being the principal centres of consumption.

Caifja.—The natives find that petroleum is a cheaper illuminant than candles, but use the latter on feast days, occasions of entertainment, etc. France does a large share of the trade, Fournier's No. 5 being a favorite mark; this is now being imitated by certain Belgian firms. Tallow-dips are obtained from Belgium and Austria at low prices. Wax candles are used only in religious ceremonials, weddings, and interments; but as cheap imitation wax candles are made at Beyrouth, the pure wax imported candles are consumed for the first-named purpose exclusively.

Constantinople.—Fancy candles in red or blue, twisted or spiral in shape, are in small demand. The firm of Fournier has recently put on this market a candle containing five longitudinal hollows—of the type familiar to the patrons of French hotels—for which a brilliant future is anticipated, since, having no disposition to gutter, it is economical; and, being increased in bulk by the cavities, takes the fancy of the Oriental buyer, who is delighted to secure a voluminous article at a low price.

Some French candle makers started a factory in Constantinople about ten years ago, in the hope of profiting by the protective duty of 8 per cent., but were undersold by European competitors, and, moreover, found great difficulty in disposing of the bye-products. The founders calculated that, in a town of nearly a million inhabitants, there would be a large available supply of tallow; but, unfortunately, they could not buy a single pound, for the good and sufficient reason that it was all eaten by the inhabitants. Consequently, all the raw material had to be imported, and though an excellent agent was appointed, who sold about 300 tons of candles during the first year, the concern, which was under-capitalized, has now gone into liquidation, with little chance of reissue in the near future.—"Bull. Chamb. Comm. Francaise de Constantinople," translated in Oil and Colourman's Journal.

Yellow Rosin Soap.

By W. Emery.

The use of rosin soaps has much increased of late, and more is now expected of them. Many boilers have been compelled in consequence by competition to turn out a very much better article. It used to be the practice to look upon the manufacture of yellow settled rosin soaps as a means of getting rid of any fats that could not otherwise be used. As, however, the soaps made by less unscrupulous makers won a reputation for economy and lathering power, the inferior makers lost their market, and had to mend their ways.

The soaps in question can be divided into two classes—those boiled on a clear lye and those boiled on a nigre. Almond soaps are now rarely seen, on account of the high degree of evaporation necessary to make the soap thick enough to keep the almonds from sinking. Soaps of the first kind were formerly made to a large extent with animal fat, and contained much rosin. They were poured into small moulds, so as to cool quickly and not to marble. They were made of tallow, 30 to 40 per cent. of rosin and a little palm oil, and filled with crystals of soda. All high filled soaps have to be run into shal-
low frames and crutched till set, to prevent the formation of any flux.

From the first method of boiling on lye, the other method has developed, and gives scope for the use of palm seed, palm, and cocoanut oil, as well as tallow and bone grease. Many soap boilers were at first, however, against it, on account of the practical difficulties in the way of calculating the yield, as so much was put into the pan in the form of waste and nigre. But today these soaps are made on a more rational plan, and palm seed oil, raw palm oil, and bone grease can be made into pale, solid, good soaps with a high percentage of rosin. Nevertheless, the best rosin soaps made by the second method rarely contain more than 30 per cent. of rosin, and usually about 25 per cent., or even 20 per cent., if a light-colored product is required. They are no longer filled, as that makes the soap too soft. They are framed in very large moulds, as soon as the nigre is very tough, and solid enough for the mass of soap, weighing perhaps five tons, to rest on it. The faults of manufacture all arise from having too watery a precipitate under the soap. If such a soap stays three days in the pan, it will mould full of spots.

A soap of this class made with a fat consisting of 60 per cent. of tallow and raw palm oil, and 40 of rosin, is clear, and almost as good as a soap of the other sort. It is moulded in large moulds, and cannot well be filled. When moulded it is covered over to heat spontaneously, whereby it becomes transparent. With this a transparent rosin soap containing 20 per cent. of rosin, and with a yield of 300 lbs., boiled with half potash lye, can well compete, and has the advantage that no precipitates form, although it must be framed in smaller moulds (81-112 lbs.).

With regard to inferior fats, bone grease extracted with benzene answers well, if its smell is not too strong. Experience is needed with all of them, and the impurities prevent them from giving a clear solution such as is obtained from pure tallow or cocoanut oil. A precipitate of dirt is always visible in the sub-lye. In buying bone and other inferior greases, particular heed must be paid to their color, and the amount of dirt and water they contain. The saponification should be made to decolorize at the same time.

The best and palest soaps are made with palm seed oil alone, or with that oil principally. The oil is not too dear to permit of this. A small addition of bone grease does good rather than harm, and, while cheapening the manufacture, does not introduce into it any special difficulties. The following are two good recipes:

A. Palm seed oil........... 1,000 lbs.
Raw palm oil........... 200 lbs.
Bone grease........... 300 lbs.
Rosin........... 450 lbs.

B. Palm seed oil........... 1,300 lbs.

Raw palm oil........... 200 lbs.
Rosin........... 450 lbs.

With pure fat the direct method is best, working with 26 degrees B. caustic soda lye and fat in equal weights, and exactly as with a half-grain soap. Cuttings and the nigre from the last pan are added as usual. To prevent too rapid action and consequent boiling over, keep 100 lbs. of the palm seed oil back at first. There is less danger of this if plenty of scraps have to be worked up and hence a stronger heat may be used, and also a weaker lye, for in this case saponification goes better with a somewhat weaker lye, say 24 degrees B. The nigre, etc., take up most of the extra water, so that long evaporation is unnecessary. Manage so that when the soap has been fitted with the palm seed oil kept back, it boils up high, and thick and woolly. As soon as this appearance shows that the evaporation has gone far enough, throw down the nigre with 20 degrees B. brine. Then test for pressure, and if right frame after a short standing covered up or leave for forty-eight hours for the nigre to settle in the pan. The result will be found to answer all expectations.—"Seifensieder Zeitung."

Whose Make Was it?

Emperors are not usually desirous as to house-cleaning, but according to the Daily News the German Emperor thinks about such things. The story is that when the Emperor William informed Herr Von Bulow at Hamburg that he was now Imperial Chancellor, Herr Von Bulow naturally expressed his delight, and perhaps he really was delighted. But all at once he seemed to be considering something; and the Emperor, perceiving this, said: "What is the matter now, Bulow?" The latter answered that he had just chanced to think of his wife. She had nothing against the Chancellorship, but a great deal against the Chancellor's Palace, for, whilst her present home was a regular little jewel-box, the great cleaning-down in the Chancellor's Palace would not be completed before this time twelve-months. "Give my greetings to the Countess," his Majesty replied joocularly, "and tell her I would contribute my part towards the cleaning-down." Herr Von Bulow may perhaps have hoped that the Emperor would see that the Palace was thoroughly renovated. If so, he was mistaken. A few days later a very bulky parcel was left at the Countess Von Bulow's by the Emperor's orders. It contained a hundredweight of soap—the promised contribution towards the great cleaning-down.

In Another Sense.

"Marie's letters all come with 3 cents on."

"Why does she waste postage so?"

"She doesn't. One of them's a scene of violets."—Philadelphia Bulletin.
Should Soap Manufacturers Have Low Advertising Rates?

Printers Ink, in a recent issue, publishes the following item:

The Proctor & Collier Company, of Cincinnati, send this kind of argument for cheaper rates to newspaper publishers:

The rule of charging all advertisers alike for advertising space, while apparently fair, is really unjust. It is as if railroads were to charge the same freight rate for coal and silk. To expect the same price for advertising space for a staple grocery article, like a laundry soap, as for a patent medicine, whose first cost is next to nothing, is unreasonable. Your grocer can tell you how little profit there is in a whole box of soap, and how long time is required to sell one. The expensiveness of newspaper advertising is one reason why the best class of foreign advertising goes into the magazines, while the bulk of foreign advertising in newspapers is of patent medicines, the least desirable of all advertising, because the advertisements never are attractive, sometimes are offensive, and the remedies often fakes. We ask you to consider the Ivory soap advertising as a separate and distinct proposition.

Soap in the Philippines.

The caribou is an animal which is partly a food provider and partly a beast of burden. Its flesh has not the fine and succulent taste of beef, but the natives get along with it very well. It is used in the Philippines both as a draught-animal and to work the sugarcane mills, as it is remarkably docile, and offers a strong contrast to mules in that respect. The inhabitants of the islands do not take the trouble to rear the caribou, but take those they want from the wild herds which roam over the country. There is one factory at Manila where soap is made from caribou fat, and one or two others at Iloilo and a few more ports, but the manufacture is extremely primitive, and there is no doubt that the establishment of a proper factory would be attended by great success. There is a great Japanese demand for the soap, and it is also much sought after in some parts of China. The raw material is very cheap, and the expenses for carriage and labor would be very small in the Philippines.—Exchange.

Trade Marks.

In a case recently decided by the United States Supreme Court covering the trade-mark laws of this country, Chief Justice Fuller delivered the opinion, in the course of which he called attention to several salient points. Attention was first called to the early use of the term "trade-mark," and its meaning as a distinctive mark of authenticity, through which the products of particular manufacturers or the vendible commodities of particular merchants may be distinguished from those of others.

A trade-mark may consist of any symbol or any form of words, but as its office is to point out distinctly the origin or ownership of the articles to which it is affixed, it follows that no sign or form of words can be appropriated as a valid trade-mark which, from the nature of the fact conveyed by its primary meaning, others may employ with equal truth, and with equal right for the same purpose. A general rule has also been established to the effect that words that do not in and of themselves indicate anything in the nature or origin, manufacture or ownership, but are merely descriptive of the place where an article is manufactured or produced, cannot be monopolized as a trade-mark.

Another well-known doctrine governing trade-mark law is that no one can apply the name of a district or country to a well-known article of commerce, and by so doing obtain any exclusive right to such application as would prevent others inhabiting the same district or dealing in similar articles coming from that district from truthfully using the same designation. However, where a geographical name has acquired a secondary signification, its use in that sense may be protected by restraining the use of such word by others in such a way that it would amount to a fraud on the public, and on those to whose employment of it the special meaning has become attached.

It may be granted, therefore, that the manufacturer of particular goods is entitled to the reputation they have acquired, and the public is entitled to the means of distinguishing between those and other goods; protection is accorded against unfair dealing, whether there be a technical trade-mark or not. The essence of the wrong consists of the sale of the goods of one manufacturer or vendor for those of another.

In a trade-mark suit, if the plaintiff has the absolute right to the use of a particular word or words as a trade-mark, then if an infringement is shown, the wrongful or fraudulent intent is presumed, and although allowed to be rebutted in exemption of damages, the further violation of the right of property will be established. Where an alleged trade-mark is not in itself a good trade mark, but the use of the word has come to denote the particular manufacturer or vendor, relief against unfair competition or pernicious dealing will be awarded by requiring the use of the word by such limitations as will prevent misapprehension of the question of origin. In the latter class of cases such circumstances must be made out as will show wrongful intent in fact, or justify the inference from the inevitable consequences of the act complained of.
Soap Novelties.

There seems to be a growing demand for various novelties made of soap, and at the present Christmas season shops abound with many interesting little nicknacks made from soap which were formerly made of a material which could certainly not be utilized in any way after their original purpose had been served. We have before us an excellent imitation of a box of safety matches. The box is complete, and exactly similar to the usual boxes in which safety matches are put up. The matches, however, are represented in fac-simile in soap, the yellow bodies of the matches and red heads being strikingly well imitated. Various fruits made of soap, intended for use, for ornamental purposes, and for various portions of Christmas festivities, appear to be also in greater demand than hitherto. It is strange that pretty well all these goods are manufactured abroad, although there is no reason why they should not be made at home just as cheaply and just as well. Possibly the explanation is that our manufacturers do not like to trouble with these frivolous lines. If, however, there is a demand for them, we should like to see it filled with the goods of our own manufacturers.—Oils, Colors and Dyesalerteries, London.

Essences of Lavender and the Causes of the Variation in Their Contents in Ether.—MM. Jeancard and Satie.—Altitude appears to play a secondary part in the proportion of ether present in essences of lavender. The method of distillation is an important point in the richness of the essence in ether. The distillation should not be pushed too far, and should be done as rapidly as possible. The quality of the water used also has an influence; the water should only leave a small residue when evaporated to dryness.—Bull. Soc. Chim. through Chem. News.

Around the Soap Factories.

Dr. Deite, for twenty years editor of the "Seifenfabrikant," which paper he founded, has discontinued to act as such. He is succeeded by O. Heller, secretary of the Soapmakers' Association.

The Gould Soap is a new incorporation in Buffalo, with a capital of $5,000. Director, H. J. Gould; C. J. Bertrand; W. S. Gould, all of Buffalo.


Chas. K. Stern, of Jacob Stern & Son, tallow dealers, Philadelphia, died recently in consequence of paralysis, at the age of 46. He had been ill for several years.

Among the latter day Cornellians who have won their way is a member of the class of '98, James Kenneth Fraser. Fraser's specialties are magazine and street car advertisements. Especially in the elevated trains in New York are the ads. of his designing numerous. The well-known "Spotless Town" posters and verses proclaiming the qualities of Sapolio originated in his brain. The many full-page magazine advertisements of "Uneda" biscuits which are known as models of advertising art are creations of his. Fraser is an artist as well as a clever verse maker. During his college career he was known to possess an extraordinary ability for caricaturing and sketching. When he left college he went to Chelsea, Mass., but soon drifted to New York, where his successful career began.—Ithaca (N. Y.) Journal.

The Imperial Mineral Water Co. has been incorporated, to deal in mineral water, soap, syrup, etc., in San Francisco. The directors are: T. J. Dingman, G. Peterson, S. Lee, J. P. Digman and J. B. Mahoney. The capital stock is placed at $100,000, of which $60,000 has been subscribed.

Hahn & Hauser, of Sheboygan, Wis., have sold out to the Aladdin Soap Co., incorporated Jan. 16, 1901, for $35,000. The officers elected are: Clemens A. Hahn, president; John M. Hauser, vice-president and treasurer; Geo. J. Wilhelm, Jr., secretary.

The American Liquid Soap Co., Augusta, Me., has been incorporated with a capital stock of $200,000. President, W. F. Briggs, Providence, R. I.; treasurer, E. S. Judkins, Providence, R. I.

Bradshaw Bros. & Co.'s soap works at Minneapolis were destroyed by fire in the early part of last month.

P. D. Armour, founder of the firm of Armour & Co., died on Jan. 6, at his residence in Chicago, after having been in more or less poor health for the past three years. The deceased was born in Stockbridge, N. Y., in 1832, and worked on his father's farm till he was seventeen years old and then went to school at the Watertown Academy. A year later he went (1849) to the California gold fields and returned in 1856, going directly to Milwaukee where he invested the money he had accumulated, in the grocery and commission business, and later in the pork packing business under the partnership of Plankinton & Armour. In 1875 he moved to Chicago to take charge in his brother's place of the pork packing business established there.
The Full Court of Victoria dealt on August 10 with an application by the Potter Drug and Chemical corporation, of Boston, proprietor of a registered trademark for “Cuticura” soap. In 1897 it appears that Arthur Tilley, of South Yarra, Victoria, soap manufacturer, registered a trade-marked for “Curato” soap. The proprietors of the “Cuticura” trade-mark complained that Tilley’s trade-mark so nearly resembled theirs as to be calculated to deceive the public, and they therefore applied to the court for an order directing the register of trade-marks to be rectified by expunging from it the “Curato Soap” mark. The judgment of the court was that the “Curato” trade-mark should be expunged on the ground that it was calculated to deceive, and that the proprietor should pay the costs of the application.


A long-distance soap brand litigation has just been decided in the case of the Lever Bros., Ltd., vs. Nannucci, Ltd. The English firm had brought suit against the latter firm (which is located at Cape Town) for putting on the market a “Sunflower” soap in boxes closely resembling those of the “Sunlight.” The court granted an interdict restraining the defendants from selling soap in boxes and wrappers like those in dispute, but held that the name “Sunflower” was one they could not be enjoined from using.

The British Government Laboratory.

The report of the principal chemist of the government laboratory upon the work of the laboratory for the year ended March 31 last, has been issued as a parliamentary paper. It is stated that in the customs department during the past year 226 samples of tea, representing 3,322 packages, were found to contain exhausted leaves, or to be mixed with sand or other substances within the meaning of the act, and were therefore refused admission for home consumption. Of these 3,322 packages, 2,274 were exported, and 1,048 destroyed. Eight thousand four hundred and eighteen samples of tobacco, tea, coffee, soaps, drugs, varnishes, etc., were examined during the 12 months; 167,980 samples of beer, spirits, and wines were examined in the same period. The number of analyses and examinations made in the excise branch amounted to 68,387, or 1,864 more than in the preceding year. Seven thousand five hundred and two samples of wort in various stages of fermentation had been examined to check the declaration of gravity made by the brewer. In 614, or rather more than 8 per cent. of these cases the original gravity was found one degree or more above that declared by the trader or found by the officer. In 583 cases the increased gravity was less than five degrees, in 26 cases five degrees and less than ten, and in five cases ten degrees and upwards. Two thousand three hundred and eighty-six samples of finished beer, taken from 1,223 publicans, were analysed, and 319, or 13 per cent., of the samples were found to have been diluted with water or otherwise adulterated. Ninety-five samples of tobacco taken from manufacturers and dealers were analysed for adulteration generally, and 20 of them were found to be adulterated with liquorice or glycerine. All the adulterated samples were apparently either smuggled cane cavendish or cut tobacco, which bore no label to show it had paid the proper rate of duty. While in 1841, when the population was 26,700,000, the quantity of tobacco cleared for consumption was 23,096,281 pounds, or 13$\frac{1}{3}$ ounces per head of the population, the quantity in 1900, with a population of 40,833,000, was 86,955,037 pounds, or 1 pound 15$\frac{1}{2}$ ounces per head. In the “other government department’s” branch the number of samples examined in connection with the board of agriculture had increased from 1,600 in the year ended March 31, 1899, to 1,745 during the last year. The increase was due partly to the new food and drug act. One thousand three hundred and ninety-three samples of imported butter were examined. Only six samples gave distinctly abnormal results. A large number of butters contained boric preservative, and were artificially colored. As usual, it was found that the use of boric acid is most prevalent in France, Belgium and Australia, and is very common also in Holland. The most frequent coloring matter is annatto, but the use of coal-tar yellows appears to be on the increase and is especially prevalent in Holland, the United States and Australia. One hundred and thirty-two samples of imported margarine were analysed. The bulk of the margarine imported comes from Holland, and it is usually made with cottonseed oil, contains boric preservative, and is artificially colored with a coal-tar yellow. In all 1,745 samples of butters, margarines, cheese, etc., were examined.

An Eucalyptus Oil Containing 60% of Geranyl Acetate.

By Henry G. Smith, F.G.S., Assistant Curator, Technological Museum, Sydney.

In this paper the author shows that the oil of Eucalyptus macarthurii, known locally as Paddy’s River Box, is very rich in geraniol, it containing 60 per cent. of geranyl acetate, and 10.64 per cent. of free alcohol, calculated as geraniol. The oil is somewhat analogous with that obtained from Darwinia fasciculata, brought under notice by Mr. R. T. Baker and the author in December, 1899. Both Darwinia and Eucalyptus belong to the

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natural order Myrtaceae. The oil of *E. macarthurii* contains eudesmol (the stearoptene of eucalyptus oil), the fraction distilling between 266—282°C., crystallising quite solid in the bottle. This substance is absent in the oil of *Darwinia*. The yield of oil from this eucalypt, collected in October from near Wingello, and obtained by steam distillation from fresh leaves and branches, was 0.112 per cent. The whole of the ester was saponified in the cold by alcoholic potash in one and a half hours. As no heat was applied, the separated oil was excellent, the geraniol not being interfered with. This fact of cold saponification of geranyl acetate might be used for quantitative determination of this ester, when it and other esters are present in essential oils. Citral was obtained by oxidation, and the pure geraniol prepared from the calcium chloride compound; this was a colorless oil boiling at 221—225°C. (uncor.), and had a specific gravity of 0.883 at 20°C. The acid of the ester was shown to be acetic acid. The crude oil contained neither eucalyptol nor phellandrene, it was entirely different in appearance and constituents from ordinary eucalyptus oil. It formed a clear solution with two volumes of 70 per cent. alcohol, it had an optical rotation of + 3.6° in a 100mm. tube, and specific gravity at 15°C. of 0.9245, the comparatively high specific gravity being due to the presence of the stearoptene.—*Chem. News.*

## The Demon Laundry.

### DEMON KING.

Why? don't you know that devils have more scope
Since the dark days when clothes were washed with soap;
For people then had tempers calm and placid,
Now all the washing's done with nitric acid,
And fumes arise that grip men by the thorax;
We've long since done away with soap and borax.
Some secrets, if you'll listen, I'll divulge,
And then I think you'll own I've got the key.
Instead of boiling garments, now we fry them,
And then we've got a patent way to dry them.
We don't care if the weather's wet or fine,
We never hang our clothes out on a line.
For sunlight with my patent isn't in it,
My "Hot Blast Air Tube" dries them in one minute.
If mortals don't like these ways, they lump it.
For when a washing claim's pegged out we jump it.

### FAIRY QUEEN.

I see no earthly power can help these mortals,
Once they have placed their clothes within your portals.
But lo! my power is great—Hence, wicked men;
Days of ye ancient washtub, come again.

—*Idler.*

## Hints to Chemistry Students.

The following is from an anonymous article on scientific training, in *The Pharmaceutical Journal*.

After a certain stage of his progress the student will be led to consult the standard dictionaries, such as Watts', on inorganic chemistry, and Beilstein on organic chemistry in place of the ordinary text-books. Beilstein is, of course, written in German, and here it may be remarked that whoever wishes to study organic chemistry thoroughly will find it necessary to be able to read German. It is not, however, so difficult for an English chemist to read a German treatise on chemistry as it would be for him to read other German literature. The names of substances correspond closely with their English names, so that a knowledge of the grammar and of a small vocabulary is sufficient.

There are two classes of students to whom a few hints of advice may be of service. There are those whose imaginations magnify the difficulty of understanding a problem, and there are others who with only a superficial insight believe that they thoroughly understand a law and all its consequences. Both faults are the result of giving an insufficient consideration to the matter.

As an example, some men will learn the rules for finding a specific gravity without ever understanding that the numerical result obtained only means the number of grams a cubic centimeter of the stuff weighs, or the number of ounces a fluid ounce weighs. Tell such a one the price of a truck of coal, the total weight, and the tare of the truck, and he will tell you at once the price per hundred-weight, yet he does not understand the purpose of each of the weighings necessary to find a density. In a certain examination a candidate was given some pure arsensious anhydride, a solution of iodine, and a sample of arsensious anhydride to be tested by the iodine after its strength had been determined by means of the pure substance. The unknown sample was pure, and it so happened that the candidate took the same quantity of it for determination as he had taken of the pure arsensious anhydride for testing the iodine. Both quantities, of course, required for oxidation the same measure of iodine solution, and this fact should have at once convinced the candidate that his unknown sample was pure, yet by misapplying his ill-understood rules for calculating its strength he arrived at the conclusion that the unknown sample contained 84 per cent. of arsensious anhydride. It is but fair to say that this fault was not due to a lack of intelligence in the candidate, as the writer can vouch, but was due to the system of cram to which he had been subjected.

The occurrence of such cases, it is to be feared, are but too frequent among pharmaceutical students, and it would be far preferable for men to learn and understand a certain amount with common sense than to learn double the amount parrot-wise. All the considerations
belonging to such matters as these, when regarded from the point of view of common sense, become very simple, and it should be the aim of the student, whether he is brilliant or not, to gain a clear view of his subject by comparing it, as is almost always possible, to simple, every-day analogies. Great help is often afforded in the study of physical science by plotting curves to represent any given changes, such as the change of specific gravity, with increase of temperature or the change in the intensity of light with increase of distance from its source. Such curves need not be more appalling to the student than the curves of barometer readings published in some of the daily papers, and when he becomes familiar with their use he will find that they clearly illustrate and fix on his memory properties that might otherwise have even escaped his notice.

On the other hand, those who readily grasp the principles of a subject must distinguish carefully the attendant conditions under which those principles remain true, and must not draw conclusions rashly, or they may have many things to unlearn before they are out of the danger of committing great faults. Thus, for instance, in dealing with Boyle's law—namely, that the pressure and volume of gas, however they may be altered, when multiplied together always give the same result—care must be taken to note that this is only true of a chosen quantity of gas, that the temperature must remain the same, and that if the pressure rises beyond a certain limit the rule no longer holds. Again, there is a tendency among beginners to assume that, because barium sulphate is insoluble in water, it would be unaffected in a solution of sodium carbonate. This, as will be learnt after some progress, is by no means the case.

Practical chemistry includes three different kinds of work: the making of chemical preparations, qualitative analysis, and quantitative determination. They are distinguished by each requiring a peculiar experience for its proper performance, but are alike in requiring careful manipulation. The secret of success in this branch, as in most other things, is diligent practice. Often an experiment or operation appears at first sight too simple to be worth performing, or sometimes the thought "I have done it before, or something very much like it," is the student's excuse to himself for neglecting it. This is a great mistake: the observant student will generally learn something from the simplest experiment and something more from repeating it. In fact, up to a certain limit the value of the experience gained is proportional to the time diligently spent at the work.

The treatment of qualitative analysis must be thoroughly systematic. A student was given a substance which he thought looked like potassium bichromate. He proceeded with his examination of it as far as passing into an acid solution of it some hydrogen sulphide, and on finding that the liquid became green, and contained a yellow precipitate, he at once reported it to be potassium bichromate. It happened to be ammonium bichromate.

If a student finds a substance to be, let us say, either cane sugar or milk sugar, and if the distinguishing test of these two is not quite conclusive, he is at first tempted to write down the one he guesses it most probably is, and feels content if he has guessed aright. This he is strongly urged to avoid doing. He should convince himself in all possible ways of the identity of the substance before leaving it, otherwise he will never possess the confidence in his results which is essential to successful work of any kind.

Quantitative work requires great application. Only by repetition is it possible to assign errors to their proper causes and to know where to expect an error.

It is hardly possible for a staff of tutors to teach a class of students every little detail that they have to learn, and, indeed, it is better for the student that he should cultivate for himself the habit of close observation. He who does so will soon notice that after running about twenty cubic centimeters out of a burette a very different reading is obtained immediately, from that obtained after waiting a minute for the liquid to run down from the burette sides. Similarly, a thermometer rapidly heated to a high temperature gives a lower reading when the mercury first appears stationary than it does five minutes after, when the mercury column standing outside the source of heat has itself become heated by conduction. In all cases one should investigate for himself what is the maximum limit of error connected with any operation. When one has done this, and finds the third figure, he will at once know that in weighing a substance to be titrated it is useless to carry the weighing as far as the fifth figure.

Results should always be calculated with the aid of logarithms. For the sake of those who have not learnt to use them it may be stated that one can learn the method in five minutes; calculations can usually be done by means of them in about one-tenth of the time required by the ordinary method, and when one is accustomed to their use there is far less risk of an arithmetical error.

The Victor Oil Co., of Toronto, has been succeeded by the Cataract Refining Co., of Buffalo, N. Y.

The Moore Soap Co., New York City, capital $10,000, has been incorporated to manufacture soap, by S. G., J. L. and R. E. Moore, of New York City.
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- Purgro, O. W. Collage, Chicago.
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- Washington-336
- Caramel-336
- Congo-226
- Swift's Pride-337
- Old Mill-337
- Swift's Cream Laundry-337
- Swift's Washing Powder-337
- White Ribbon-337
- Snap-337
- Golden Shiner-337
- Green Plum-337
- Modrsek-337
- Bell Cow-337
- Queen Lilian-337
- American Queen-8
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- Rose-n-Belle-334
- Mountain Violets-334
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BATAVIA, ILL.
We have an enquiry from West Virginia reading: "Would you please give us the address of two or three firms that manufacture soap specialties for others, also metal polishes, etc." We have answered as well as we could, but if any of our subscribers wish to send price-lists, etc., we will gladly forward same to the proper address when sent us accompanied by the necessary postage.

Those who read the Soap Journal, or who ride in street cars, and who have been in Chicago at one time or another, will need no diagram to explain the connection between soap advertising and the following rhyme from the Chicago Tribune:

This is the mayor of "spotty" town,
Where even the air is a dirty brown.
The streets are rocky and full of mud.
You "side step" a hole and land in a "pud,"
But soon 'twill be clean and white, you know,
When there comes a fall of beautiful snow.

Few methods of taking in the public have the staying power of the simple trick of selling to grocers and others as good soap a compound of water "made to stand upright" by various ingenious devices. Just now western papers report heavy sales in Nebraska and thereabouts of such soap under the guise of "Porto Rico Soap," ostensibly made in New York, by a concern not known there however. According to one paper, whose accuracy in details may be open to much question, 100 12-ounce bars are sold at $6.75, with a box thrown in with each order, and the compound has this composition (?): water 75 per cent., sal ammoniac 22 per cent., grease 3 per cent.

One of the soap journals in Germany has a school for soapmakers to which we have previously referred. A rival paper, also in Germany, recently professed to be more or less ignorant of this school, and now the first mentioned paper advises the other one to read the "American Soap Journal" if it cannot get the home news in any other way. We second the motion.

The Perfumer's Association has addressed a letter to the conferees on the war revenue reduction bill, stating that the business of manufacturing perfumes is at present almost or quite without profit, owing to the fact that
the burden of the tax has fallen on the manufacturer and not on the consumer. A memorial from Colgate & Co. makes about the same points, and is as follows:

"1. This bill, as amended by the senate, leaves the present tax on perfumery, while removing it from articles of even greater luxury.

"2. No other industry is now so heavily taxed as that of the perfumer. Alcohol, the chief ingredient of perfumery, costs, to make, between 31 30 and 40 cents per gallon; the government already taxes alcohol $2.10 per gallon, making its cost to the manufacturer about $2.50 per gallon. Abroad, perfumers have the great advantage of alcohol used in arts being free.

"3. The present stamp tax amounts to from 4½ to 5 per cent. on the retail price of perfumery, making its proportion to the wholesale price much greater.

"4. When the stamp tax was imposed it was believed by manufacturers generally (perfumers included) that it would be of short duration; no attempt, therefore, was made to add an amount to the selling price of goods sufficient to cover the tax, the result being that manufacturers of perfumery, and not the consumers, have paid the greater part of the tax.

"5. We have no desire to shirk contributing our fair share to the national expenses, but believe that, in view of the action taken on other lines, with which ours may properly be compared, the tax should be removed from perfumery, and we respectfully ask your aid in bringing that result.

"We will be pleased to furnish you promptly any statistics or information relating to the perfumers' business which will be of service."

A subscriber to the Soap Journal recently desired to find a certain soap maker whom he could place in a desirable position, but whom he had lost sight from. He wrote to us for information on the whereabouts of the party he was in search of, and, although we could not then supply his address we gave his last address as it had appeared on our subscription list some two years ago; from this he was readily traced and is now in a better situation than he was before. This is an example how being a subscriber to this paper can be useful in later years. Another very similar instance occurred a month or two previously.

A pretty good barometer of certain conditions in the soap trade are the small advertisements in our "Wanted and For Sale" columns. As we receive and forward a considerable number of replies every month to the different advertisers, we can judge both the supply and the demand for certain things advertised for. And the barometer goes up and down. One month those advertising for positions are the ones receiving the most replies, and at some other time the factories advertising for soap-makers receive the heaviest mail. Through it all, however, we notice what a recent letter expressed with extreme brevity, namely: "The number of replies which you have yourself forwarded to me speaks well for the advertising power of the American Soap Journal."

The United States Wholesale Grocers' and Carriers' Directory, with Brokers List, is the title of a book just off the press. While it is useless to comment on the value of such a list in general, and while we are not able to speak authoritatively on the completeness or correctness of the list, we are aware of considerable trouble the publishers of the book have gone to in order to make this new list larger and better than the preceding issues, and as this is the seventh year of publication of this list, we feel warranted in commending the book to those interested. Published by R. J. O'Connell, St. Paul, Minn. Price, $2.00.

**Odors and Trade Marks.**

We have frequently had occasion to remark that certain proper names, especially geographical names, also the names of plants and other materials used in the manufacture of other goods, cannot be monopolized by one manufacturer to the exclusion of others, by way of using them for a trade mark. Thus, as an example, a miller in Iowa could not use the trade mark "Iowa Corn Meal" and thereby exclude his neighbors from designating their own product similarly, to which they have an undeniable right. Clear as this would seem to be, in practice there turn up peculiar complications that often render a given case less simple. How, for instance, would the law decide in the case of a soap called, say "Western Rose," when, so far as we know, there is no particular flower called by that name? It would appear to be a suitable trade mark, and yet another manufacturer might maintain that he makes a soap perfumed by roses grown in the West, and that he had an undoubted right to designate his soap by the same name. Cases of this kind occasionally get into court, and in the discussion of these in general some interesting data on plants were recently presented.

The odor of a plant depends largely on the conditions of its growth; a plant possessing an odor in one place may have none when grown in another. Again, notably in the rose, much depends on the prevailing weather. The birch has an odor only at certain times, according to the weather. Mignonette and heliotrope have a strong odor only at certain times of the day. Queen of the Night is odorous after sundown, nightshade only in a warm summer night. Grass and hay smell on withering. Bitter almond, tobacco, mustard, patchouly, develop
their odor by fermentation. The root of valerian is practically odorless until it dries when a strong odor appears.

The odor may be located in various parts: calamus root, laurel leaves, cedar wood, fennel seed, orange peel, rose petals, peach kernel, juniper berries, cinnamon bark.

Chrysanthemums, which are ordinarily considered odorless, furnish a liquid from the green leaves smelling like chamomile and peppermint.

Some plants yield valuable odors on being chemically treated (vanillin, heliotropine), and citral from lemons, etc., is made into the violet-like ionon.

Some odors become agreeable only on dilution (musk, patchouly, ionon).

If some of these points should serve to make a seeming simple case of trade legislation more complicated, we trust the lawyers will feel thankful to us for having mentioned it.

**Soap in Canada.**

The Montreal agent of the French Government reports the following details regarding our neighbors:

The importation of soap into Canada has grown from $114,343 in 1889, to $384,174 in 1899. Part of this increase is made up of Marseilles soap, which profited by the reduction of duty from two to one cent a pound by the treaty of 1895, between the two countries. Of the ordinary soaps there were furnished in 1899, by England 3,117,146 lbs. ($157,494); by the United States 439,670 lbs. ($16,229); by France 10,330 lbs. ($360).

Of toilet soaps there were imported: From the United States 281,908 lbs. ($58,415); from Great Britain 84,464 lbs. ($21,675); from France 7,588 lbs. ($2,736); from other countries 1,860 lbs. ($394).

A most remarkable change has occurred in regard to soap powders. While the importation in 1889 amounted to only $9,866 and was almost entirely from France, the latter country now sends practically none of it, while from the United States there was imported in 1899 soap powder valued at $64,213.

**The Milling of Soap.**

Since the time of the World's Fair, at Chicago, at which was exhibited the "Broyeuse-Sechense Continue," i. e. the French machine for converting freshly made soap into a milled article without the intervention of framing, drying, and chipping, very little has been heard in this country of that process. During the years since passed, however, the machinery has been frequently brought to the attention of European soap makers in one way or another and in the Seifensieder Zeitung of February 6, there is contained a rather briefly written, but very fully and plainly illustrated article showing the machine or rather set of machinery as it appears at the present day. In its main features the machine appears externally pretty much as we saw it here, but according to the description quite a few changes must have been made.

From the very start we observe that there is, as part of the plant, a kettle for regularly boiling the soap, instead of the apparatus for making a half-boiled or cold-made soap as was done in operating the plant at the exposition. The kettle is either placed on the floor above the remaining apparatus, or storage tanks are provided in which the soap is kept fluid by a steam coil.

The fluid soap is run into jacketed crutching machines (which of all the American machines most nearly resemble the crutcher made by the Hersey Manufacturing Co.), of which two are present, and in which the perfume is crutched in. From here the soap proceeds to the rollers of the main apparatus, where it is milled and thickens at the same time. From the last roller it falls upon an endless metal screen which operates in five successive layers on which the soap is dried by steam coil and ventilator, until it is right for the last milling (or to go directly to the plodder). From the time the first soap enters the machine, till it arrives at the plodder, just twelve minutes pass.

The description adds, however, that the machine may be used also for the drying process alone, using a separate mill for ordinary milling process.

In a ground plan of the works we notice there also figures a machine described as "American Stamping Machine."

**How Soap is Sold.**

(continued.)

As another sample of street car advertising, we quote the following:

"PERSONAL: Dear George, Father is set against your calling; don't write until you hear from me. Will explain everything when I see you again. Thanks awfully for that lovely box of Palmolive, it's so good for the hands and complexion.

Lovingly yours,

SUE.

* * *

And while on the subject of street cars, here is another:

In spotless town they caught a bore
Who slyly spat upon the floor,
And if you don't expect his fate
Then you should not expectorate.
They washed his mouth as white as snow
With water and Sapolio.

(See Board of Health notice in this car)."
Meanwhile Lucille has been writing again to Mama, with a picture of herself in hunting costume enclosed in the letter. This is the letter—according to the Bell & Bogart Co.'s version:

My Dearest Mammy:

Nellie and I have been here five days. Yes; I know I should have written before.

How do you like my hunting costume? The young man from Boston, who took the picture with his kodak, said I "looked like Diana"; but I guess not. I'm sure my dress is a good deal warmer than any she ever wore.

The first day I wore it, an old guide took Nellie and me out hunting. I shot a deer and nothing would do me but I must be all sorts of a real hunter and help dress the beast. Result—a splotch of blood, big as a soup plate on the skirt. For a minute I thought it was ruined, until I remembered Coal Oil Johnny's Soap. It took the blood out so cleanly that not a trace of the accident can be seen. The ladies at the hotel were astonished. I told them how to make dirty greasy ribbons, laces and colored skirt-waists like new, just by using C. O. J. soap, soaking and rinsing them in lukewarm water.

Your affectionate daughter,

LUCILLE.

P. S.—That young man from Boston is not wealthy, but his education and manners are away up in G, and I just know Papa wants his help in the office.

* * *

The Camden & Phila. Soap Co. advertises to the laundry trade by means of frequently changing advertisements, the feature of which is always a large illustration of a catchy nature, together with an appropriate head-line leading in an easy way to the subject of soap. Thus one specimen shows a comical little bow-legged boy, standing on something like hay scales and blowing a flute. The picture occupies the greater part of a page and is headed, "A Little Music on a Big Scale;" the wording then goes on, "The music is right in the goods. Some people make a large fuss, tell you all kinds of things about their goods, but when you try them you get small satisfaction—little music," etc.

Another specimen on the same plan shows a slim, decidedly clerical-looking gentleman standing in a meek attitude on a coffin. The picture is marked "A Good Thing on the Quiet" and then comes the statement: We have a good thing, but it is not on the quiet—it is very much heard of—known all over the country as XXX Hygienic soap, etc.

Finally a third example shows so ferocious-looking a bull dog that it must be seen to have the nightmare for a week; it introduces the subject by labeling the beast "A Convincing Argument."

* * *

The several advertisements reproduced in former installments of this article have on several occasions been commented on in our foreign exchanges; it is only fair therefore, that we should search the foreign papers for a change, and see what is being done elsewhere.

The first we find is the following of the Vinolia Co., Ltd. in the British & Colonial Druggist:

There was a manufacturer who was led by the nose by his soap boiler. This manufacturer wanted to turn out a fairly good soap at a fair price, but the soap boiler kept dinging into his ears that he should not give too good value for the money.

"I do not like the color of the article," said the manufacturer, "and I think we ought to buy better material."

"Not at all," said the soap boiler; "simply bleach the articles used, and you can make the soap as white as you like and out of the cheapest kind of materials!"

"Then again I do not like the smell," said the former.

"Essential oils are cheap enough," replied the latter, "and it does not take much to cover the smell of putrid fats. Do not waste your money on more expensive talc. Buy the cheapest you can get."

"Further, I do not think it lathers freely enough."

"Then put in more coconut oil," says the latter.

"I also think," said the manufacturer, "that it is too fresh, or it contains too much water—which is it?"

"It contains a good deal of water, I'll admit," said the soap boiler, "but I can overcome the difficulty of the softness by drying it a little more and getting a better 'skin' on it in the drying room. This 'skin' will lock up, in a great measure, the water in the soap, and the customer will not be able to detect the amount of water for some considerable time, unless he eats up the bars and puts them in the oven."

"I notice too," observes the manufacturer, "that after the soap has 'set' a while a thick powdery seems to form upon it, and this powdery sheen, I must say, I don't like. What do you say about that?"

"Ah!" replies the soap boiler, "I am afraid I must ask you to put up with that, sir. If you put in your soap fifty per cent. or sixty per cent. of water, you must compensate for the light weight by adding talc, chalk, etc. That is indispensable."

"Well then, I suppose," said the manufacturer, "I can't say anything more on that point; but I would like to draw your attention to the fact that our bill for silicates is very large."

"Yes, I know it is," replies the soap boiler; "but unless I put in the silicates I can't get the soap to hold the necessary water. In other words, I cannot make what soap boilers call 'upright water' unless you let me put in all the silicates I want."
“Very well,” says the manufacturer; “but I see we use a tremendous lot of resin.”

“Yes, I know we do,” says the soap boiler, “and so we do of cocoanut oil. But resin is considerably cheaper than tallow, and while resin by itself does not make a useful soap, it serves a very important function in soap-making. So does cocoanut oil, for it makes the soap lather freely, and if you can use enough of it you can fill a wash-tub with suds in no time!”

“Then the whole sum and substance of it is,” inquires the manufacturer, “that every step of the soap-maker’s art is supplied with ample opportunities for imposing upon the public. Is that not right?”

“It is quite right,” answered the soap boiler.

“Is there then”—the manufacturer leans back in his chair, raises his hand to his forehead, thinks a moment, and inquires, “Is there then no salvation whatever for the Trader who buys soaps?”

“Yes,” replies the soap boiler, “he really should buy as the War Office buys—that is, on the Fatty Acid Test.”

N. B.—So far as we know the Vinolia Soaps are the only ones of which the analyses have been scattered broadcast throughout the world. The Vinolia Company take their stand upon them. Moreover, they bear a good profit to the retailer. Don’t forget.

We conclude for this month with another specimen from England. It is the advertisement of Lever Brothers, Limited, and shows a large clock surrounded by a number of smaller ones. The central one is marked Port Sunlight, the others, Soap Works, Mannheim; Soap Works, Brussels; Soap Works, Sydney; Soap Works, Toronto; Soap Works, Boston; Soap Works, Philadelphia; Soap Works, Olten; Oil Mills, Sydney; Oil Mills, Vicksburg, etc. With the illustration is the explanation that it represents fourteen years expansion of Lever Bros. Limited: it represents the establishment of seven Affiliated Soaperies and two Branch Oil Mills in various parts of the world: it represents the opening of twenty-five Branch Offices at home and abroad: it represents, in a word, a successful concern built upon the foundation of high quality and attention to business.

Permanent success, whether in a manufacturing or distributing business, can only rest on the same solid foundation; the Grocers and Oilmen who are alive to this fact, and act accordingly, need fear no competition.

In soaps the specialties of Lever Brothers, Limited, are always at the top for quality. Lever Brothers, Limited, Soapmakers to the Queen, Port Sunlight.


BY GRO. A. SCHMIDT, CHICAGO.

As our “busy season” is close at hand, this will presumably be the last of a series of essays for which the winter months are responsible. “How Soaps Are Sold” has been the subject of a number of articles which appeared in our trade paper. For 26 years the writer has expressed his views about making soap rather freely in the various soap papers published in this country as well as in Europe, but this is the first time that he has anything to say publicly in regard to selling the products of the soap manufacturers. He concluded to do so in order to show that co-operation between manufacturer and merchant is absolutely necessary if lastingly good results are to follow. The execution of the duties properly belonging to merchants should be left in their hands, but advice can only be given, the proper advertisements can be written, only by the experienced manufacturer, as will be self-evident after considering the following.

The first step necessary when desiring to bring goods to the notice of people is the dividing up of the public into classes, in order to prepare your announcements in such a manner that each will appeal most forcibly to that part of the community which is to be influenced in favor of your goods. The great majority of advertisements now appearing in print are calculated to induce in a general way the public at large to buy certain goods, but ads. of that character are so plentiful that hardly anybody notices these, much less is impressed thereby. Progressive business men ought to endeavor to say something new and original; in order to do that read carefully and digest the specimens of ads. appearing in this journal; you cannot fit yourself better in any other way to write your own ads.

Here are some examples of soap ads. which can be used to good advantage to interest everybody who reads and thinks—retailers can attach their name and address to them and add that they are the Sole Agents for that particular brand of soap.

(SPECIMEN OF AD.)

External applications of many kinds, such as poultices, liniments, baths in numberless forms, plasters, etc., etc., have been successfully employed for centuries for the improvement and recovery of health and as strengthening mediums. Such reflections ought to show us the folly which we commit by bringing daily a substance in contact with our skin or with the clothes that cover us, of which we know nothing. Avoid all danger of using an impure or unsuitable soap by observing that the soap you use bears the name of ——
Similar ads., which appeal to users, have little or no effect whatever on the merchant; he does not, as a rule, care so much for what a soap does but is more interested to know "what is in it," how much money he can make by its sale. As excessive competition has reduced profits, as far as dollars and cents are concerned, you must endeavor to show him how many other ways he is benefited by handling your soap, and something like the following ad. might be of use for that purpose:

**SPECIMEN OF AD. INTENDED TO APPEAL TO MERCHANTS GENERALLY.**

Because soap is used daily by everybody, it is one of the best "Leaders" imaginable, especially if it is as well made as —. That brand is like a key: It will open for you the door to every home, its sale will bring people to your store who will buy from you other supplies as well as soaps.

Each of the several classes of ads. branch out again in subdivisions according to various trades, callings or stations in life; arguments which might answer the purpose to sell soaps to a laundryman would hardly do to make manicures, or dermatologists, barbers, proprietors of bathing establishments, etc., etc., buy goods; the more directly an ad. refers to a certain brand of trade or kind of soap the more effective it will be. For an example we will quote an advertisement of a carpet soap.

The opening or "catch" words will arrest the attention of housewives if nothing else will.

It is most charitable to attribute the reason why it is so difficult to get desirable help for household work and why house cleaning is so distasteful to housekeepers to an insufficient comprehension of the importance of these duties. Intelligent people are content only when their mind also is busy while they work bodily, and if we want reliable help we must teach them to think properly, must convince them that their work is valuable only when it is done well and thoroughly. Here is a familiar example how interesting are even seemingly trivial matters if understood clearly.—Carpets cannot properly be cleaned by the old-fashioned method of sweeping, "damp tea leaves" take up only a small fraction of the dust and dirt, even modern carpet sweepers are not much better, taking up and beating the carpets is a difficult and tiresome operation, besides, it scatters the germs and microbes (which invariably accompany all waste matter) and so spreads the evil which ought to be destroyed. The new and easy way of renovating carpets on the floor is as follows: Dissolve a bar of "our" or N. X. carpet soap according to directions, this will make a stiff jelly which is spread on the carpet and vigorously brushed, this will loosen everything which does not belong on the carpet, the lather which forms. envelopes and catches everything like fish when caught in a net, a scraper provided for the purpose is used to take up the dark, thick musk (if you should view this under a powerful microscope you would know why authorities insist upon a frequent and thorough cleaning of carpets with our soaps), going over the soaped portion with clean water and a sponge will make your carpet like new. Certain essential oils and antiseptic, deodorizing and disinfectant ingredients contained in our carpet soap and absorbed by the fibre serve to make carpets an undesirable dwelling place for moths and insects, germs and microbes.

Above are only a few of the many different ads. which will be found necessary in future to sell soaps.

Up to the beginning of the 20th century the sum and substance of the average soap advertisement was expressed in the words "Buy our soaps, they are the best in the world." Numberless variations of this phrase, together with so many changes in style and places where the announcement appeared, in newspapers, periodicals, on fences, walls, rocks, bill boards, etc., etc., together with calendars, hand bills, circulars, wrappers, labels, etc., etc., formed the "stock in trade" of the soap advertiser of the 19th century and they proved sufficient in many cases to enable their users to derive a comfortable income from the sale of the goods they praised and recommended. But the 20th century citizen will demand more, he will realize the fact that soaps are like people, with characteristics and properties varying in many ways; the best of their kind do not reveal their merits by appearance.

On the contrary, it will not be long before the public realizes that there are duds amongst soaps, too, and that it is very absurd to choose that class simply to discover that when their fancy dressings are removed there is precious little left of practical value. It may be well enough to purchase works of art, pictures, statuary, etc., etc., by appearance, handkerchief perfumes by their smell, but soaps will be bought by their purifying power and it will be the duty of progressive soap manufacturers to make their advertisements the school wherein the public is to be educated in the proper selection and use of soaps.

"The public won't read, much less understand ads. of that nature." Of course not, the masses will not stop to think over what they ought to know, but intelligent merchants, modern distributors will explain to their best customers verbally what they have learned from the ads. of manufacturers. The coming man wants "to know the reason why" he should do a certain thing. Those who believe then can "fool all the people all the time" by simply making claims for excellence of their goods, will find themselves the fooled ones in the end. Knowledge increases the value of all things, and of soap, too—consequently it is well to arrange ads. in the future with this object in view. To prepare them must necessarily
be the work of the experienced soapmaker; to distribute, to use them properly will have to be done by "distributors." "Merchants," as they are called nowadays, do not, as a rule, fully realize that their permanent success will be assured only if they render the best possible services to the public, and this cannot be done by simply handing over, in exchange for an equivalent, whatever the customers ask for. A more thorough knowledge of the goods—the soaps—a merchant handles, how they should be selected and handled, will fit him to do much more good in the world; for this purpose co-operation with the proper kind of manufacturers is necessary. Not foolish competition as is prevailing today, but co-operation amongst the various classes of business men is desirable, aye, urgently needed.

Ash of Commercial Glycerin.

Calixte Ferrier (Monit. Scient.) finds that the results obtained by different analysis in determining the ash of commercial crude glycerin are often very discordant, and that even when several determinations are conducted on the same sample by the same individual, concordant figures are not always obtained. This is doubtless due to the high temperature, measured by the eye alone, to which it is necessary to heat the mineral salts to burn off the last trace of carbon. He suggests that the following modification of the method usually employed should be adopted. Ten c. c. of the glycerin is first evaporated, avoiding spurtling, in a porcelain capsule; the water-free residue is then ignited and allowed to burn out. To the residue left, five or six c. c. of distilled water are added, allowed to digest for a moment, and then withdrawn by means of a pipette with capillary aperture, to prevent the particles of carbon from entering the tube. The aqueous solution is set aside, and the ash treated with a second similar portion of water. This is also removed in the same manner, and added to the first portion. The residual carbon is then dried and ignited, when it quickly burns off. The aqueous solution is added, evaporated to dryness, and the whole heated for an instant to dull redness. When cool the ash is weighed. This method is stated to give concordant figures. It is suggestive as being applicable to other substances of a similar nature which are difficult to "ash" to a perfectly white residue, without employing an unduly high temperature.

Determination of Glycerine in Soaps.

F. Jean has introduced a modification of the Laborde method of estimating glycerine in soaps and fatty substances, consisting in weighing the carbon produced by the action of sulphuric acid on glycerine at about 200° C. Ten grams of the soap under examination are dissolved in hot water, and a concentrated solution of zinc sulphate is added to the solution until the precipitate formed ceases to increase. The latter is then separated by filtration, and the filtrate is then heated on the water bath along with ten drops of concentrated sulphuric acid. Under these conditions there is no loss of glycerine. When the volume of the liquid has been reduced to about 2—3 c. c. it is treated with 5—6 c. c. of concentrated sulphuric acid, and, after fitting a tube, 50 c. c. in length, to the flask, the whole is heated to 150° C., the temperature being afterwards raised to 200° C.

When the carbonisation of the substance is completed, and the granules of carbon are found floating in the acid, 5 c. c. of HCl diluted to 50 per cent. are added, and heating is continued until white fumes are evolved. After cooling down, 100 c. c. of water are added, the whole being then boiled up again, and filtered through a flat filter. The carbon is washed, transferred to a tared platinum crucible containing a few drops of ammonium, and heated to near red heat, to drive off the sulphate of ammonia formed.

The reaction is expressed by the equation:

$$\text{C}_2\text{H}_5\text{O}_3\text{H} + \text{H}_2\text{SO}_4 = \text{C}_2\text{H}_5\text{SO}_4 + 5\text{H}_2\text{O}$$

which gives the factor by which the weight of carbon found must be multiplied in order to obtain the original amount of glycerine.—"Annales de Chimie Analytique."

Peanuts and Peanut Oil.

There are 4,000,000 bushels of peanuts raised in the United States and consumed by the American people; not as a regular article of food, but between meals. The cost of these nuts, to the consumers, ranges between $10,000,000 and $20,000,000 a year. The greater portion of the crop is raised in Virginia, Georgia, Tennessee and North Carolina, but a careful report, published by the United States Department of Agriculture in 1896 states that there is an abundance of good peanut land all along the Atlantic seaboard, from New Jersey to Florida, and also in the Mississippi valley, not yet used for this purpose. The peanut crop of this country, while fully supplying the peanut demand, constitutes but small portion of the peanut crop of the world, as the exportation from Africa and India to Europe amounts to about 400,000,000 pounds annually, and of this amount Marseilles takes from 200,000,000 to 250,000,000 pounds, most of which is converted into oil. The peanut crop of the world may be safely estimated as at least 600,000,000 pounds. Of this, the crop of the United States figured into pounds, equals 88,000,000, or about one-seventh of the total world’s crop.

It is in its ability to produce oil that the peanut crop of the United States will probably be of the greatest interest to the readers of this article. This oil is re-
garded as equal to olive oil, and it may be employed for every purpose to which that oil is employed. This oil forms from thirty to fifty per cent., by weight, of the shelled peanut; it has an agreeable taste and smell, and is more limpid than olive oil, which it very much resembles. It is sweet, palatable and clear, and, in fact, great quantities are used, unknown to the consumer, instead of olive oil. In India, Europe, Brazil and this country it is used medicinally in place of olive oil, and it is also employed by manufacturers as a substitute for the latter in fulling cloth. As a lighting fluid it lasts a long time, but does not give as clear a light as other burning oils. It is a desirable, non-drying oil of a light straw color, and it is for its oil that the nut is imported into Europe, many gallons being used in the manufacture of soap and as a lubricant in machine shops. Consul-General Mason, of Frankfort, in a report to the Department of State, says: "Cold-pressed oil of the first pressing of African or the best American peanuts is used in Germany as salad oil and for various culinary purposes. It ranges in price, wholesale, from $14.75 to $28 per 100 kilograms (220 pounds), or approximately from fifty-six cents to $1 per gallon, which is far cheaper than any edible quality of olive oil that can be imported, and sold in that country. The American peanut is larger, sweeter, and, when roasted, better flavored than any of the others, but its oil is of medium quality and ranks below the African, being worth about $15.50 per 100 kilograms, or fifty-nine cents per gallon."—Cotton Planters' Journal.

The Genesis of a Tablet of Toilet Soap.

During the past decade there has been a considerable development in the production of fine toilet soaps, and makers have vied with each other in offering to their customers an article which shall appeal to them by the daintiness of its packing, the delicate moulding of the cake, its coloring and sweet perfume, to say nothing of its good qualities as a soap. In this present article we purpose to describe in a practical manner the various operations incidental to the production of a fine cake of toilet soap.

The first step, that of boiling up the fat with the alkali, is a distinctly chemical operation, but the final ones partake of a mechanical character, and are carried out by the aid of machinery. If the soap maker aims at producing a perfect article, he must from the very beginning have the end in view. He must not make a wrong start and think that he can remedy any defect in the final operations, for that cannot well be done.

The principal fats used in making a toilet soap are tallow, lard, palm oil (either unbleached or bleached), olive oil and cocoa-nut oil. All these yield good hard soaps, free from any objectionable odor, and not liable to go rancid. They should be used quite fresh, be of good color, and free from any rancid odor. Tallow should be white and firm, cocoanut oil also white and sweet in smell, palm oil not rancid, olive oil of a clear yellowish color and sweet in odor, while lard should be white and firm. It is a good plan with all fats to subject them to a clarifying operation before they are sent into the soap kettle, and this can be conveniently effected by boiling over a salt brine for half an hour; it is surprising what a quantity of dirt and color such a treatment will often extract from apparently clean fats.

In these days when the glycerine of the fat is almost equal in importance to the soap, the soap maker is compelled to pay some regard to the production of a good quality of glycerine, and to do this it is wise to keep as much dirt and color out of the kettle as possible, for all such matter will find its way, first into the spent lye, and secondly into the crude glycerine.

With regard to the caustic soda, this, like the fat, should be of good quality. It is best to use the highest grade, 77/78% caustic, that can be got. Good soap cannot be made with anything less than 70%, and it is not easy to make a fine soap with that strength of caustic.

It is often customary for toilet soap makers to prepare stock soaps from the different kinds of fats and oils, and to amalgamate these in various proportions in the final stages of manufacture. The endeavor in making all these soaps should be to produce them as neutral as possible, and it is therefore advisable to fit them carefully. When working with high grade caustic soda and good fats it is possible to so proportion the caustic soda to the fat as to get a very neutral soap in the first instance. Tallow will take 16lb. of 77% caustic, olive oil 15½lb., palm oil 17½lb., and cocoanut oil 21½lb. per cwt. of fat. The boiling should be thorough, and carried on until the saponification is quite complete. Then the soap may be salted out, taking care to use a good quality of salt, allow the lye to thoroughly settle, and run it off for boiling down to crude glycerine. This lye will be of good quality, and fairly free from color and impurities if good clean fat and good alkali have been used.

After this it is well to give a boil on a salt brine, not too strong, but one which is just enough to keep the soap open, and there might be added a pound or two of caustic to ensure the saponification of any fat that may have escaped in the first boil; this brine liquor will serve for several lots of soap, but it must not be used if it gets dirty in any way. Next comes a final boil of the soap with a little water to close it up preparatory to running it into frames to set. This plan of working can be followed with all fats, due allowance being made for the varying proportions of caustic required, and the different degrees of strength of lye needed to start the saponification of different fats, tallow requiring a much
weaker lye than cocoanut oil, while palm oil comes between them in these respects.

It will be found best to work with open steam, and boil slowly, particularly at the start. When using pure and clean fats it is by no means easy to start the saponifying action, and it is not so much a question of excessive boiling as giving the fat and alkali time. If the soap boiler finds that his fat and lye do not seem to work together properly, he should add a little stronger alkali, and if he has any scraps of soap made from the same fats, some of these may be added to the pan; these dissolving in the lye help the saponifying by emulsifying the fat, enabling it to come more fully into contact with the alkali, and hence promote the chemical action between the bodies.

The toilet soap maker will always find it better to prepare his soap bases from different fats by separately boiling up, although, if so desired, there is no objection to mixing the fats together in any proportion before saponifying.

After the stock soap bases have been boiled up, salted out, and framed, the next proceeding is to cut them into thin slices, and for this purpose several machines are made, much on the plan of chaff cutters or revolving planes.

These soap chips are next dried, for as the soap comes out of the frames it is much too soft and pasty to work well in the various machines, and hence it must be dried to drive off the surplus water, and render the soap in fit condition for succeeding operations. Although the soap maker generally judges of the dryness of the soap not so much by actually ascertaining how much water the dried soap contains, but by a rough and ready test of how the soap chips break between the fingers and thumb, yet it is found that soap in good condition generally contains about 12 to 14% of water. The drying may be effected by placing the chips in shallow trays and putting these in a warm room heated by steam pipes on the floor, or, better still, by using one of Fraser's Soap Dryers, in which the soap is placed on trays and a current of hot air driven over it by means of a fan; such an arrangement dries the soap more rapidly, and is really more economical of time and labor than a simple drying room.

It is at this stage that any mixing of the stock soaps can take place, for the dried soap chips are most handy to weigh out, and it is at this stage also that any coloring or perfuming substances are added. When different soap stocks, etc., are mixed together it would be preferable to use a mixing machine, although most soap makers throw all into the hopper of the grinding mill, which consists of a number (usually four) of granite rollers fitted in line, and the soap chips, etc., are thrown into the hopper of this mill and delivered between the first and second of the rollers, where it receives a crushing, then it passes round the second, and between the second and third rollers, and receives a second crushing; the machine now carries it between the last two rollers, to receive a third and final crushing, after which scrapers remove it in the form of ribbons, which fall into a receiving tub placed below the mill.

During its passage through the rollers, a certain amount of amalgamation takes place between the ingredients put in the hopper, and there is also some small degree of heating, due to the friction which occurs between the rollers and the soap. The soap must be sent through the mill several times to get it thoroughly ground up, and all ingredients well amalgamated.

As regards mixing the various stock soaps together, the following are good proportions for several toilet soaps: Windsor soap—Tallow soap, 75 lb.; cocoanut oil soap, 25 lb.; palm oil soap, 25 lb. Citron soap—Tallow soap, 100 lb.; palm oil soap, 30 lb. Almond soap—Palm oil soap, 50 lb.; tallow soap, 75 lb. Flower soap—Tallow soap, 50 lb.; palm oil soap, 50 lb.; cocoanut oil soap, 25 lb. White Windsor soap—Lard soap, 25 lb.; tallow soap, 50 lb.; cocoanut oil soap, 25 lb. Orange soap—Palm oil soap, 100 lb.; tallow soap, 50 lb. Violet soap—Palm oil soap, 75 lb.; tallow soap, 25 lb. Rose soap—Tallow soap, 50 lb.; cocoanut oil soap, 25 lb.; palm oil soap, 50 lb.

The perfuming and coloring is done by different soap makers to their own fancy. Some try to obtain the effect they want with as few ingredients as they can, and no doubt this is the right way. Others, however, add a great variety of perfumes and coloring ingredients to a soap. Space does not admit of dealing with this subject here.

Following on the grinding comes the treatment in the squeezing, or, as it is called by soap makers, the plodding machine. Before it goes into this machine, it is necessary that the soap shall be quite cold, for there is a considerable degree of friction in this machine, resulting in some heating up of the soap, and this will tend to make it pasty, when it will not work well. Too much water in the soap will also tend to pasty working, and to cure this it is a good plan for the soap maker to have at hand a few very dry soap chips that he can throw in the machine from time to time as may be required. The object of the plodder is to mix and squeeze the particles of soap together, so as to make it hard and coherent. This is effected by an arrangement of a screw, which decreases in size from the entrance to the exit end of the machine, and the working of this screw forces the soap along the machine, always pressing it into a smaller and smaller space, until finally the soap emerges from the nozzle or mouth of the machine in the form of a compact bar of soap, the shape of which may be varied by using a nozzle of suitable form. The mouth of the
nozzle should be kept bright and highly polished, so that the surface of the bar of soap acquires a fine smooth surface that adds much to its appearance. By gently heating the nozzle, the polish on the soap is increased, but care must be taken to see that it does not get too hot, or the soap would stick in the nozzle, and not leave it properly; in which case, the bar is liable to have a streaky surface. Experience is the great teacher in the proper working of the plodder; different machines, although by the same maker, will vary somewhat in their working, while different kinds of soap will also necessitate some variation in the running of the machine. All these points cannot easily be described or dealt with on paper, but must be found out by practical manipulation, and careful observation from time to time of working different soaps under different conditions of speed, dryness, heat, etc.

After running through the plodder, the bars or rods of soap should be placed on one side so that the surface becomes hard before proceeding to the stamping. It is a good plan to cut the bars up into cakes of a suitable size for the molds, as all the outer surfaces will then get uniformly hard.

Of the stamping little need be said, for it is purely a mechanical operation needing but little care and supervision, and few problems arise in carrying it out. All molds should be kept clean and bright, to ensure that a good polish is produced on the soap, and that the cake leaves the mold clean. It is scarcely necessary to point out that the design on the mold must be cut with clean edges, which are not undercut; very fine lines should be avoided, as they tend to get lost in the process of taking the cake from the mold. A little brine brushed over the mold from time to time will help to prevent sticking.—Chemical Trade Journal.

The Cocoanut Industry in Goa.

The Times of India states that an industry enterprise has been set afoot in Goa which should exercise a bracing influence upon the fortunes of the colony. One great hindrance to the development of the export trade has been that whilst cocoanuts are grown in large numbers, the price has declined until their export is barely profitable. No effort has hitherto been made to find new markets or exploit the industry locally, but a syndicate of wealthy Bombay merchants has recently decided to erect a coir and rope factory at Mormugao, and utilise the other products of the cocoa palm. Plant will be laid down to treat from twenty-four to thirty lakhs of husks annually, and convert the nut into copra, or export it in the form of oil. A factory upon this scale would absorb all the cocoanuts Goa produces.

Silicate of Soda.

A correspondent asks us: What is the Chemical Formula for Silicate of Soda? Our reply must be, that there are several silicates of soda, and unless we know more definitely which of them our correspondent alludes to, we are afraid we cannot answer his query.

There are two silicates of soda, however, well known in commerce, the first of which is obtained by fusing pure silver sand with an excess of soda ash, or with an excess of sulphate of soda and slack. Its formula is Na₂SiO₃ or Na₃O₂SiO₅. It is much more soluble in water than the ordinary “soluble glass,” and when a solution of it is boiled with milk of lime, double decomposition sets in, a solution of caustic soda being formed and an insoluble silicate of lime produced, which settles down, leaving the clear solution of caustic soda, supernatant.

The proportion of raw materials used in this ease is eleven cwt.s. of ammonia-soda ash and six cwt.s. of clean silver sand.

The ordinary “soluble glass” of commerce is made by fusing together equal weights of the best soda ash and silver sand. The formula is Na₂SiO₃ or Na₃O₂SiO₅. An analysis of one of the best qualities in the market, in solution, gave the following figures:

- Water ................. 44 30
- Sodium oxide .......... 18 80
- Sodium chloride ....... 1 20
- Sodium sulphate ...... 1 34
- Silica ................. 32 60
- Alumina and iron oxide... 0 60

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98 81

Chemical Trade Journal.

To Determine the Height of Liquid in a Cask.

In order to ascertain how far the liquid reaches in a keg, says Deutsche Destillateuren Zeitung, the following simple method may be employed:

Take a glass tube, bent at right angles, whose long leg is equal to the height between the bunghole and the upper floor, while the shorter one need only be a few inches in length. The shorter end is now connected with the bunghole by a piece of rubber hose, the longer one is placed in a vertical position and the bunghol is opened. According to the law of communicating vessels, the liquid will rise in the tube to exactly the same height as in the cask, so that the level of the fluid can be ascertained with great accuracy.
Crude Glycerine.

BY GEO. H. HURST, F.C.S.

Glycerine has of late years grown into a very useful article, and the demand for it has considerably increased. Its sole source at the moment is the various animal and vegetable fats and oils so bountifully provided by nature, so far no artificial methods of preparing it having been devised. In the process of soap-making the glycerine is liberated from the fats and oils, and finds its way into the spent lyes which were often thrown away, but the demand for glycerine, and the high prices it brings have caused soap makers to turn their attention to methods for extracting it from their spent lyes. If even they do not go so far as to produce "chemically pure" glycerine, which necessitates the employment of costly plant, yet they obtain "crude" glycerine, for which there is a good demand. This article brings from £28 to £35 per ton on the market at the present moment. A buyer of "crude" glycerine pays regard to many points, first color and odor. To bring a good price, a crude glycerine must have a pale color and be sweet in odor, indicating that it is free from objectionable animal and organic matters that are often present in dark-colored and evil-smelling samples. Then it must contain not less than 80 per cent. glycerine, not more than 10 per cent. salts, be free from arsenic, free from sulphites and hyposulphites. The presence of these impurities, even in small amounts, materially affects the value of crude glycerine, so that while one that is fairly free may bring £35 per ton readily, another containing them will have difficulty in selling at £28 per ton, or even less.

When arsenic is present it prevents the crude from being refined into "chemically pure" glycerine for medicinal purposes, for there is really no known process which will entirely eliminate it from the crude glycerine when it once gets in. The presence of sulphides, sulphites, and hyposulphites in too large quantities is objectionable, for two reasons: Firstly, it is difficult to eliminate them, and when they are in the glycerine they produce objectionable products during the process of refining, that impart a bad taste and odor to the glycerine. Further, a large quantity of the crude is used for the purpose of making nitro-glycerine for explosive purposes, and sulphur compounds have been found to introduce difficulties in the way of producing a satisfactory explosive. It is obvious, therefore, that the soap maker when he intends to recover his glycerine and wishes to obtain the best price for his crude, must endeavor to keep them out.

How can this be done? Only by looking after a multitude of small points, by keeping constantly before him in all his workings the end he has in view, viz., the production of a good crude glycerine. The impurities, arsenic, sulphur, sulphites and hyposulphites we have referred to, can only be kept out of the glycerine by one thing, seeing they do not get in in the first instance, for the process of concentrating the spent lye to the "crude" will neither introduce them nor remove them. The soap maker must use good, clean fats and oils. Before putting them into his soap pan he ought to clarify them to get as much dirt and color out as possible. He must not saponify rosin along with the fats, because rosin is a great cause of color getting into the lye, and it adds nothing to the quantity of glycerine in the lye, therefore keep it out. If it is to be added to a soap put it in in the cleansing and fitting boils. The caustic soda used should be pure, and it will be best to use high strength caustics. The low strength caustics invariably contain sulphides and sulphites, and it is through using such that these impurities are liable to get into the crude glycerine, and the only way of keeping them out is to use the high strength caustics.

To keep down the proportion of salts in the crude glycerine is to work with as strong a lye as is possible, to prevent the lye getting too diluted during the process of boiling by too much condensed water getting into it, using again high strength caustics for the low ones contain "salts" as impurities. And lastly, using as little salt as possible in the cutting out of the soap.

In the process of recovering the crude from the spent lye it is customary to add, either sulphuric or hydrochloric acid, to neutralize any excess of alkali used in the boiling of the fats, and to free the lye from any fatty matter that may be in it. It is desirable here to use pure acids, the difference in cost is not great over using the common acids, while the risk of introducing arsenic and other impurities is much lessened. It is from the acids used that any arsenic is liable to get into the crude glycerine, and so due precautions ought to be taken to see that the acids are free from this deleterious article, and it would be worth while to test every batch of acid as it comes into the works to see that it is free from it.

Lastly, in boiling down and concentrating the spent lye always carry on the operation until it has a strength of 60° to 62° T. w. and then in nine cases out of ten the right strength will be secured, and crude containing 80 per cent. of glycerine will be obtained.

We have thus indicated the points to be attended to in order to ensure that the soap maker will be able to produce a crude glycerine that will always command a ready sale and bring a big price in the market.—Soapmaker & Perfumer, England.

The soap factory at Cuero, Tex., previously mentioned in this column, is said to have nearly completed its preparations for business.
Liquid Glue from Bone Glue.

By Hugo Borntraeger.

As is well known, bone glue in its ordinary state is not suitable for liquid glue for three very cogent reasons:

1. It gelatinizes at 60° Bi.
2. It readily becomes mouldy when liquid.
3. It possesses a very unpleasant, strong odor.

It is true, its adhesive power excels almost any other glueing agent, for which reason nature has selected it for holding together our whole organism. It does not only permeate our bones and those of animals, but is also present in the blood, holds together the bone particles, causes wounds to coagulate, etc. A bone from which the glue has been extracted has lost its firmness. Young creatures contain almost double as much gelatin as old ones, for which reason everything heals much easier with young people and the bones are firmer, than in old persons or animals.

In short, the adhesive qualities of glue play an important part in the animal organism.

Now, then, how is crude joiner's glue produced from bones, converted into a nice, durable, and well-binding liquid glue of pleasant odor?

The transformation is very simple. Dissolve 250 grams of joiner's glue in 1,000 grams of hot water, add to this solution about 9% Bi in strength, a mixture of 10 grammes of barium peroxide stirred in 5 grammes of sulphuric acid (60%) and 15 grammes of water and heat for forty-eight hours in the water bath to about 80°C.

Strange to say, sulphurous acid is generated thereby and the glue loses its property to gelatinize; it assumes a pleasant odor, strongly reminding of syrup, and does not grow mouldy even upon exposure to the air for months, if evaporated down to about 500ccm. It is very adhesive and of a faintly acid reaction.

Dried in lamellae, it greatly resembles gum arabic and constitutes at all events an excellent substitute for same. Dextrine cannot be compared to it as regards adhesive qualities. A kilogram of this liquid glue costs, including all expenses of manufacture, about 25 pfennigs (6¢), hence a little bottle of 50ccm. (cubic centimetres) about 1.25 pfennigs, which is certainly low.

I have not investigated whether hydrogen peroxide and sodium peroxide are just as suitable for use, but it is to be presumed that such is the case. Sodium peroxide, owing to the presence of iron and soda, the worst of all bleaching and oxidizing agents, while hydrogen peroxide is the pearl of all bleaching mediums, since it leaves no residual behind, with the exception of traces of phosphoric acid, which, however, need not be considered.

I would still mention that upon treating dextrine solution with hydrogen peroxide in acid solution the dextrine solution becomes very viscous on evaporation, much more so than otherwise, and that it does not turn mouldy any more.

The oxidizing oxygen renders the bone glue in the "stati nascendi" odorless, it also destroys its gelatious character and increases the adhesive power of the dextrin. The preserving effect I do not ascribe, in either case, to the oxygen, but to the free acid, which renders putrefaction impossible, since as little as 0.1% of mineral acid prevents all putrefaction.

It is worthy of mention that in treating the glue with barium peroxide and sulphuric acid, considerable quantities of the precipitating barium sulphate will dissolve again in the glue, in the same manner as a strong cane sugar solution, according to my researches, will entirely prevent the precipitation of barytes with sulphuric acid, also that in bleaching large quantities of lime phosphate will separate, provided that the glue receives no acid treatment with bleaching agents, but a neutral or alkaline one.

I have also determined that natural glue has a strong acid reaction, owing to the presence of acetic acid, lactic acid and butyric acid, and that it gelatinizes only when acid or neutral.

Made alkaline, it no longer gelatinizes, and also begins to putrefy soon, much sooner than otherwise.

Ordinary bone glue is cleaned considerably by rendering it alkaline with ammonia, heating to about 80 degrees C. and letting stand for about twenty-four hours.

All mineral ingredients will separate, which can be eliminated by pouring off the liquor, since they would otherwise settle to the bottom, and there only remain to be bleached the meat extract and the organic dyestuffs.

Since in this case, like in almost every color, iron plays the chief part, it will be easily seen that a simple bleaching with sulphurous acid, as is generally practiced today, can have no effect, as it does not remove the ferric oxide or at most reduces it to protoxide. The only advantage afforded by a bleaching with sulphurous acid is that a glue bleached in this manner can never putrefy in consequence of the sulphuric acid forming, and that it gelatinizes very well.—Oesterreichische Chemiker Zeitung.

An Australian Society of Chemical Industry.

A meeting was held on August 7th at Melbourne for the purpose of inaugurating the Society of Chemical Industry of Victoria. Professor Orme Masson occupied the chair. The principal object of the association are: (a) To afford its members opportunities of meeting and discussing matters connected with applied and industrial chemistry; (b) generally to advance the cause of chemical industry in Victoria; and already no less than 105 gentlemen have given in their adhesion.
Laundry Chemicals.

The ordinary laundress, says Kate May, in the Bazaar, Exchange and Mart, is usually credited with using a lot of dangerous chemical preparations which rot the articles entrusted to her care, but more often than not the large laundries are equally as bad, while in some instances they are worse, as materials are used in such places which are unobtainable in small quantities.

“No chemicals used” is a falsehood when applied to any large or small laundry. On the other hand, “No injurious chemicals used” would possibly be true, and, in fact, should be true; but, better still, would be a notification of “No chemicals used injuriously,” if such were acted up to, because it is not only what is used, but how it is used that causes the trouble. Nearly everything employed in a European laundry can be used to the injury of the fabrics dealt with; hence the application of the quotations just given.

Generally speaking, “chemicals” are supposed to be something which are manufactured, as against those which occur in a ready made condition. Coal, coke, water, clay and the like are not chemicals from the ordinary point of view; but, on the other hand, aniline, alum and the like become at once “chemicals,” because they are made. Peroxide of iron would be termed a “chemical,” but call it iron ore, and “Of course it is not a chemical” comes out at once.

No private persons use “chemicals” in their washing—they could not think of such a thing, as a matter of course; but while they only use soap, soda, starch and blue and a little borax, they are using nothing else than the much-talked-of “chemicals,” as everything is manufactured by processes devised by chemists, and usually superintended by them. The term is altogether a wrong one, and has only a fancied significance, rather than a real one. We have heard persons say that they only use “natural” soap, and have found out that they meant some make of ordinary bar soap of possibly fair purity; but that soap was not natural—it was fat of some kind, chemically saponified by the addition of an alkaline lye, and really was composed of fat, water and alkali in a state of chemical combination. When persons say they use no chemicals in the laundry, they therefore tell an untruth, unintentional, no doubt, but still the false statement remains.

Soap is, of course, used by nearly everyone, or otherwise a chemical substitute is adopted, the object being to soften the dirt and assist in its removal. A good soap should be neutral—i.e., neither acid or alkaline—but the whole of the fat used should be saponified, otherwise in hard waters further chemical reactions are set up, with rather unpleasant results. As to which is the best soap on the market, that is open to controversy, and there are, no doubt, more than a few makes which may be classed as good laundry soaps, but private likes and dislikes have much to do with which make, or brand, is used. Soap substitutes are not, as a rule, soap in the general acceptance of the term, and are really not desirable in the laundry.

Soda is carbonate of soda plus water of crystallization, and is really more necessary for water softening than anything else, although when used to excess it bleaches and rots all fabrics, being more destructive to animal than to vegetable fibres.

Starch is prepared from rice or maize, and although in some cases chemically treated, is usually only the clean starch granules extracted from the grain, the other parts being used for various purposes. At the same time it will be found that some brands are better than others for particular purposes, and for this reason laundresses select the makes of starch which suit them best. Starch is merely a stiffening material, and fabrics which are too highly stiffened are liable to have the fibres broken when, as in collars, they are bent at sharp angles. In itself, starch is not injurious to fabrics if not employed to too great an amount, but when used in excess injury is often caused.

Blue as used in washing may be made from indigo, or from some salts of iron, and although possibly not injurious to fabrics in itself, yet it may cause the use of bleaching materials eventually, as indigo will darken the fabrics and iron salts give them a yellow tinge in course of time. The real use for blue is to correct the yellow tinge caused by imperfectly rinsing the soap and water containing soda from the fabrics, but too often its use actually defeats the purposes for which it is intended. In some cases aniline blues are used, but these prove no more satisfactory than others. The use of blue is a thing that can scarcely be avoided in modern practice, however, and the only point to be considered is that of securing some standard brand, and to use as little as possible, rinsing the dirt out of the fabrics in preference to using an excess of blue to hide it.

Borax, or bichromate of soda, is used for softening water chiefly, and to some extent as an addition to starch to assist in glazing or polishing, and has little or no effect on ordinary fabrics. Its use is not proportionately large, on account of its cost, but in cases where the expense is not considerable on account of the smallness of the amount of work to be done, borax may well be employed in place of soda.

Stearine, wax, tallow, turpentine, and one or two similar things are used with starch to assist in ironing, but these have practically no effect on the linen, and but little useful effect in regard to the purpose for which they are used, except, perhaps, to somewhat reduce friction and lessen labor.
So far, the preceding are all the necessary chemical preparations for laundry use; but in some places other things are employed, and these are, without exception, more or less injurious to fabrics. Caustic soda and potash liquors tend to destroy most fabrics, as do also mixtures of soap, soda and lime, for although they bleach more or less, they do not remove dirt.

Chloride of lime (calcium hypochlorite) is about the most common bleaching material used, and although in some cases its use might be permissible, as a general thing it should be avoided, as even in small quantities it renders vegetable fibre brittle. This material is persistent in its action, and when used must be thoroughly rinsed out of the fabric, or its action will continue as long as there is any moisture, and in the result the article falls into holes. The best method is to add one-half pound of the lime to a gallon of water, and after stirring well, allow it to stand for some hours to settle. It is then carefully skimmed, and the clear liquor decanted off and stored in clean glass bottles well corked, and about one-fourth pint of this liquid to from fifteen to twenty gallons of water is sufficient, although usually a greatly increased quantity is used.

Caustic soda and caustic potash are both used in some places, because they rapidly saponify fats and greases, and have in addition strong bleaching powers. These substances destroy all animal fibres, and seriously injure vegetable fibres, rendering them brittle and soon liable to break into holes. As a matter of fact, they should not be used for laundry purposes, as, although they save labor, they destroy the fabrics to which they are applied.

Several of the washing powders have a very bad action on the fabric to which they are applied, and consequently they should not be used. They save labor at the cost of materials. Washing liquors, as generally made up, are both caustic and injurious to fabrics. A great many of them are composed of soda or potash and lime, and as made will destroy both animal and vegetable substances. Of course, in using such liquors they are reduced in strength very considerably, and as a consequence their destructive action is delayed, but still their continued application has due effect in time, and the articles submitted to their action fall to pieces far sooner than they should do.

**Pumice Stone and Pumice Soap.**

*By Arthur Morris, in Oils, Colors, and Dyesalteries.*

This rock is a volcanic product, and comes chiefly from the neighborhood of the burning mountains of the Mediterranean, principally from the Lipari Islands. Some also comes from the Canary Islands. It is apparently very light, but its substance is practically as heavy as chalk. A piece of that rock as full of air-cavities as a piece of pumice would be but very little heavier than the latter, if of the same size as it. The specific gravity of pumice is often nearly as great as that of granite. This is not so wonderful when we consider that pumice was originally compact rock, which has had steam blown through it while it was in the molten state, till it was full of bubbles and tubes connecting them. Artificial rock closely resembling natural pumice has several times been made by carrying out the above process on a small scale. If the steam is blown through the fused rock with too much force, the liquid is drawn out into long glassy threads, which, when cold, constitute what is well known as slag-wool. The conditions that produce the rock we call pumice being, as above shown, mainly of a physical kind, we should expect that it could be produced by nature from more than one kind of fused rock, and that idea is fully borne out by the variety of composition which it shows on analysis. It always, however, contains a large percentage of silicate of alumina. The properties which are important, i.e., those which are most nearly concerned with its uses, are, as will be evident when we describe those uses, its insolubility and unalterability, its hardness (it is nearly as hard as glass), its porosity, and, to a less degree, its lightness. Its white or grey color is practically due solely to its permeation by air in every part, and is independent of the color the liquid in mass may be. The name “pumice” is no doubt derived from the Latin *pumana*, meaning froth or foam.

Pumice us used largely for polishing. Among the substances which it is used to polish may be mentioned slate, marble, and lithographic stone; metals and glass; wood, ivory, horn and bone; and also leather. It is almost the only substance used for surfacing parchment and vellum, as it possesses just the right degree of hardness for the purpose. It is employed to a small extent for removing corns and other callusities of the skin.

The abrading powers of pumice are also taken advantage of in the manufacture of certain special soaps (pumice-soaps, *savons ponce, bismalineifen*), which act exactly after the fashion of polishing pastes, which also contain mechanically vast numbers of hard and very minute particles, which do the work, and for which the other ingredients serve simply as a vehicle. The following are some of the most approved recipes for pumice soaps. In all of them, the pumice must be of the finest possible powder:—

1. Cocoanut oil ............ 64 lbs.
   Caustic soda lye, 40 deg. B 160 lbs.
   Pumice .................. 40 lbs.
   Thyme oil ............... 6 oz.
   Bergamot oil ........... 2 oz.
2. Cocoanut oil 4,000 lbs.
   Caustic soda lye, 38 deg. B 2,000 lbs.
   Pumice 2,000 lbs.
   Thyme oil 10 lbs.
   Lavender oil 5 lbs.
   Kummel oil 6 lbs.

3. Cocoanut oil 2,500 lbs.
   Caustic soda lye, 38 deg. B 2,500 lbs.
   Pumice 4,000 lbs.
   Aniseed oil 12 lbs.
   Clove oil 1 lb.

4. Cocoanut oil 120 lbs.
   Caustic soda lye, 38 deg. B 152 lbs.
   Waterglass 120 lbs.
   Pumice 32 lbs.
   Sand 136 lbs.
   Indigo 4 ozs.
   Aniseed oil 25 ozs.

5. Cocoanut oil 4,000 lbs.
   Caustic soda lye, 38 deg. B 2,000 lbs.
   Pumice 1,000 lbs.
   Lavender oil 25 lbs.
   Kummel oil 6 lbs.
   Cassia oil 2 lbs.

6. Cocoanut oil 4,000 lbs.
   Caustic soda lye, 38 deg. B 2,000 lbs.
   Pumice 4,000 lbs.
   Rosemary oil 5 lbs.
   Lavender 10 lbs.

7. White tallow eurd soap 1,500 lbs.
   Cocoanut soap 500 lbs.
   Pumice 1,000 lbs.
   Lavender oil 12 lbs.
   Geranium oil 3 lbs.

8. White tallow eurd soap 10 lbs.
   Cocoanut soap 3 lbs.
   Pumice 14 lbs.
   French lavender oil 2 ozs.
   Geranium oil 1 oz.

9. White eurd soap 2,000 lbs.
   Pumice 800 lbs.
   Lavender oil 10 lbs.
   Thyme oil 3 lbs.
   Kummel oil 3 ozs.

10. White tallow grain soap 3,000 lbs.
    Cocoanut soap 1,400 lbs.
    Pumice 5,000 lbs.
    French lavender oil 50 lbs.
    Bergamot oil 24 lbs.

It will at once appear from these receipts that the first six have to do with the incorporation of the pumice with the soap during its manufacture, the last four with its addition to the previously finished soap. The latter is probably the better method of procedure. The soap is milled with the pumice, both in the solid state, till an intimate mixture has been produced. The mass is then again moulded into bars. In this way it is far easier to get a perfectly uniform product. When the pumice is mixed in with the liquid fats and lye it is extremely difficult to prevent the pumice from settling to the bottom during the long process of boiling. Of course, the most indefatigable stirring is required from the very beginning to the time the soap is set in the moulds.

For polishing purposes pumice is used either in the lump, or as a fine powder in a loose state, or the powder is glued on to sheets of paper, exactly as sand or glass paper is made.

Fertilizing Materials.

(Continued.)

BRAND NAMES.

In few instances is the composition or character of these materials, containing, as they do, almost every practicable amount and proportion of plant-food in the different forms—in few instances is it accurately designated by the brand name. Manufacturers by no means agree as to the true formula for a “Potato Manure,” for instance: “Dissolved Bone Phosphate” does not necessarily imply that a trace of bone has been used in its manufacture; “Ammoniated Bone Superphosphate” may contain bone, but does not indicate that it often contains potash, and many brands could easily be mistaken (from a consideration of name alone) for pure bone meal.

The necessity may be seen, therefore, of the published statement of analysis or guaranteed composition of each brand, which is required by law, and the importance of a conformity of the actual composition with it.

GUARANTEED AND ACTUAL COMPOSITION.

The fertilizer law of New Jersey requires that every commercial fertilizer which is not an imported guano, and which shall be offered for sale in this state at a price exceeding one-half cent per pound, shall be accompanied by an analysis stating the percentage therein of ammonia, or its equivalent of nitrogen; or potash, in any form or combination, soluble in distilled water, and of phosphoric acid in any form or combination; the portion of phosphoric acid soluble in distilled water; that portion soluble in a neutral solution of citrate of ammonia at a temperature not exceeding 100 degrees Fahrenheit, and that portion of phosphoric acid not soluble in either of the above-named fluids shall each be determined separately; and the material from which the phosphoric acid is obtained shall also be stated. A legible statement of such analysis shall accompany all packages or lots of over 100 pounds sold, offered or exposed for sale.
With two exceptions, all of the brands examined this year have been accompanied by a guarantee. In the tables of analyses which follow, it will be noticed, however, that in the case of three-fifths of the brands the guarantee of phosphoric acid is defective, either available or total phosphoric acid alone being guaranteed. The absence of guarantee of total in certain instances is commercially not of great importance, since the difference between its figures and those of the available gives the amount of insoluble, which is comparatively inexpensive. Agriculturally, however, when consumers scrutinize guarantees, in order to select brands in which the quickly-available phosphoric acid is accompanied by a desired amount of more slowly-available phosphoric acid, the guarantee giving this information is of particular value. But when, on the other hand, total phosphoric acid alone is guaranteed, there is no information whatever afforded as to its availability—a very important matter in the choice of a fertilizer. Attention was first called to this point in 1897, when the number of cases was 21. In 1898 there were 13; in 1899, 12; and in the present report there are but 4 such cases. In certain ones a low available should be expected from their brand names; for example, "Fish and Potash," "Pure Bone Phosphate," etc. The reverse is not true, however, for purchasers have no reason to expect high availability in any brand simply because its name should happen to suggest it, or because other manufacturers put out material under the same brand name which has high availability. Consumers should request a compliance with the law in all respects before they consent to purchase.

The average amounts of plant-food guaranteed in the brands, and the average amounts found by analysis, are as follows:

<table>
<thead>
<tr>
<th>Brand</th>
<th>Nitrogen</th>
<th>Available Phos. Acid</th>
<th>Actual Phos. Acid</th>
<th>Potash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8.11</td>
<td>7.77</td>
<td>52.1</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>2.30</td>
<td>8.44</td>
<td>5.89</td>
<td></td>
</tr>
</tbody>
</table>

From this it is evident that the fertilizers examined this year furnish, on the average, the amount of plant-food which they guarantee. A detailed examination of the tables shows, however, that many brands are furnishing much more than they guarantee, and thus cover up, in a consideration of averages, the shortcomings of others. It is poor comfort to a purchaser of one of the latter to hear that fertilizers, on the average, are up to guarantee, because what he loses his neighbor, perhaps, receives. Nevertheless, a scrutiny of the analysis of each brand, and a careful comparison of its actual composition with its accompanying guarantee, show that about 87 per cent. of them contain as much total plant-food as is claimed, but in only 71 per cent. of them is it distributed in the proportions which are stated. This is an improvement over last year, when the latter figure was 69 per cent., which was itself an improvement over 1898, when it was 66 per cent.

2. THE EXAMINATION OF HOME MIXTURES AND SPECIAL COMPOUNDS.

Home mixing has been carried on with entire satisfaction by a number of farmers for several years. The Station has encouraged these efforts as of value to the individuals themselves and an object-lesson to their neighbors, since it renders them familiar with the kinds and forms of plant-food, teaches them to think of pounds of nitrogen, phosphoric acid and potash, rather than tons of a particular phosphate, and in general unfolds the mystery which envelops the make-up of fertilizers in the minds of many.

For similar reasons, the Station has assisted by making the analysis of complete fertilizers specially compounded for farmers by the regular manufacturers. In the case of most of these mixtures, the analysis desired, or the raw material to be used, was specified by the purchaser and guaranteed by the manufacturer. The ingredients used in the home mixture and special compounds were, so far as reported to us, as follows:

<table>
<thead>
<tr>
<th>Composition of Home Mixtures</th>
</tr>
</thead>
<tbody>
<tr>
<td>9532.</td>
</tr>
<tr>
<td>434 lbs. Crude Fish.</td>
</tr>
<tr>
<td>1041 &quot; Acid Phosphate.</td>
</tr>
<tr>
<td>522 &quot; Potash Sweepings.</td>
</tr>
<tr>
<td>200 lbs. Sulfate of Ammonia.</td>
</tr>
<tr>
<td>300 &quot; Dried Blood.</td>
</tr>
<tr>
<td>400 &quot; Steam Bone.</td>
</tr>
<tr>
<td>800 &quot; Acid Phosphate.</td>
</tr>
<tr>
<td>400 &quot; Muriate of Potash.</td>
</tr>
<tr>
<td>0105.</td>
</tr>
<tr>
<td>9771.</td>
</tr>
<tr>
<td>200 lbs. Sulfate of Ammonia.</td>
</tr>
<tr>
<td>300 &quot; Dried Blood.</td>
</tr>
<tr>
<td>400 &quot; Steam Bone.</td>
</tr>
<tr>
<td>800 &quot; Acid Phosphate.</td>
</tr>
<tr>
<td>400 &quot; Muriate of Potash.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Composition of Special Compounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>0052.</td>
</tr>
<tr>
<td>200 lbs. Tankage.</td>
</tr>
<tr>
<td>500 &quot; Dried Blood.</td>
</tr>
<tr>
<td>600 &quot; Double Sulfate of Potash.</td>
</tr>
<tr>
<td>0488.</td>
</tr>
<tr>
<td>100 lbs. Nitrate of Soda.</td>
</tr>
<tr>
<td>300 &quot; Tankage.</td>
</tr>
<tr>
<td>300 &quot; Steam Bone.</td>
</tr>
<tr>
<td>200 &quot; Dried Fish.</td>
</tr>
<tr>
<td>300 &quot; Acid Phosphate.</td>
</tr>
<tr>
<td>300 &quot; Muriate of Potash.</td>
</tr>
<tr>
<td>0411.</td>
</tr>
<tr>
<td>100 lbs. Nitrate of Soda.</td>
</tr>
<tr>
<td>300 &quot; Tankage.</td>
</tr>
<tr>
<td>400 &quot; Ground Bone.</td>
</tr>
<tr>
<td>600 &quot; Acid Phosphate.</td>
</tr>
<tr>
<td>400 &quot; Bone Black.</td>
</tr>
<tr>
<td>100 &quot; Muriate of Potash.</td>
</tr>
</tbody>
</table>

The components of the remainder of these samples were not given to the Station. The agreement of the actual composition with that guaranteed or expected, is in most cases very good. There are a number of instances in which the amount found is deficient, indicating either that the mixing has been imperfect, or that the ingredients themselves contained less plant-food than was expected. In two samples, Nos. 0117
and 0118, the source of the nitrogen was to be 100 pounds of nitrate of soda and 500 pounds of tankage in the one instance, and 50 pounds of nitrate of soda and 500 pounds of fish and tankage in the other instance. Analysis shows that the manufacturer actually used sulphate of ammonia instead of nitrate of soda, using over 250 pounds in No. 0117, and over 200 pounds in No. 0118. This is all the more worthy of note, because in the open market sulphate of ammonia, as a source of nitrogen, is nearly 22 per cent., and has been nearly 30 per cent. more expensive than nitrate of soda. Their efficiency, agriculturally, is about the same under average conditions.

The most striking fact which may be learned from the tabulation (which appears on a subsequent page), is the verification of the claim that manufacturers will not only sell unmixed materials, but also the completed mixtures at or under the Station’s valuation, for the average valuation and selling price of the home mixtures and of the special compounds are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Home Mixtures.</th>
<th>Special Compounds.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average valuation</td>
<td>$26 35</td>
<td>$32 24</td>
</tr>
<tr>
<td>Average price</td>
<td>23 40</td>
<td>21 46</td>
</tr>
<tr>
<td>Difference</td>
<td>$2 95</td>
<td>$0 78</td>
</tr>
</tbody>
</table>

This indicates the advantage of either home mixing or of special mixing by the manufacturer to suit the wants of the consumer. The saving by these methods is great; to use them to advantage, however, the farmer must have definite knowledge as to the requirements of his soils and crops, and in fulfilling the same must use business-like methods in the purchase of his fertilizer supplies.

(To be continued.)

Milk of Roses and Elder.

Spermaceti 24 grs.
White soap in powder 1½ drms.
White wax 1½ drms.
Almond oil 1½ ozs.
Jordan almonds 6 ozs.
Rectified spirit 4 ozs.
Distilled water 1 pint.
Otto of rose 5 drops.
Oil of neroli 10 drops.
Essence of jasmin 1 dram.
Essence of white rose 1 dram.

Blanch the almonds and beat them into a smooth paste, adding some water gradually to form a thin cream. Melt the spermaceti and almond oil together, and to this add the soap, previously rubbed down with one-half ounce of water. The oils and essences mixed with the spirit are then gradually added with portions of the water.—British and Colonial Druggist.

Around the Soap Factories.

News items sent us by our readers will find prompt attention in this column.

The firm of George Delano’s Sons of New Bedford, Mass., makers of whale oil soaps and candles, is announced to be in process of dissolution. The extensive plant, we understand, is to be operated by Young & Kimball of Boston.

Among the newly incorporated firms is the Brooklyn Glycerine Manufacturing and Refining Company, at Brooklyn, N. Y. Capital, $10,000.

The New York Petroleum Soap Co. has established a shipping depot in Chiengo for Western trade.

Fire last month damaged the plant of the New York Petroleum Soap Co., at Jersey City, to the extent of $20,000.

The New York Manufacturing Co. at Jersey City, N. J., is a new incorporation for the manufacture of polishing powders, etc. Incorporators: Peter Whitney, R. Dougherty, and George Willis.

At the last meeting of the Manufacturing Perfumers’ Association, on February 13, the following officers were elected: James E. Davis of Detroit, president; Gilbert Colgate of New York, vice-president; Ad. Spiehler of Rochester, N. Y., second vice-president; Monroe P. Lind of Philadelphia, secretary; Harry Woodworth of Rochester, treasurer.


About twenty-five members attended the meeting.

A company is being organized to take up the manufacture of soap in Corsicana, Texas.

The Dingman Soap Co. of Buffalo sustained quite a loss by fire in its office last month.

The Puck Soap Co. has been incorporated at Des Moines, Iowa, with a capital stock of $60,000, and has bought the plant of the Des Moines Soap Works.

Fels & Co. announce: The continued large increase in the sales of Fels-Naptha soap makes necessary a closer union between the manufacturing department and the offices, and we beg to advise you of the removal of our offices from 1710 Market Street to our new office building at the Works, 73d and Woodland Avenue.
Analytical Rates.

ESTIMATION OF ALKALI CARBONATES IN THE PRESENCE OF BICARBONATES.

By Frank K. Cameron.

(Continued.)

An interesting extension of the method has been developed in the course of our work. It is frequently necessary to make a rapid determination of the chloride as well as the carbonates in solution. This may be done in the following way: As soon as the solution containing the carbonate has been titrated to neutral action with acid potassium sulphate, a drop or two of this reagent is added in excess to retard the inversion of the bicarbonate to the normal alkaline carbonate. A small amount of a solution of potassium or ammonium chromate is then added as an indicator, and the solution titrated at once with a standard solution of silver nitrate. Before titrating with the silver nitrate, the solution may be boiled, in which case the inverted carbonate must again be neutralized before making the determination for the chloride. But little advantage is gained thereby, however, and results in every way satisfactory have been repeatedly obtained, working throughout at the room temperature. For instance, a solution (tenth normal) of sodium carbonate was prepared by standardizing against a tenth normal (N/10) solution of acid potassium sulphate; also a solution of sodium chloride, 1 c.c. of which was equivalent to 1.734 c.c. of a tenth normal solution of silver nitrate. The following are the results obtained with the mixtures of the sodium carbonate and sodium chloride solutions. The first column represents amounts of sodium carbonate taken, the second column represents amounts of sodium chloride taken, the third column the amounts of acid potassium sulphate required to neutralize the mixtures, and the fourth column the amounts of silver nitrate required to precipitate the chloride present:

<table>
<thead>
<tr>
<th>Amounts Taken</th>
<th>Neutralization</th>
<th>Precipitation</th>
<th>Chloride</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00</td>
<td>10.00</td>
<td>5.05</td>
<td>17.35</td>
</tr>
<tr>
<td>10.00</td>
<td>10.00</td>
<td>10.10</td>
<td>17.35</td>
</tr>
<tr>
<td>15.00</td>
<td>10.00</td>
<td>15.00</td>
<td>17.35</td>
</tr>
</tbody>
</table>

The agreement shown in these results leaves nothing to be desired, and many other equally satisfactory determinations have been made. An interesting theoretical point is involved in the operation just described. The presence of normal carbonates in the solution would, it is well-known interfere with a titration for chloride with silver nitrate, as insoluble silver carbonate would be formed to some extent, and interfere with the desired precipitation of the chloride.

The reaction is to be regarded as the result of the positive silver ions Ag⁺ coming in contact with the negative carbonic acid ions CO₃⁻. But no such reaction is to be observed in the case we have been discussing, where acid sodium carbonate is in the solution. Therefore, it appears reasonable to assume that acid sodium carbonate does not yield a negative CO₃⁻ ion, but probably dissociates thus—

\[
\text{NaHCO}_3 \rightarrow \text{Na}^+ + \text{HCO}_3^-
\]

and the ion HCO₃⁻ does not react with the silver ion to give an insoluble compound. There is further evidence to support this view. (Walker and Cormack, Journ. Chem. Soc., 1900, xlvi, 5; “Foundations of Analytical Chemistry,” Ostwald and McGowan, pp. 193 and 207).

If a solution of acid sodium carbonate is added to a solution of a barium salt there is only a little precipitate formed at first, though the precipitation of the barium generally proceeds and is completed in time; more quickly if the solution be heated. It has been shown that acid sodium carbonate is unstable, some normal carbonate being formed at once, and it is to this small amount of normal carbonate that the first precipitation of the barium is due. But when this has taken place, the equilibrium between the sodium carbonate and acid sodium carbonate is destroyed, more sodium carbonate is formed, and the precipitation of the barium again proceeds. This action is, of course, continuous. As the inversion of the acid sodium carbonate is more rapid at high temperatures, the formation of the normal carbonate and subsequent precipitation of the barium will proceed more rapidly on heating.

The use of ammonium carbonate in precipitating insoluble carbonates seems worthy of consideration in this connection. Unlike the corresponding sodium and potassium salts, ammonium carbonate is unstable in water solution, breaking down with the formation of the acid carbonate and the escape of some of the ammonia as such. But an equilibrium is established between the normal carbonate and the acid carbonate, which is destroyed when the solution is brought into contact with some salt which will precipitate an insoluble carbonate, such as calcium or barium. The inversion of the acid carbonate is measurably slow, however, and, as is well-known, to obtain complete precipitation the solution must be allowed to stand for some time or be heated.

A statement of some of the preliminary experiments on the inversion phenomena referred to may be of interest in this connection. Three portions of a sodium carbonate solution were titrated with acid potassium sulphate to loss of color with phenolphthalein as indicator, allowed to stand for twenty-four hours, and then titrated a second time to loss of color. The results are here given, the first column amounts of acid sulphate added, and the third column amounts of acid sulphate required to neutralize the solution after standing.
It would appear that the inversion was approximately proportional to the initial amount of the bicarbonate, but as the concentrations were not quite the same, and the sulphates present may have an influence, this conclusion can only be drawn tentatively. Some measurements, which have been made by Mr. Lyman J. Briggs, indicate that the inversion at first approaches a maximum quite rapidly, but when equilibrium has been nearly reached it becomes very slow, and probably requires a long time before reaching final equilibrium.

Three portions of 20 c.c. of a potassium carbonate were each titrated to disappearance of alkaline reaction with 24.2 c.c. of the acid potassium sulphate solution, and, after standing forty-eight hours, each required 3.1 c.c. of the acid sulphate solution to neutralise them.

Ten c.c. of a sodium silicate solution required 14.1 c.c. of the acid sulphate solution to neutralise it. It was immediately boiled for three minutes, after which it required 1.1 c.c. of the acid sulphate solution to neutralise it; another portion of 10 c.c., to which 14.1 c.c. of the acid sulphate had been added, after the expiration of an hour at the room temperature, required 0.9 c.c. to neutralise it. The case of the sodium bisilicate differs essentially, however, from that of the sodium bicarbonate, in that no volatile component can be formed. So that this apparent inversion must be more limited in amount, and is in reality a measure of the hydrolysis of the salt. It was not appreciable in the case of the borates or phosphates, as has already noted.

An application of the method to a solution of sodium silicate was made. Table X, gives the results of the titrations of the solution with the acid potassium sulphate, the first column indicating amounts of the silicate solution, the second column amounts of the acid sulphate, and the third column the corresponding ratios:

<table>
<thead>
<tr>
<th>Table X</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>20.00</td>
<td>31.00</td>
</tr>
<tr>
<td>20.00</td>
<td>31.00</td>
</tr>
<tr>
<td>10.00</td>
<td>15.70</td>
</tr>
<tr>
<td>10.00</td>
<td>15.80</td>
</tr>
<tr>
<td>10.00</td>
<td>15.50</td>
</tr>
<tr>
<td>10.00</td>
<td>15.70</td>
</tr>
<tr>
<td>15.00</td>
<td>23.60</td>
</tr>
<tr>
<td>15.00</td>
<td>23.60</td>
</tr>
<tr>
<td>20.00</td>
<td>31.40</td>
</tr>
<tr>
<td>20.00</td>
<td>31.45</td>
</tr>
<tr>
<td></td>
<td>1.550</td>
</tr>
<tr>
<td></td>
<td>1.550</td>
</tr>
<tr>
<td></td>
<td>1.570</td>
</tr>
<tr>
<td></td>
<td>1.580</td>
</tr>
<tr>
<td></td>
<td>1.550</td>
</tr>
<tr>
<td></td>
<td>1.570</td>
</tr>
<tr>
<td></td>
<td>1.573</td>
</tr>
<tr>
<td></td>
<td>1.573</td>
</tr>
<tr>
<td></td>
<td>1.566</td>
</tr>
</tbody>
</table>

The solution was then analysed by adding an excess of hydrochloric acid, boiling, and titrating the excess of the acid with a solution of potassium hydroxide. The first column of Table XI indicates the amounts of silicates taken, the second column the amounts of hydrochloric acid added, and the third column the amounts of potassium hydrate required to neutralise the excess of acid:

<table>
<thead>
<tr>
<th>Table XI</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.00</td>
</tr>
<tr>
<td>40.00</td>
</tr>
<tr>
<td>40.00</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Since in this case the silicic acid does not escape from the solution as does carbonic acid, when the hydrochloric acid is added to excess, enough potassium hydrate will be required not only to neutralise the excess of hydrochloric acid, but also to re-convert the silicic acid to potassium bisilicate before the solution will be alkaline.

20.00 c.c. HCl solution ... = 20.928 c.c. KOH solution.
Excess of HCl solution ... = 11.700 c.c. KOH solution.
40.00 c.c. sodium silicate solution = 0.228 c.c. KOH solution.
1.00 c.c. sodium silicate solution = 0.231 c.c. KOH solution.

It has been shown that 1 c.c. KOH solution was equivalent to 0.764 c.c. HKSO₄ solution; therefore 0.231 c.c. KOH solution was equivalent to 1.562 c.c. HKSO₄ solution. The agreement of this figure 1.562 c.c. with that given in Table X, 1.566 c.c., must be regarded as entirely satisfactory.

Summary.

The principal results of this investigation may be summarised as follows:

1. The amount of soluble alkaline carbonate in a solution can be quickly and accurately determined whether the bicarbonates are present or not.
2. The method seems well adapted to the estimation of silicates, borates, phosphates, and the salts of weak acids in general.
3. The bicarbonates are unstable in water solution, and are more or less completely converted into the normal salt.
4. Alkaline bicarbonates are themselves neutral in water solutions; they do not yield a CO⁺ ion by hydrolysis, or they do so only to a slight extent.
5. Therefore, an accurate volumetric determination of chlorides by means of a standard silver nitrate solution is feasible in the presence of alkaline bicarbonates, if the hydrolysis of these latter is prevented.
New Handkerchief Perfumes.

**MYSOLIA.**
26 fluid ozs. ess. bouquet perfume.
12 fluid ozs. tincture of heliotrope.

**Method.**—Mix and tinge a lilac tint with aniline.

**DYRELL.**
25 fluid ozs. tincture of rhodinol.
15 fluid ozs. tincture of orris.
10 fluid ozs. extract of cassie.
8 fluid ozs. extract of orange.
5 fluid ozs. tincture of vanillin (Monnet).
5 fluid ozs. tincture of irisone.
2 fluid ozs. extract of civet.
1.5 fluid ozs. tincture of musk.

**Method.**—Mix and tinge a lilac tint with aniline.

**SINHALI.**
40 fluid ozs. extract of jasmin.
40 fluid ozs. tincture of rhodinol.
20 fluid ozs. extract of cassie.
10 fluid ozs. tincture of vanillin.
5 fluid ozs. tincture of storax.
1/2 fluid ozs. tincture of irisone or violettol (strong).

**Method.**—Mix, coloring a faint rose tint with spirit rose.

**ZULEIKA.**
72 fluid ozs. perfumer's spirit.
72 fluid ozs. tincture of roscol.
60 fluid ozs. extract of jasmin.
40 fluid ozs. tincture of orris.
40 fluid ozs. tincture of vanillin.
10 fluid ozs. extract of civet.
4 1/2 fluid drs. oil of lign-aloes.

**Method.**—Dissolve the lign-aloie oil in the spirit; then add the others, as written, very faintly tinging with spirit green.

**ELYTRA.**
40 fluid ozs. opoponax perfume.
23 fluid ozs. white-rose perfume.
17 fluid ozs. violette de bois perfume.
6 fluid ozs. tincture of musk.

**Method.**—Mix the first three; then add the tincture of musk, giving a lavender tint with aniline.

**IDIOL.**
40 fluid ozs. tincture of rhodinol.
20 fluid ozs. extract of orange.
10 fluid ozs. moss-rose perfume.
10 fluid ozs. extract of cassie.
10 fluid ozs. tincture of irisone.
4 fluid ozs. tincture of musk (diluted).

**Method.**—Mix and tint with spirit rose.

**NIOBENE.**
30 fluid ozs. tincture of roscol.
20 fluid ozs. perfumer's spirit.
20 fluid ozs. orange blossoms perfume.
2 1/2 fluid ozs. tincture of civet.
2 fluid ozs. tincture of benzoin.

**Method.**—Mix, without coloring.

**ZELMERA.**
34 fluid ozs. tincture of rhodinol.
16 fluid ozs. perfumer's spirit.
16 fluid ozs. extract of cassie.
16 fluid ozs. extract of orange.
1 fluid ozs. tincture of nerolin.
1/2 fluid dr. oil of verbenia.

**Method.**—Dissolve oil of verbenia in the spirit, add others, and give an orange tint.

**ESPYAIO.**
24 fluid ozs. perfumer's spirit.
20 fluid ozs. tincture of orris.
80 drops oil of lemon.
75 drops otto rose.
60 drops oil of orange.
30 drops tincture of musk.

**Method.**—Dissolve the oils in the spirit, then add the tinctures, tinting pink.

**ILLYRIS.**
30 fluid ozs. tincture of heliotrope.
6 fluid ozs. opoponax perfume.
1/2 fluid dr. extract of ambregris.

**Method.**—Mix and tint with heliotrope color. The simple extracts enumerated had better be bought in bulk, though it would be cheaper to produce the tinctures where synthetic substances are named.

When desired, the perfumes may be diluted with distilled water, but too much must not be added, or cloudiness will ensue.

For the coloring a small quantity of the required aniline is dissolved in spirit, and kept in a bottle as required for use. This is added to the perfume drop by drop.—*Oil and Colorman’s Journal.*

**Paste for Fixing Labels to Metals.**

**Take of**

- Alum in powder.................1 drm.
- Borax in powder...............1 drm.
- Hydrochloric acid ............6 drms.
- Wheat flour ...................8 ozs.
- Distilled water .............12 ozs.

Mix the alum, borax, and flour with the water, stirring till smooth; then add the acid and boil until the flour is disintegrated. If required can be thinned in more water.
PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

TRADE MARKS.


PATENTS.


LABELS.


PRINTS.

299. Title: “The Bather.” (For Soap). Procter & Gamble Company, Cincinnati and Ivorydale, O.

Nail Polish.

Various agents are used by “manicures” for improving the appearance of the nails. Among these may be mentioned, pumice stone, cuttlefish bone, and tin peroxide (polishing putty).

A more recently recommended agent for this purpose is tin oleate. This substance may be prepared by dissolving one part of castile soap in about sixteen parts of hot water, and adding gradually to the liquid a 10 per cent. solution of tin chloride until precipitation no longer occurs. The precipitate is the oleate, which, after washing with water and drying, is ready for use. It is sometimes colored with a little earmine; anilin dyes may be used for the same purpose; eosin has been mentioned as a suitable one.

The stearate of tin is also used as a nail polish, and may be found preferable to the oleate on account of its consistency. It may be prepared by mixing solution of sodium or potassium stearate with solution of tin chloride, the tin stearate being precipitated.

Any powder used as a polish for the nails should be exceedingly fine.

Blue Marking Ink.

Take of

Silver nitrate ............... 4 parts.
Strong solution of ammonia ... 12 parts.
Sodium carbonate ............ 4 parts.
Gum arabic (powdered) ...... 6 parts.
Cuprie sulphate ............. 2 parts.
Water ...................... 16 parts.

The Government Clerk and His Ink-Pot.

The Daily Telegraph picks out a paragraph in Dr. Thompson’s report for a well-merited laugh at the ways of the government clerk. The paragraph states that the ordinary writing ink was submitted on a complaint that it clogged the pen, and a sample of the contents of the ink-wells was forwarded, together with a sample of the ink as supplied. “It was found that after the deposition of the separated solid matter of the ink, collected from the ink-wells in use, the fluid portion had a specific gravity twice that of the ink supplied. In other words, the ink had been allowed to become concentrated by evaporation to practically double its original strength through the use of excessively large ink-wells and inattention to the supply.” Ordinary persons, when the ink coagulates, empty their ink-well. Not so the government clerk, whose ink commits a gross misdemeanor when it clogs, and is haled, dregs and all, before the dread tribunal of the analyst.

Through oceans of remnants and ribbons the puffing big woman towed the meek little man.

“What in the world shall I send her, John?” she blustered. “Come, suggest something that would please Aunt Betsy. Something inexpensive. Why don’t you say something?”

“Stationery, books or work boxes,” suggested the meek little man.

“Nothing of the kind! You couldn’t select a present for the ashman. I will look at some of those fancy boxes of soap.”

They were before the soap counter, and she had her finger on an elaborate box containing six round cakes of white soap.

“Fancy and perfumed!” she said, lifting a cake.

“The very thing that would please her the most. You may wrap that up, miss!”

“But, my dear,” protested the meek little man.

“You must keep quiet. I don’t care for any suggestions from a person without taste.”

“Really——”

“Keep quiet, John Tenbrook!”

It seemed as if her voice had penetrated every corner of the great store, and the little man shrank away in mortification.

“Well, John, what did she say about the little gift? Something nice, I know.”

“She returned it.”

“What?”

“Yes, you will find a note in the box.” She unfolded the missive and read:

“I return the box of shaving soap. I am a little too old to appreciate the joke of being called the bearded lady. Your Aunt Betsy.”—Exchange.
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337 Swift & Co., Chicago.
338 Texas Soap Co.
Nottaid, Nottaid Soap Co., New York, N.Y.
National, National Soap Co., New York, N.Y.
White Queen, Great Bay (Wis.) Soap Co.
World's Best, Green Bay (Wis.) Soap Co.
C. G. D., Chase, W. T. Davies, N. Y.
Purgo, O. W. Collings, Chicago
Sunnyside, National Soap Works, Tonawanda, Pa.
Chic 38
Globe Castile 38
Happy Moments 38
Blazer 38
Tom Boy 38
White Holly 38
Gotham Chips 335
Ozone Chips 335
Ozone Shavings 335
Everybody 339
Dixie Family 339
Yankee 58
Amoniaque-Turpentine 58
4 X High Grade 339
9 for 1-1/2 338
4 X Safety Toilet 338
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Florina Tea Rose 16
Florina Wood Violet 16
Florina Pink Blossom 16
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French Male 8
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Gipsy Rose 8
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New Girl 8
Solo 8
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BRANDS OF SOAP MANUFACTURED IN THE UNITED STATES

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NOTE: This list is compiled with the greatest possible care, but the publisher does not assume any responsibility other than to correct and to complete the list according to data obtained from official sources or furnished by the trade. Brands registered in the patent office as trade-marks or labels are given with the name of the party registering same. Brands or names marked * are those which were found to be used by more than one firm or the owner of which could not be ascertained.

*See that all your brands are entered in your name.

AMERICAN SOAP JOURNAL AND MANUFACTURING CHEMIST

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The Scientific American, a paper known probably to every one of our subscribers, in a recent issue, says:

"The first edition of 'American Soaps' appeared in print seven years ago and was well received, and since that time the author has formerly collected all the available new information that could assist in making a later edition of the book more complete, and the author has had the benefit of the experience of many of the original purchasers of the book.

There are an extensive literature upon soap making, but most of them are adapted from foreign practice and deal with antiquated methods. The present book cannot be placed in this category. It is an excellent contribution to technical literature by a man who thoroughly understands modern American soap making and is in no sense a compilation.

To those who are looking for a thoroughly practical book on soapmaking of all kinds, with special reference to modern practice and deals with antiquated methods. The present book cannot be placed in this category. It is an excellent contribution to technical literature by a man who thoroughly understands modern American soap making and is in no sense a compilation.
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The attention of our readers is called to the column of "WANTED" AND "FOR SALE" advertisements on another page. Manufacturing firms looking for intelligent up-to-date help, or who have second-hand machinery they wish to dispose of, and practical men experienced in any branch of manufacturing chemistry looking for employment, can mutually profit by using this column.
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Envelopes.

218 and 220 Third Street,
Milwaukee, Wis.

Say you saw the Ad. IN THIS PAPER
The New York Produce Exchange is endeavoring to formulate rules to govern the growing trade in olive oils for industrial purposes, and in olive oil soaps. In regard to the latter special attention is promised to be directed to soaps artificially colored green to conform to the American idea of what soaps should be like.

From time to time we hear of some use for soap out of the ordinary lines of work for which this article is commonly employed, as, for instance, when we hear of soap bubbles used in scientific experiments, or soap as a medium of exchange. At such times we have often thought of compiling a list of all the real uses of soap, believing that such a list would be of some actual value. We have compiled a short list off-hand, but many of the odd uses have escaped our memory for the moment. Before printing it, therefore, we hereby request all who read this paper to write us (a postal card will do) of such uses of soap as one would not think of readily, and when the list becomes fairly complete we shall present it to our readers. Never mind the every-day uses—we have them all down.

The new customs tariff of Venezuela placed a duty of 24 cents per kilo (2-2 lbs.) on soap, glycerine, soap powder, candles, and perfumed oils.

Said Rev. Dr. Lorimer, of Boston, to the laundrymen in meeting: "You have come to this city, which is of all cities the cleanest, consequently the city that lives next to godliness. The two are in loving hand-clasp in Boston, and the mayor, to prove it, went out a-slumming through our city, and brings back the report that he went even among the Chinese and could find nothing to disprove it. He went into the slums, and somehow they were as white as snow. And it so impressed me that my Muse traveled, and I wrote a verse or two of poetry. You will excurse a poet, if in his proverbial thirst for fame, he reads them to you:

We have a mayor of great renown,
Who sought the slums of Spotless Town,
He found them clean and white as snow,
Because they used Sapolio.

But one arose who said him nay,
And that the slums were cleaned that day.
And soap was used, as all must know,
But that soap was not Sapolio."
An important decision affecting trade-marks has been rendered by the United States Circuit Court, sitting at New York, and it once more illustrates the complications of the law. It is a well-known principle that geographical names are not proper words for trade-marks, but for all that, by the decision just referred to, a permanent injunction has been granted against a Brooklyn brewery restraining it from in any way using the word "Milwaukee" except on beer actually brewed in this city. The complainants were the three largest breweries of the city of Milwaukee, and they, of course, do not claim the word "Milwaukee" as a trade-mark, but obtained the above decision on the simple ground that the use of the word Milwaukee on beer brewed in Brooklyn is a fraud upon the buyer.

As we have had in this country also law-suits involving the use of the name "Carlsbad" for mineral salts, what is to prevent Marseilles from bringing suit against our manufacturers of Marseilles soap? Or Spain protesting against the use of the word "Castile" by our manufacturers?

Perhaps half the orders of small advertisements which we receive for our "Wanted and For Sale" page are accompanied by the remark: "Please do not disclose our name to inquirers," or words to that effect. We wish to state, as emphatically as a plain statement can do it, that even without such request we never disclose the name of an advertiser on that page (unless, of course, the advertisement printed itself contains the name and address). There is no exception to this rule. As we sell no goods, do no commission business, and do not operate an employment agency, we confine ourselves absolutely to printing advertisements ordered and forwarding replies received in our care. If at times, at his own request, we have gone out of our way to oblige a subscriber, it has never been in violation of any confidence reposed in us.

The above remarks can be applied also with equal force in regard to information concerning soap brands. If you desire any information that we can supply concerning the ownership of a given brand, we never go beyond supplying such information and then our interest in your question stops right there. The fact of you having made inquiries, whether it concerns an old brand or a new one you propose adopting, is always confidential with us as a matter of course.

The strongest kind of advertising is that which makes people unhappy until they get a thing they don't need.—Exchange.

How Much Glycerine?

MANCHESTER, Conn., March 7, 1901.

American Soap Journal, Milwaukee, Wis.

GENTLEMEN—Can you or any of your readers tell us how much glycerine is contained in a hundred pounds of olive oil foots, or about how much glycerine is saved by soap manufacturers at the present time on the different kinds of oils used?

Yours very truly,

The J. T. Robertson Co.

[We invite our readers to write on the above question, for mutual benefit.—Editor A. S. J.]

Soap For Our Indians.

NEW YORK, March 16, 1901.

Dr. Henry Gathman, Milwaukee, Wis.

DEAR SIR—The Department of the Interior is asking for bids for 441,000 pounds of soap for Indian supplies. Commissioner Jones says that all simples of soap submitted will be subjected to the most rigid inspection, both chemical and otherwise, to determine their merits.

If this be true, the Indians will thank Mr. Jones for furnishing them with a soap which will not rot their clothing, and soap that will be of some value in alkali water.

I have reason to believe that soaps containing cotton seed oil will not be considered, as this ingredient imparts a bad odor to the articles washed. If a chemical analysis is made, soaps containing free alkali will be rejected. Contracts will be awarded to the manufacturers who give the most actual soap which is free from injurious adulterants. The bidders are allowed the largest latitude in submitting samples, as there are no specifications accompanying the proposals.

If an up-to-date technical soap and oil chemist is employed to test the samples, I question if the commissioner will not be obliged to advertise for additional bids, for laundry soap from the fact that there may be no samples submitted which are free from adulterations or free alkali.

For some years past the Government has been purchasing soap for the Indians regardless of an analysis, regardless of the amount of actual soap, regardless of the free alkali the soap contained.

Mr. Jones evidently believes in allowing the best speller go to the head of the class, regardless of any political "pull."

Yours very truly,

Maross Jenkins.
Soap Factory Wanted.

Dr. Henry Gathmann, Publisher American Soap Journal.

Dear Sir:—In considering the possibilities for the success of certain lines of industries to be established in this city, the absence of a soap factory of any character impressed itself upon me, in view of the fact that there are so many manufacturing concerns here in which the work necessarily makes the use of soap an absolute necessity.

What I would like to find out is, what is the least possible amount of capital that could carry on a business for the manufacture of soap? The idea being to start with the least possible expense and with the smallest amount of machinery with which the business could be conducted successfully, depending upon future development for the enlargement of the equipment.

Will you kindly give me your views along this line, stating, if it is not too much trouble, what would be necessary to start with and whether you think it is possible to reach a man through your columns who could take charge of a small business and conduct it successfully in this district?

Thanking you in advance for any information that you may give me, I am, Yours very truly,

J. F. Adams,
Assistant Secretary Board of Trade.
Wheeling, W. V., March 21, 1901.

The Status of the Soap Maker.

"Straws show which way the wind blows," and from communications with both factory owners and soap makers we have observed of late a tendency in the trade which deserves more than passing attention. We refer here to the increasing practical application of chemical science in the factory, as distinguished from the plain practical duties of the soap maker which were until a comparatively recent period all that was looked for in the average soap factory.

When the business was still in the hands of smaller factories, all operating with the same disregard of science and relying on practical experience alone, all got along well and the result usually was a good quality of soap, although not made by any means with that degree of economy which characterizes present day methods. The soap maker must be young indeed who does not regretfully recall from his own experience tons of glycerine that he allowed to run to waste, and it was as late as in the early days of the Soap Journal that we chronicled the death of a horse that was killed by getting into a pond of waste lye in the neighborhood of a large soap factory!

But gradually the spirit of competition caused men to look more deeply into the details of each step in the manufacture; progressive minds developed and applied in practice improvements suggested by the results of scientific research. Some factories grew larger, not only in proportion as their surrounding territory developed, but also in proportion as other factories remained behind, and in proportion as their progressive spirit led them to profit from the results of their and others' investigations. That the vast development of transportation facilities, large capital, economical buying, advertising, good general management, and some other factors have likewise contributed to make some factories larger and others smaller, need hardly be mentioned, but the fact remains that as there is no factory grown large without a corresponding capital, nor without good general management, nor without economical buying, so there is no factory remaining large in which advantage is not taken of the savings made possible by the application of knowledge developed by scientific observation and experiments.

In every fairly rapid development there are transition periods, and we might say that the soap business entered such a period say ten years ago, and seems to be about to emerge from this period as quite a differently appearing trade than it was ten years ago. The decade just passed has witnessed the downfall of a number of not unimportant soap factories; it has witnessed the establishment of other new ones that have prospered; it has likewise witnessed the phenomenal growth of what were formerly small concerns and the gradual subsidence of others that were at one time large, profitable establishments. It would be puerile to attribute these changes to any one circumstance, but the fact remains that all large factories, whether they have been large for 20 years, or have grown large in ten years, or have been newly established on a large scale in the last 5 years, one and all are employing the best scientific skill they can command.

The largest soap works are employing chemists to work hand in hand with the practical soap maker; smaller ones have or are looking for men who combine a certain scientific training with a practical knowledge of the art of soap making. When we use the word chemist, we must be understood to refer to a specialist in the wide field of industrial chemistry, and not to a man who writes mystic formulae on the blackboard of high schools and colleges; we mean to say with this remark that one who desires to take up the study of chemistry with a view of utilizing his knowledge practically in a soap factory, may have more or less use for all the theoretical study of chemistry he can master, and most assuredly needs quite a little of it as a preliminary, but the chemist we have in mind is one who has acquired a fair introduction into the fundamental principles of all chemistry and then, above all else, continues his studies.
into the fields of oil, alkalis and other raw materials, and then pursues them throughout the practical work of the manufacture of soap, glycerine, and kindred products. This is not a small undertaking, but it is by men so equipped that we may henceforth expect to see the destinies of large soap making establishments controlled, directly or indirectly, to nearly or quite the degree that the general business management of these works affects their prosperity.

We have before us letters from various writers, bearing upon this question in a manner of different ways, and it is these that we referred to above as the straws that show the direction of the winds, and their receipt has been the occasion of writing these remarks. We regret that we are not at liberty to print these letters as they would have made interesting reading for our subscribers; only one of them appears on another page.

The foregoing deals chiefly with the soap chemists, but the points touched upon so closely concern the soap makers whose interests we are interested in as well, that we have dedicated this article to the latter. If any of them have any remarks to add we shall be pleased to hear from them also.

To Owners of Soap Brands.

In the hope that it will materially lessen—for the benefit of our correspondents as well as ourselves—the increasing correspondence which comes to us in regard to disputed ownership of now this and then that name for a soap, we wish to call particular attention to a few facts which do not appear to be as fully understood as they should be. (In place of repeating the same thing again and again in our private correspondence, a reference to the following remarks will henceforth be considered a full reply.)

**First.** After inviting owners of soap brands continually, for over twelve years, to send us for free registration the names of their soaps, and having repeated the invitation in numberless letters, editorials, and special circulars, and having thereby and by special searches of our own accumulated a list of over 5,000 names by this time, we consider our list as unique in its completeness. At the same time we cannot guarantee to have succeeded in catching every name there is, for there is nothing perfect in the world. Especially in regard to very recent brands, if the owner fails to send them to us, we may be some time in hearing of them.

**Second.** While we know of no absolutely safe way of deciding whether a certain name is already in use or not, there is no guide even approximately as complete as a reference to our list. Our sample list consists of a booklet, published in 1899, containing all the brands then on record, which pamphlet is always complete when consulted together with the latest current issue of the AMERICAN SOAP JOURNAL. The pamphlet referred to was sold freely to the trade, but is at present out of print. Until it shall be worth while to issue a new edition, our subscribers who are not in possession of a copy are invited to write to us when desirous of consulting the list, and we shall be pleased to look up any names they wish to consult the list about.

**Third.** If you manufacture a soap by a certain name and fail to send the same to us, another manufacturer may unknowingly infringe upon your right by adopting the same name, eventually causing him and you loss and unpleasantness that could easily have been avoided.

**Fourth.** A few owners of brands, by a process of reasoning which we fail to understand, have disregarded all our invitations to send their brands for registration, but apparently keep close watch of our list, and from time to time we receive a complaint from them that we have just entered such-and-such a brand in the name of so-and-so while they themselves have used that brand for a number of years, and insist on having us change the entry. As they invite such occurrences themselves, and as we have again and again warned against just such occurrences, we can only assume that they prefer to keep their brands from the knowledge of the trade and take chances on the inconvenience and loss to themselves and others that this may entail. We shall therefore enter all brands in the names of those who first claim them and not change the entry in any case until the parties interested have fought out the dispute between themselves. In this dispute we must decline to take part ourselves, however.

**Fifth.** The chief and first object of this list is to secure avoidance of unintentional infringement; this object is secured by the simple fact that a brand is placed on the list; whether the right owner or another party is named as the maker does not in an ordinary case nullify this chief object of the list and is therefore of somewhat lesser importance. But as conditions may arise under which the case changes materially, it is well worth while to see that your brands are entered duly in your own name. For example: Supposing you make a soap called "Watchdog," when it appears on our list, it is a notice to the trade that this brand is already in use, and so far tends to protect you; if in addition it is entered in your own name you can rest content. But let us suppose now that you had not sent the brand in for registration; some one else not finding the name on our list adopts it in good faith and has "Watchdog" entered on our list in good faith in his name; this stops further unintentional infringement and you have only this one party to dispute with; but let this party at any time go out of business—consultation of the list later would then show that the brand was once owned by a party no
Fertilizers vs. Soap Examinations.

New York, March 4, 1901.

Dr. Henry Gathman, Milwaukee, Wis.

Dear Sir,—The enclosed clipping was sent to me by Dr. Griffin. I would call your attention to the amount of money appropriated annually for conducting the various experimental stations, also the amount of money that has been appropriated for equipping the same.

I believe you will say that the laborer and the mechanic are also entitled to the same protection against adulterated soaps as the farmer is against adulterated fertilizers.

Yours very truly,

Maross Jenkins.

The article referred to above is a clipping from the New York Evening Star, being an article written for that paper by Prof. H. W. Wiley, in which occurs the following item:

"In the first place, attention should be called to the fact that no country in the world has so richly endowed agricultural research as the United States. For the support of agricultural experiment stations in the various states and for Hawaii and Porto Rico the congress of the United States appropriates annually $789,000. In addition to this, congress has endowed agricultural colleges in every state and territory, and these endowments, together with the buildings, apparatus, machinery, libraries and miscellaneous equipment, represent a total of $53,632,852.35. The total income of these institutions annually is $6,008,379.20, of which amount there is given annually by direct grant of congress $1,108,610.38. These colleges contained at the end of last year 31,658 students, of whom 4,181 were taking the special courses in agriculture."

Our Mariam Jane missin',
Skipped into the Silent Hence.
Lit the kitchen fire with naphtha—
And she hasn't benzine since!

The Condition of the Practical Soap Maker.

Editor American Soap Journal:

Dear Sir,—With your permission I should like to occupy a portion of your valuable space to awaken the members of our craft to some abuses that have made the conditions of the soap maker far worse than it used to be. If it does no other good, what I write might be a warning to some one else, and I only wish I were more of a writer than I am so that I could put things more clearly before the readers of the Journal.

In different cities where I have worked I have made friends of several soap makers and what I hear from them now and then and how they have fared, together with my own experience, it seems to me there can scarcely be an occupation that, to the average man, offers less inducement than that of the soap maker.

What the soap maker is required to know in these days of competition on the part of large factories is by no means a little, and the demands on his abilities seem to be increasing. But his opportunities for employment—saying nothing of bettering himself—are not improving that I can see. In the February Journal I noticed an advertisement of a soap maker in Germany, looking for work here. It is the first time that I have seen that, and I wonder how many other soap makers in other countries believe this to be a good place to come to for work. Not that I fear that those coming from other parts of the world can drive out the soap maker here who understands his business. But every man out of work and looking for a position speaks of himself in the highest terms and promises to do wonders. For the time that he holds a job he keeps a capable man out of work, and when he gets his walking papers another man like him steps into his place; this keeps capable men out of work and leads the owners of factories to (themselves or relatives) take up soap making themselves, so that they can be independent of a soap maker if necessary. Feeling independent and having been cheated by men who only half understand their business so often, they offer low wages. But that is not all. The many men looking for positions, in order to be the preferred ones, make all kinds of claims what they can do, and the man who gets the job in the end is expected by his employer to work real wonders. The false stories of what wonderful things are done here and there in soap factories come in large part from this source, and this way by their unreasonable competition the soap makers themselves have brought about conditions that now operate against us. The man of good, thorough training and ability runs against these pretenders on one hand and against the soap chemist on the other, and between the two, when he is out of work, and if he is unfortunate enough to have a family depending on him, he must leave these...
behind and look for work perhaps hundreds of miles away, for that is another one of the difficulties that soap factories are so far between. A flour miller, a brewer, a dairy man, a machinist, has twenty and more places where to look for work when the soap maker has one. One of my friends I mentioned before lost his position three years ago through no fault of his; he has since worked in four states that I know of, and still cannot afford to have his family join him. When I read of a soap maker wanted with money to invest in the factory, I can never help wondering where the employer expects the soap maker to have his money from; perhaps there are a few favored ones in position to lay up something, but the rank and file of us, I think, scarcely look forward to the time when we will invest anything to speak of in a soap factory.

Then there is another point. At one time I was offered a position in what was supposed to be a soap factory; I spent part of my little savings in railroad fare, only to find, on arriving at the place, that the party was only experimenting and not ready for business at all. They paid me a week for helping them get under way, then beat me out of two more weeks’ wages, and I spent the wages for the one week in paying my way home. Of course, I was too easily taken in, but as I have been told that the same party treated others in the same way before and since, this warning may not be superfluous.

If there can be anything meaner than this, it happened to another of the acquaintances mentioned. In his case he was actually induced to leave a good place to take charge of another, where he was treated no better than I was in the instance just related. Probably, though, in his case the object was, as he was a good man, to get him to leave the place he had. Well, they succeeded, and meantime my friend learned a lesson with several morals to its—one that soap makers in fair positions may well think over.

Altogether, if we only could exchange experiences and keep each other posted on what is doing, we might possibly hope to better our individual circumstances in time. But I have often wished, and, although I have now a steady and agreeable position again, wish at this writing, that I could exchange my knowledge of soap making for a like amount of knowledge in some business that would let me feel settled in one city, even if I did lose my job again. I have wanted to write this for some time, and hope it will be read by those who have use for it. With best wishes for the Journal.

Yours, N. N.

The Gordon-Roever Co., Cincinnati, 0., has been incorporated to make and refine fats, oils, resins, soaps, etc. Incorporators: W. J. W. Gordon, H. Roever, C. A. Farishaw and others. Capital $300,000.

On the Estimation of Varnish Resins.

The Analyst for February last contains two articles by Dr. J. Lewkowitsch, one on “The Estimation of Glycerol” and one on “The Estimation of Varnish Resins.” The latter, from which we omit a lengthy table, is as follows—as read before the Society of Public Analysts:

I think it will be generally admitted that the analysis of varnishes is a terra incognita, if it is a question of determining by chemical means what gum has been used in the preparation of an oil varnish. In his despair the analyst will try to use the methods which have proved of such enormous advantage in fat analysis, and, as is well known, a number of determinations of the acid value, saponification value, and iodine values have been carried out, but their use for the diagnosis of gums in mixtures such as we have to deal with is almost infinitesimal.

It struck me that it has been generally overlooked that the determination of the so-called “constants” has been carried out on the original gums as obtained in the market, whilst the gums are, of course, subjected to a process of “running” or melting, which is accompanied in some cases by destructive distillation.

In the course of an examination of varnishes in my laboratory I had occasion to collect a few numbers representing the equivalent of what is termed in fat analysis “acid value,” “saponification value,” etc., and I have placed side by side with the numbers obtained with the most frequently used resins in the original state, those found after heating them to 300° C.

The result is very discouraging indeed, and I should certainly not have published the figures if I had not been asked to do so by a scientific varnish maker, who thinks that these figures will be of value. So far, I cannot see that they will help in the analysis of varnishes, and the present paper must, therefore, be looked upon as merely putting on record some numbers such as anyone might get by a cursory examination.

I may add that the “acid value” was determined in the same manner as is done in fat analysis, with finely powdered material, regardless of whether the gum dissolved completely or not. If an excess of aqueous caustic potash is added, and back titration resorted to after some time, higher numbers are obtained, and it is possible to arrive at any figure for the acid value, provided one allows to stand long enough, and keeps adding fresh excess of alkali after neutralization, and again allows to stand. In some cases acid values were thus obtained which were far higher than the saponification value, a fact which would point to the gradual degradation of the constituents of the gums. The arbitrary fixing of a certain time during which an excess of alkali is al-
lowed to act on the gum would therefore appear to lack scientific foundation.

As the bromine addition method was done in most cases in acid solution, the bromine substitution value was not determined throughout. This will be done in future.

I think I have made it sufficiently clear that I do not attach much value to the figures given in the tables for purposes of detecting the gums used in the preparation of an oil varnish, quite apart from the fact that commercial samples show the greatest possible divergencies. Perhaps other tests I have in hand may lead to more useful information (such as oxygen absorption, Twitchell’s resin determination, Liebermann’s Storeh color reaction, and a few more that readily suggest themselves to the analyst).

DISCUSSION.

Mr. Hennier agreed with Dr. Lewkowitsch that it was useless to examine the original gums, as they, on boiling, underwent considerable chemical change. The difficulty was rendered greater by the fact that the gums, as a rule, were not heated by themselves, but were mixed with oil. It was interesting to notice that a gum which, like mastic, had as much as 51—or of 49 after heating—of unsaponifiable matter, nevertheless had an iodine absorption of 175 before heating, or 165 after heating. This seemed strongly to suggest that the unsaponifiable matter itself had a high iodine absorption.

Mr. A. Marshall said that, in the determination of bromine absorption, working with carbon tetrachloride in the manner which he had described in a recent paper before the Society of Chemical Industry (Journ. S. C. I., March, 1900), he had lately obtained some very interesting results; and he thought that possibly a similar process applied to some of these gums might yield results of value.

Dr. Rideal suggested that more might be learnt as to the changes which took place in these gums as the result of heating by taking one particular sample of gum and tracing the changes produced by heating it to different temperatures.

Mr. C. T. Tyrer said that there were on the market so-called varnish gums which were practically manganese resinate, containing considerable proportions of manganese; and probably in such cases the ordinary methods of analysis could not be successfully applied.

Mr. Mitchell inquired whether the author had tried amyl alcohol as a solvent in the determination of the saponification value. Its use was said to produce values differing considerably from those obtained with ordinary alcohol.

Mr. Marshall said that in determining the acid value it was necessary, as nearly as possible, to dissolve the gum entirely, and some solvent, or mixture of solvents, should be used by means of which it was possible to effect this.

Dr. Lewkowitsch said that where only one gum was present the matter was comparatively easy to deal with, but when the gum consisted of a mixture of various copals, for instance, the question of identifying them was almost impossible to solve; for even among gums which were sold by the same name, trade samples varied so much that experts, judging by external indications, were frequently misled. In addition, information was in many cases not obtainable as to the treatment to which samples had been subjected, owing to the secrecy which prevailed in the trade. He was afraid that an investigation of the unsaponifiable matter would not prove of very much assistance. The figures were more or less accidental, depending mainly on the time of boiling with caustic potash. In some cases the figures were widely divergent, though in others—in the case of sandarac especially—they were more concordant. He was afraid that the adoption of Mr. Marshall’s suggestion would not result in any improvement. As a matter of fact, the choice of an acetic acid solution in the bromine absorption determination in these particular cases had been due merely to a personal dislike of the use of carbon disulphide or tetrachloride; but the whole matter had been thoroughly investigated, and in some cases bromine addition values and bromine substitution values had been determined, although they were not given in the tables. He had not been able to spare sufficient time to go further into the matter and employ a menstruum which could completely dissolve the gums, and the question of time also had led him to adhere to one temperature, namely, that which was most commonly adopted in operations conducted on a large scale. He ought, perhaps, not to have referred to “varnish gums,” but to “gums used in varnish making.” All these gums were, of course, added to oils which were afterwards boiled with certain proportions of manganese resinate, or linolate, etc., and the metal was removed in the course of analysis. He had not tried amyl alcohol as a solvent, but he would be surprised if it were actually a fact that higher figures were obtained by its use, provided the saponification in alcoholic solution was carried out properly. The only explanation would seem to be that it was not pure.

American Sunflower Seed Oil.

The first attempt at anything decidedly new is not always an outright success, and yet it becomes the stepping stone to future advancement. Readers of The American Soap Journal will remember the experiments of Mr. Samuel Crump, some years ago a soap manufacturer in the state of Washington, who undertook to raise
sunflowers for the purpose of pressing the seeds for oil. He did not reach a decided and permanent success, but the subject has been kept alive ever since, and Prof. H. W. Wiley, chief chemist of the Department of Agriculture, has just completed a special report on the sunflower, from which the following is an abstract:

"We have only just begun to learn from the experience of China and Russia the economic value of the plant itself. The general interest in this subject, as has already been intimated, has been evidenced by the hundreds of letters which have been received in the last few years from all parts of the country making inquiries in regard to the possibility of the economic uses of the plant. The part of the sunflower plant which has the chief value is the seed. The oil expressed from the seed is highly prized as an edible oil, and one which, more nearly than any other vegetable oil, has the general properties of the oil of the olive. The oil cake left after the extraction of the oil by pressure is extremely rich in nitrogenous matter, and has a food value equal to the cake resulting from the expression of maize oil or linseed oil. In addition to this, it has the advantage of being more palatable, and therefore will be eaten with more avidity than the other oil cakes just mentioned. Perhaps the most valuable of the products of the sunflower of a manufactured character is the oil, which, by reason of its palatability and sweetness, is well suited for table uses, and for this purpose can replace olive oil with better success than any other known substitute.

The sunflower finds various uses in Russia. The larger and finer sunflower seeds are highly relished as a delicacy by the Russians, even of the upper classes, and great quantities of them are eaten raw. In palatability or wholesomeness they are quite equal or superior to the nuts of common consumption. The poorer and less perfect seeds furnish an oil which is somewhat turbid and bitter, and is of second quality, while the better and more mature seeds provide the edible oil so extensively used in Russia in replacement of all the vegetable oils formerly used in that country. It is stated that the oil produced from the seed is largely consumed in Russia, only a small quantity being exported. The largest amount exported in any one year was 1,490,000, worth $170,900.

"Many inquiries have been received asking for information in regard to the manufacture of sunflower oil on a commercial scale in the United States, and a diligent search has been made to discover any factories engaged in this enterprise. The addresses of several milling companies were secured, which it was thought might have information in regard to the matter, and letters were addressed to them for information. D. L. Bushnell & Co., of St. Louis, dealers in flax, castor, hemp, sunflower and other oil seeds, in response to my inquiry, write as follows:

"'Answering yours of the 20th instant, I do not think there has ever been any sunflower oil made in the United States. Some years ago it was tried, but without success. The porous shells of the seeds absorb the greatest portion of the oil, and therefore we think sunflower seed as grown in the United States hardly suitable to the manufacture of oil.'

"In response to a request for information in regard to the manufacture of sunflower oil in the United States, the Oil Seed Pressing Company, of New York, sent the following letter:

"'Your esteemed favor of the 5th duly received, and in reply to same would state that we have never engaged in the practical manufacture of oil from sunflower seed. We pressed up one or two small lots, but the result was very unsatisfactory, and it was done so long ago that we forget the details, and did not retain either the cake or oil.

"'Any other information we have bearing on this subject we have obtained from a report of the United States consul to Russia. We do not think that the manufacture of sunflower oil will ever become an industry in the United States, as we have not found or seen samples of seed containing a sufficient quantity of oil to pay the cost of manufacture.

"'The large product of cottonseed and corn oils, with their low prices, seems to fill the wants of the people, and not to leave room for anything new.'

"It is seen that the general impression which prevails in the minds of many to the effect that sunflower oil is manufactured in a commercial way in the United States is erroneous. The impression, however, is shared by the Board of General Appraisers at the port of New York, which decided that sunflower seed was imported into this country for oil-making purposes, and therefore was dutiable. The opinion of the General Appraisers is given in the following letter to the Secretary of Agriculture:

"'The General Appraisers have decided that these seeds are entitled to free admission, under paragraph 656, as a flower seed. They were assessed for duty at 30 per cent. ad valorem under paragraph 254 as seed "n. s. p. f." The General Appraisers held that they are flower seeds, and therefore free, the law providing that flower and grass seeds n. s. p. f. are free.

"'It is our opinion that these seeds are imported for the purpose of expressing oil which we believe to be used for adulteration of some kind. The reason for this opinion is that it is very difficult to ascertain what becomes of the seed. We do not believe that the sunflower is raised for its beauty, but rather that the seeds are cultivated for some such purpose as above indicated.
I would therefore respectfully recommend that the Department of Agriculture be asked to make this merchandise the subject of special investigation."

"To this request the Secretary of Agriculture made the following reply:

"Investigations made by the Division of Chemistry of this Department have shown that sunflower seed is not used for the expression of oil in this country, but is extensively used for poultry feeding, and for the food of horses and cattle not in the best of health. The admixture of sunflower seed with the ordinary food of these animals tends to restore them to health, and puts their systems into excellent condition. There is in this country quite a large commerce in sunflower seed used for this purpose.

"Careful investigation made by the Division of Chemistry has failed to find any factory in this country in which the oil is expressed from these seeds. Experimentally, the Division of Chemistry has demonstrated that this seed yields an excellent oil, suited for table uses, in the replacement of olive oil and cottonseed oil. Dr. Wiley, the chemist of the Department, has informed me that he has tried this oil, and has found it to be of most excellent quality. It is believed that eventually the industry of making oil from the sunflower seeds will be developed in this country."

1. The sunflower is a plant which can be grown successfully over large areas in the United States.

2. From the chemical analysis of the whole plant it is evident that it is a crop making a considerable drain on the elements of soil fertilizers; therefore it should be cultivated with proper attention to fertilization in order that the fertility of the soil be maintained.

3. One of the most valuable constituents of the plant is the oil which exists in large quantities in the seeds. This oil is formed by direct synthesis in the process of growth, and does not diminish to any great extent the fertility of the soil. On the other hand, the protein matter which exists in large quantities in the seeds is derived almost exclusively from the nitrogenous elements in the soil or added in fertilizers. There is no evidence that the sunflower plant has the property possessed by the Legumtoosas of assimilating free nitrogen by means of symbiotic organisms attached to its roots.

4. The economic production of the sunflower plant is now confined almost exclusively to Russia, where it is an agricultural industry of considerable importance.

5. In the United States the sunflower is grown as an ornament and for the production of seeds which are used chiefly for poultry and bird feeding, and for condimental and medicinal properties with farm animals.

"6. The oil of the sunflower seed is not produced commercially in the United States. It is very palatable, and makes, without refining, an excellent salad dressing. The residual oil cakes have a high nutritive value, quite equal, if not superior, to that possessed by flaxseed and cottonseed cakes.

"7. In the cultivation of the sunflower the methods pursued for growing Indian corn are to be followed, and the plant is capable of cultivation over almost as wide an area as Indian corn."

Registration of Stillts.

In our September issue we called attention to reports from several quarters that the commissioner of internal revenue was looking after the enforcement of the law regarding the registration of stills, and gave warning as to the danger of failure to comply with the requirements of this law.

We continue to hear of activity in this direction, and for the benefit of those who have failed to learn of the risk incurred or have neglected it, we again mention the matter.

A federal statute, as we before pointed out, requires that every person who "sets up" a distilling apparatus must register the same with the collector of his district. The revenue department holds that every such apparatus, for whatever purpose intended comes within the law; consequently if the pharmacist has an apparatus for distilling water, recovering alcohol, or other operations he must register it.

Application to the collector of internal revenue of the district in which the apparatus is "set up" will secure details as to procedure. It is better to look after this without the invitation of the revenue officials, as if some one brings an action defence is difficult, and if conviction follows heavy penalties are imposed from which there is no escape.

Something About Soap.

In the course of an address to the delegates of the Consumption Congress the emperor of Germany said that the value of soap and water as a preventative of disease should be impressed upon the minds of the youthful members of the population, and might prove a useful factor in their education.

It is strange indeed that such inculcation should be needed, and that a substance known to the ancient Romans should be unfamiliar to some of the inhabitants of civilized countries.

In tracing the history of soap a writer says that we may surmise that it was unknown to Homer, for in describing the articles taken to the river by Nausicaa for her ablutions he makes no mention of that now in-
dispensable toilet requisite. The elder Pliny, however, who died A. D. 79, gives an account of the manufacture of soap which, he says, was used by the ladies of Gaul for beautifying the hair and making it resemble the fair tresses of the Teutans. That it was used in the latter period of the Roman empire has been proved by the discovery at Pompeii of the remains of a factory with soap in a state of perfect preservation. The scriptural references to soap are, however, misleading, as the word, when it occurs, has been shown to be “borith,” or alkali, in the original text.

In England the soap trade did not exist till 1524, before which time London was supplied with white soap from foreign countries, though gray and black soaps were produced at Bristol and sold respectively at a penny and a halfpenny per pound.

It was Liebig who remarked that the quantity of soap consumed by a nation would be no inaccurate measure whereby to estimate its wealth and civilization. The rich in the middle ages, who concealed a want of cleanliness in their clothes and persons under a profusion of costly scents and essences, were more luxurious than we are in eating and drinking, in apparel and horses. But how great is the difference between their days and our own, where cleanliness is equivalent to comfort, health and refinement.

Pitiable middle ages, when art flourished but the beauty of cleanliness was ignored; “A thousand years without a bath!” cried Michelet in one of his historical works. Who can wonder that plagues and pestilences ravaged poor humanity in days when a “Grand Seigneur” of the court of Henry IV, of France, asked with a naive astonishment: “Why should one wash one’s hands when one does not wash one’s feet?”

Ink for Marking Boxes.

A comparatively cheap ink for marking wooden boxes may be made as follows:

Shellac .................. 1 oz.
Borax ........................ ½ oz.
Gum arabic .................. ½ oz.
Water ...................... 10 ozs.
Lampblack, a sufficient quantity.

Boil the shellac and borax with 8 ounces of the water until solution of the shellac is effected; strain and add the gum previously dissolved in the remainder of the water; lastly mix with the solution enough lampblack to give a satisfactory color.

This may be expected to adhere so as not to “smut,” as for spreading in use, that will depend in a measure at least on the nature of the board; if the wood is uneven or “spongy” the “ink” must be thicker, and applied sparingly, going over the letters a second time if the color is not deep enough.

Perhaps the following intended for marking bales might answer for wood equally well:

Gum arabic .................. 10 lbs.
Logwood liquor, sp. gr. 1.09 ...... 8 gals.
Fustic acid .................. 1 lb.
Iron nitrate sol. sp. gr. 1.37 .... 20 fl. ozs.
Potassium bichromate ........... 2½ ozs.
Water, a sufficient quantity.

Dissolve the gum arabic in 1 gallon of water, strain and add the logwood liquor, mix thoroughly and let it stand 24 hours. Then stir in rapidly the bichromate, dissolving in 3 quarts of boiling water. Then add the nitrate solution and fustic extract. If too thick for use add sufficient lukewarm water to reduce it to a proper consistency.

By following these directions it is said that a jet-black indelible ink is produced. It may be made blue-black by omitting the fustic extract.

When no appliance is at hand for determining the specific gravity of the logwood and iron liquors, a sufficiently near approximation of the strength and proportions required may be ascertained by a few colorimetric trials.

The logwood liquor may conveniently be made by dissolving the extract in water, and the strength can then be easily regulated.

The Olive Oils of Tunis.

(from the French of Messrs. E. Millian, F. Bertain-Chand and F. Malet.)

In the ancient arboreal cultivation of Tunisia the olive tree stood pre-eminent. Archeological discoveries attest the fact. In the center of the south of the Protectorate, which are rich in monumental ruins, numerous remains of the mills used by the ancient inhabitants for the production of olive oil have been discovered.

How and why did such a flourishing industry disappear completely? Not in the modification of the natural conditions. The cause must be sought in the history of the country. “The Roman peace” was succeeded by a period of anarchy and violence. The gigantic invasions which overthrew the Roman empire extended to the north of Africa. The old olive forests were destroyed. Tunisia lost everything when it lost its fruit culture. In a land where the rains are infrequent and vary greatly from one season to another, other harvests could not be relied on.

At Sfax, at Mahares, at Djerba, cereals afford a good yield in only one year out of five; at Sousse, in one year out of three. But the olive and the almond trees, by their vigorous roots, utilize the moisture of the soil
to a great depth, and are measurably independent of the consequences of climatic variation.

The cultivation of the olive is again of capital importance for Tunis. It now extends over an area estimated at 200,000 hectares, embracing fifteen million of trees.

Of late years, new and vast plantations have been undertaken. Notably in the region of Sfax the work has progressed with rapidity. This is due to the fostering care of the government, which has favored the acquisition of the lands called "sinalines."

According to the government enumeration in 1891, 10,756,000 trees were under cultivation. In Sfax there were 533,481 trees, which figure has been increased by a recent census to 1,175,603 trees. In 1898-9 there were produced 40,968,200 liters of pure olive oil and 5,840,000 of the residuum oil, a total of 46,808,200 liters. These figures will be soon materially increased by the production of the new plantations.

At Sfax the olive tree is in its district of predilection. The old forest is beyond question the finest to be seen, not only in Tunis, but wherever the olive is cultivated.

The soil of this region is formed of a reddish calcareous sand. Physical analysis yields 95 per cent. of calcareous sand, and only traces of clay. Wherever this proportion is lessened, and the quantity of clay increased, the vegetation is not so fine.

From a chemical viewpoint, this land is poor in nitrogen and phosphoric acid, but rich in lime and potash. The last is in the proportion of two to four parts in a thousand, and may be considered as essential for the olive. Chemical analysis yields but slight proportions of fertilizing elements, but the land, in consequence of its physical constitution, possesses in the highest degree the pillarly attraction, from the lower strata to the surface.

The layer of calcareous sand often reaches a thickness of fifteen meters. If it is kept in mind that the water of the subsoil, passing to the surface, is enriched by the diffusion of nutritive principles, it will be readily comprehended that, after traversing such a mass, it brings to the plants the aliment necessary for their development.

The remarkable fertility of the "sinaline" lands is therefore due to their physical constitution. There is no other apparent cause for the marvelous results secured.

The economic and industrial development has naturally kept pace with the agricultural extension. In a measure it has surpassed it by the substitution of perfected tools and the national European methods for the processes of the native "maseas."

In the list of exports, olive oil holds the second place, coming immediately after cereals.

In 1892, out of a total exportation of 37,202,504 francs, olive oils amounted to 8,623,177 kilogrammes, of the value of 7,920,188 francs.

In 1895, the total exports being 41,246,887 francs, olive oils figured at 10,515,487 kilogrammes, of the value of 6,879,365 francs.

In 1897 they amounted to 6,825,483 kilogrammes, of the value of 4,788,532 francs, in a total of 36,730,871 francs.

Commerce, like production, experiences the influence of meteorological conditions, and is subject at times to considerable variations. For a period of ten years the exports of olive oil have amounted on the average to 12 or 13 per cent. of the total expressed in francs.

In La Sahel, from Sousse to Sfax, along the coast and over a width of 15 to 20 kilometers the forest, the ghabs, as the natives call it, extends almost without interruption, and every village, however insignificant, has one or more mills. Kalaa-Sivra, Kalaa-Kebira, Sousse, Msaken, Djenmal, Monastir, Mehdia, Sfax, Djerba, are so many centers, where, in an average year, from 90,000 to 100,000 tons of olives are raised. It is in this Sahelian region that operators have been inclined the most to settle, since the establishment of the Protectorate, both on account of the superiority of the production and the greater facility for receiving supplies. At Mehdia, in 1897, there were sixty mills, of which twenty only belonged to Europeans, mostly French and Italians. Now there are not less than thirty-seven establishments provided with hydraulic or screw presses.

At Monastir, in 1892, there were three steam establishments and six worked by animal power. During 1898 and 1899 twenty-six mills adopted the most recent appliances of the factories at Nice. The industrial development was general, and it will continue in proportion as the plantations of 120,000 hectares of "sialine" lands come into bearing.

In the middle of the Protectorate the cultivation is the object of less assiduous care. The trees are often cut without any method. The climate and soil are much less favorable. The trunk, branches, leaves and fruit are frequently covered with fumagine. The conditions have tended to paralyze the enterprise which enjoys so rich a reward in the region of Sfax, and the yield and quality are inferior.

In the environs of Tunis and of Bizerta, at Cape Bon, and in general in the region subject to the regimen of the tithe, with rare exceptions, only Arab mills, with their rudimentary processes of extraction, are to be found. This, however, is a fortunate circumstance.

In the south of the Protectorate, at Yabes, Galsa and El Oudiane, the remains of ancient olive forests are found, showing that formerly the cultivation on land naturally dry held an important place in the rural econ-
mony of the country. Today the European oil works do not seem to flourish there.

In view of the agricultural developments in general, the government of the Protectorate, desirous of encouraging enterprises, constituted a commission, consisting of M. Muntz, director of the laboratories of the agricultural institute of Paris; M. Millian, director of the testing laboratory of the department of agriculture; and M. Durand, director of the central laboratory of the navy at Paris, for investigating the oils of Tunis. At that time the only approved methods of analysis were those applicable to the oils of Provence. So the oils of Tunis, on shipment to France, were rejected as presenting the chemical characteristics of olive oils, adulterated with sesame and cottonseed oils.

Messrs. Muntz, Millian and Durand, conscious of the imperfections of the analytical processes in vogue, inaugurated a new method and proved that the Tunis oils were absolutely pure, notwithstanding the reactions previously relied on.

In 1896, M. Bertainchand, director of the Tunis agricultural laboratory, published a study of the principal varieties of olives and of the olive oils of Tunis. He proposed to investigate the varieties of the fruit, which, with equal yield, would produce an oil rich in fluid fatty acids; for the reproval was cast on the Tunisian oils that they were too rich in margarine and concealed too readily.

Up to that time the researches of the laboratory had been confined to theoretical study. In 1897 the government of the Protectorate, at the instance of the minister of agriculture, decided on the erection at the experimental garden of Tunis of a small mill which would complete by practice the laboratory researches and afford the opportunity by testing on a sufficient scale of comparison between theoretical and practical results.

[To be continued.]

Fertilizing Materials.

(Continued.)

3. GROUND BONE.

With few exceptions, the samples of ground bone examined this year are of excellent quality, both as regards mechanical condition and chemical composition. Four were not accompanied by a guarantee as required by law; without exception, however, the analyses of these samples were found to warrant the selling price. Of the remaining samples, two were deficient in nitrogen, five in phosphoric acid, and one was low in both nitrogen and phosphoric acid. The average fineness of the samples of this year is somewhat better than that of previous years, while the average analysis is but slightly different.

The composition of the different samples varied from 1.33 to 5.48 per cent. of nitrogen, and from 17.00 to 28.58 per cent. of phosphoric acid. There is somewhat of a relation between the two, a high nitrogen content being usually accompanied by a low phosphoric acid, and vice versa, but this relation is by no means invariable.

Valuation of Bone.

In the schedule of valuations of bone this year, two changes were made, an increase of one cent and a half for the nitrogen in the finer grade, and of one cent for that in the coarser grade. The schedule prices for the phosphoric acid were left as before.

An examination of the valuations given in the table shows that they vary from $20.61 to $33.46 per ton, while the selling prices range from $19 to $40. The average valuation is $25.88, as compared with an average selling price of $28.70, a difference of $2.82. This difference last year was $6.96, and the decrease here noted is due mainly to a cause similar to that which reduced the difference in the case of complete fertilizers, namely, that the Station has increased its schedule of valuation about 11 per cent., whereas the average price has been increased by only 50 cents, or less than 2 per cent. The excess of selling price over valuation is much less in ground bone than in complete fertilizers, being less than 11 per cent., whereas that in complete fertilizers is over 31 per cent. The nitrogen and phosphoric acid in ground bone, therefore, are still much cheaper than when bought in the form of complete fertilizers.

4. MISCELLANEOUS FERTILIZERS.

Of the thirty-one samples of miscellaneous fertilizers, one is a complete fertilizer (Ira Hill’s “Potato Manure”), which was received too late to be included in the main tables. Three represent commercial materials furnishing nitrogen and phosphoric acid, and six furnishing phosphoric acid and potash; they consist either of true dissolved bone or plain superphosphate of lime, with ammoniates or potash salts added. There is one plain superphosphate. As in the case of complete fertilizers, the brand names of many of these materials are misleading. Samples branded “dissolved bone,” “soluble bone,” “alkaline bone,” etc., may contain no animal bone as such, but plain rock superphosphates. Particular reference to the guarantee should be made in these, and, indeed, in all instances. In most of those which are accompanied by a guarantee, the actual analysis substantiates the same, except in a few cases. Several of these preparations are not economical sources of plant-food, although the majority are much better than the average complete fertilizer in this respect. From an agricultural standpoint, care is required in the use of these unbalanced mixtures. In the case of the plain superphosphate, no valuation has been
Ammonia Soap.

Owing to the volatility of ammonia, and the ease with which ammonia salts are decomposed in presence of alkalis, the production of ammonia soaps containing any notable proportion of this ingredient has hitherto been a matter of some difficulty. Now, however, Oscar Sebel of Stuttgart, claims to have discovered a means of overcoming the obstacle, by reason of the property, exhibited by sal ammoniac (ammonium chloride), of combining with acid soap without undergoing decomposition. He takes an acid soap prepared by partially saponifying fat, and adds thereto, whilst still in a hot, liquid condition, 100—150 parts of sal ammoniac, previously freed from the greater portion of its contained water by warming. When cold, this soap is shredded fine, and mixed with soap prepared in the ordinary manner, the product then having the property of disengaging ammonia on being dissolved in water for use. — "Chem. Tech. Zeitung."

Test for Menthol in Oil of Peppermint.

Ferdinand A. Sieker (Pharm. Review) believes that a number of samples of oil of peppermint have been condemned by pharmacists as dementholized because of a failure to properly apply the pharmacopoeial test (placing in a mixture of snow or pounded ice, and salt). "It is a well known fact," he writes, "that a temperature of —21° C. can be attained with a mixture of snow and salt. The 0° of the Fahrenheit thermometer (equivalent to —17.7 C.) represents the temperature produced with a mixture of snow and salt, by the inventor of this instrument. In the hands of the inexperienced a much higher temperature may prevail, especially if no thermometer is used to control the work. For this reason it would be wise to insert in the text of the next revision of the United States Pharmacopoeia the temperature at which the oil should congeal. In determining the temperature of the sample of oil under examination, the thermometer should be inserted into the oil. Inserting the thermometer into the freezing mixture instead of into the oil is not sufficient, because the temperature of a heterogenous mixture of pounded ice and salt is evidently not uniform throughout." No difficulty was experienced in chilling the oil to —18 or —20° C. To determine the effect of the steam process of rectification, "100 parts of oil of fair color was rectified in a current of steam, the condensed water was not returned to the still but was rejected. The yield was 90 parts of an oil that was practically colorless when observed in comparatively small bulk, and 6.94 parts of an oil that was somewhat darker and of thick consistency. This dark fraction was collected last and could not be sold as "redistilled oil" without further rec-

The Soap Trade in Turkey.

An Austro-Hungarian official report says that makers of soap desirous of doing a trade with Turkey are earnestly advised to use only perfectly pure olive oil. All soaps containing cotton oil, pea-nut oil or sesame oil are not allowed to enter the country by the Turkish customs houses; this is especially so in the case of Salonic. The slightest admixture of cotton oil will suffice to lead to the confiscation of an entire consignment, and the exporter in question may consider himself lucky if he gets his goods back at all. Some exporters have ever had a great deal of trouble, because they had used olive oil which had been put in barrels formerly used for cotton oil.
The Trade and Industry of Greenland.

The Danish Export Association at Copenhagen have published some interesting particulars of the trade and industry of Greenland, and of the working of the Royal Danish Greenland Company. The following are extracts from those particulars:—'The Greenland trade always has been and still is monopolised by the State, and only Government vessels are allowed to sail in Greenland waters. The west coast of Greenland, between the 60th and 73rd degrees of latitude is closed to navigation by vessels of foreign nations, and by Danish vessels unless by special permission of the Danish Government. Such cases, however, in which the master of a ship, on account of shipwreck or other cause, is obliged to seek a harbor in Greenland, are excepted. For foreign travelers also Greenland is a closed country, unless the traveler in question has, beforehand, obtained the permission of the Danish Government, a permission, however, which is very seldom given, and only in those cases where the person concerned is backed by his own Government. The trade in seal blubber is carried on directly with the Greenlanders at the various trading stations and the outlying stations in connection therewith, where it is boiled down into oil, in which form it is exported to Denmark. There the oil is still further refined, and is put upon the market as light brown and seal oil. A third kind of oil is the so-called ‘three crown oil,' i.e., seal oil which has undergone a further boiling and refining process. The seal oil of the Greenland trade is stated to be very well known, and to be everywhere recognized as an excellent product. One thing that always brings it (the so-called 'Company Oil') to the front is that it is always produced as an unadulterated article. During the last few years, with a view to safeguard purchasers abroad against imitations, a rule has been in force that, if desired, every cask of seal oil must, on delivery, have the bung hole closed with the seal of the Greenland Company. By this precautionary measure the purchaser has a guarantee that the oil in the cask is real 'Company Oil.' About 10,000 casks of seal oil are produced annually, of which about one-fifth is light brown oil. Besides seal oil, other kinds of train oil, such as whale, cod, and carrion oil, are exported from Greenland to Denmark. These kinds of train oil, however, are produced in such small quantities as to be of no special importance in the train oil market. The seal oil was formerly sold by auction; at present, however, it is sold privately at prices that are fixed by the management. The head office of the administration of the Greenland Co. is in Copenhagen, and is under the control of a director. The administration is under the Ministry for Home Affairs. The exchange of goods between Greenland and Denmark is, as a rule, carried on exclusively by means of the nine vessels belonging to the company, viz., five brigs, three barques, and a small steamer, having a total register tonnage of about 2,000 tons net. Several of these vessels, which are suitable for sailing through drift ice, make two voyages a year, and the steamer, as a rule, three voyages. One of them, the brig named 'The Whale,' is nearly 100 years old.

**Tooth Soap.**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>White soap</td>
<td>600 grs.</td>
</tr>
<tr>
<td>Tincture of krameria</td>
<td>200 grs.</td>
</tr>
<tr>
<td>Precipitated chalk</td>
<td>220 grs.</td>
</tr>
<tr>
<td>Benzoic acid</td>
<td>30 grs.</td>
</tr>
<tr>
<td>Potassium chlorate</td>
<td>50 grs.</td>
</tr>
<tr>
<td>Borax</td>
<td>50 grs.</td>
</tr>
<tr>
<td>Saccharin</td>
<td>10 grs.</td>
</tr>
<tr>
<td>Oil of cinnamon</td>
<td>*</td>
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<tr>
<td></td>
<td>1 mm.</td>
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</tbody>
</table>

**Estimation of Crude Glycerine.**

Crude glycerines, says M. Ferrier, in the Journal de Pharmacie et de Chimie, are estimated by their density which ought to be 1.240, and by their yield of ash which should not be more than 5 per cent. M. Ferrier proposes the following method: The glycerine is evaporated, the tarry residue ignited, the spongy mass formed is broken up, 5 to 6 ccs of water added, and after a few moments of contact the solution is drawn off with a pipette, and a second similar washing adopted. These wash liquors are preserved. The contents of the evaporating basin are dried, and then calcined. The burning of the carbon takes place very quickly after the removal of the solution salts. When the ash is cool the wash liquors are added and the whole dried, the residue being brought to a dull red heat for one or two seconds. By this method the results are said to be constant, and exact to the fourth decimal place.
On Credit.

BY CHAS. D. WETTACK, IN NATIONAL PROVISIONER.

The old subject of credit it still being presented in so many shapes and forms that it will soon be a wonder if there will be anything left of it that will make it presentable in some other way.

Credit, so to speak, is simply the confidence reposed by one person in another to do a certain thing or things at a certain time—a contract pure and simple in which every one who has anything to do in this department has his own methods of construing it, and here are a few of mine:

1. On the application for credit; what is to be considered in the granting of such credit?
2. On the application of credit; what is to be considered as the refusal of such credit?
3. The relation that exists between creditor and debtor.
   a. The grantor of credit.
   b. The acceptor of credit.

Following the lines laid down above, the first proposition presents itself in this light. As a rule, credit is asked for when ready cash is not at hand, and it is desirable to obtain merchandise on the strength of certain statements regarding capital, reputation, experience, ability, speculative chances for success. On this first point there is a vast difference of opinion, and it will follow that admitting that the mercantile reports are absolutely valuable, yet it is not wise to pass by the experience of those whose names have either been given or obtained otherwise as reference. The points to be considered in such information would naturally be the length of time, the amount of purchases, if in accordance with good judgment, and the promptness in meeting obligations. In determining the basis on agency reports, it is questionable whether capital is to be considered in preference to character and habits and the reputation borne in the community; so that it is requisite that the one must depend largely upon the other, and undoubtedly, capital being a convenient factor, yet we have a vast amount of evidence where character, reputation and integrity succedeed where capital failed. Therefore, these two factors must be closely scrutinized.

The next point would lead us to closely observe when refusing credit:

1. Where the reputation and habits savor of dishonesty, incapability and lack of business principles, such as making statements that on the face are not absolutely true; in other words, apparently excessive in proportion to the capital, amount of annual business and general demands of the community.
2. Insufficiency of capital must also enter into consideration, yet it is not wholly sufficient to refuse credit on this alone, as the capital may be amply sufficient, yet so tied up and unavailable that promptness in meeting obligations is an impossibility. Frequently on this point credit is refused intuitively, and how often, when second thought is taken, in place of refusing, credit is granted, and at the close of the year the very same account is charged off as doubtful, having been returned by attorneys as worthless.

Taking up the third and last point, the grantor of credit is entitled to receive from the prospective customer the fullest confidence, as it is frequently within the power of the grantor to point out weak places that need strengthening. How often when a prospective customer is asked to furnish a statement of his affairs he rudely, often insultingly, declines, stating that his credit is unlimited elsewhere, and the order is countermanded. This at once shows a lack of the principles that justify credit. Happily it appears that this refusal to comply with the request of the seller is becoming less frequent, and those who are applying for credit in many cases feel that those with whom they intend to deal have at heart the best wishes for their success.

Changes in Naval Stores Rules.

The changes agreed upon in the rules governing the naval stores trade of Savannah will go into effect Saturday, March 16, when the ten days' notice required will have expired. These changes are the result of a recent fight over what were considered faulty methods in packing and other considerations affecting the sale and shipment of naval stores.

In the general rules of the naval stores it is provided in section 17 that instead of the inspection committee furnishing inspectors' type samples, as at present, the "inspectors must apply to the inspection committee for approved type samples at least once in two months or oftener, if necessary, and pay cost of same." Heretofore these types have been furnished the inspectors free of charge, and the intention is to put the cost of delivery and the samples on the inspectors. It will be noted that the foregoing relates to the general rules governing the entire trade.

A number of changes will be made in the rules regulating the naval stores trades among members of the Savannah Board of Trade. In section 5, which relates to turpentine, the entire section will be stricken out, and the following substituted:

"Packages must be well made, new or second-hand barrels, holding from forty-eight (48) to fifty-four (54) gallons gross; staves of white oak; heads of white oak or of white ash; all well seasoned, and not less than three-quarters of an inch thick for the staves, and one
inch thick for the heading when dressed. They shall have six steel hoops—say, two (2) head hoops, 1½ inches wide by 7½ inches gauge, and four (4) quarter and bilge hoops, 1½ inches wide by 18 gauge; all barrels to have at least two good coats of glue; each barrel to have one good coat of Spanish brown paint on each head, and, when filled, the bungs shall be tight and well glued in."

With reference to this change a resolution was adopted providing that "section 5 of the rules regulating the naval stores trade among members of the Savannah Board of Trade be suspended during the season of 1901-02 so far as to permit the cooperage companies to use their present stock of staves and headings, though lighter in dimensions than that required in said section 5."

The local rules as to rosin are also to be changed. In section 2, which provides that all samples of rosin shall be ¼-inch square, and taken at least six (6) inches from the surface of the rosin, and the grade made to conform to the standard of the Savannah Board of Trade and the New York Produce Exchange, the New York Produce Exchange is stricken out.

A further change will be in section 3, which will be changed from "before weighing all rosin shall be sampled and coopered," to "all rosin shall be weighed before sampling and coopering."

Section 9, reading as follows, will be entirely stricken out:

"In any sale of rosin by sample, any portion of the lot not coming up to sample shown may be rejected by the purchaser; provided, that when the lot sold is of various grades, and for proper cause rejections are made, and such rejected barrels are from the grades better than the average, the seller shall make good to the buyer the difference in value; and if the rejections are from grades below the average, the buyer shall make good to the seller the difference."

Section 12, reading as follows, will also be entirely stricken out:

"On re-inspection of rosin, if top-head samples are again taken, on all such re-inspections a margin of 10 per cent. be allowed for rosin either falling off or grading a grade higher than the original grade, and any differences beyond this percentage to be adjusted on a mutual allowance basis."—Oil, Paint & Drug Reporter.

Trade Papers Versus Circulars.

The tendency of manufacturers to use circular letters in place of space in trade papers is the result of a wrong idea of the value of a good name. The right kind of a trade paper is the adviser of its readers—it helps them over the hard places in business, it gives notice of new things, and makes a relentless fight on fakes and fakirs. It is, first of all, the friend of its readers. This kind of paper will not accept the advertisement of any firm which is irresponsible or fakish; this gives an implied good name to every advertiser. The business relations between persons introduced by a mutual friend are more cordial than those who meet because of the forwardness of the one who has something to sell. The trade paper will introduce and manufacturer or jobber to the class of business men he wants to reach. The introduction coming in the nature of an advertisement does not materially lessen the value of the introduction. The reader knows that the firm is responsible, or it would not be allowed to advertise in this particular publication.

If each advertisement is written in the nature of a direct bid for trade, the trade paper advertisement will bring larger results than a circular every time. The average manufacturer, however, puts a standard card in the trade paper space, and then supplements this advertisement with circular letters, and because returns come he things the letters are alone responsible. The results come because his trade paper advertising has established his good name. A business man nowadays who gets a circular letter from a strange firm has to be mightily interested before he will give it any consideration. There are too many good and reliable firms to experiment with strangers.

It is also a fact that it is the irresponsible manufacturer, driven out of trade papers, that resorts to circular letters. For the legitimate manufacturer or jobber to try to compete with this class is foolishness. It is foolish for two reasons: He simply injures himself every time he notices this class; second, it costs too much in proportion to what can be taken out of it. Advertising with circular letters is one of the most expensive kinds of advertising.—Canadian Druggist.

Candles in Morocco.

M. Albert Pinard, the French Consul at Casablanco, reports that Belgium has not yet succeeded in breaking up England's monopoly in candles, but has managed to bring her trade up to a value of 55,560 frs., or about one-fourth of the total imports. France is making no efforts to do anything in this article. The greasy, easily meltable, transparent, cheap Belgian candle is steadily pressing on in the wake of the English article, which still commands the market, because, although more solid, harder, and whiter, it is not any dearer than the other. The French candles stocked to not do honor to their country of origin. Prices are as follows: French, 400 gramme packet, 75 centimes; English, 15 oz. packet of twelve candles, 54 centimes; candles "made in Belgium," 15 oz. packet of twelve candles, 54 centimes.
Schieffelin & Co. imported at New York oil made from peach and apricot kernels. It was returned by the local appraiser as "oil almonds, free (tested and found from peach and apricot kernel oil)." It was assessed for duty by the classifying officer at the rate of 35 per cent. ad valorem, under the provisions of par. 3 of the act of 1897, as an "expressed oil." The importers claimed free entry as almond oil, under par. 626 of said act.

The collector based his decision upon the ruling laid down in G. A. 4340, wherein this Board held that peach and apricot kernels were not dutiable as almonds, and, in relying upon that ruling, the collector presumably concluded that as peach and apricot kernels were not dutiable as almonds, an oil made from such articles could not be entered as an almond oil. The provision in par. 626, however, permits free entry of almond oil, and the question to be decided was solely as to the commercial designation of the article. While the importers admitted that this oil was not made from almonds, but from peach and apricot kernels, it was also undisputed that the article is generally known to trade as almond oil. The testimony before the Board went to show that 75 per cent. of all so-called almond oil dealt in in the markets of this country is made not from almonds but from peach and apricot kernels. It was therefore decided that as the oil in question was known to trade and dealt in and always designated as almond oil, that that designation must control its classification. (Amer. Net & Twine Co. vs. Worthington, 111 U. S., 468, and cases there cited.) The protest was accordingly sustained.

A fat called "Ko-nut," composed entirely of coconut oil or fat, without a mixture of other substances, and without any addition of butter, is not considered oleomargarine, and is not subject to tax.

The above decision was rendered upon a sample of fat called "Ko-nut," manufactured by the India Refining Co., of Philadelphia, and put upon the market by the India Food Co., 8 North Market street, Boston, Mass. The sample is composed entirely of coconut oil or fat, without admixture of other substance, and without any addition of butter, and has not been salted or churned with milk or cream. The sample is perfectly white in color, and does not resemble butter, except in so far as coconut fat bears some general resemblance to butter.

"How much is this soap a cake?" "Take two for 15 cents." "Two? Do you think I buy soap by the wholesale?"—Fliegende Blitter.

Around the Soap Factories.

The Louisville (Ky) Soap Co, reports that the demand for its products has been so great that since fall the works have been running every night, except Saturdays, until 9:30 p. m. They now have in the course of erection two 10,000 barrel storage tanks and contemplate enlarging the plant to double its present capacity.

The following are new incorporations:

The Spence Degreasing Co. at Newark, N. J., to extract oils. Capital, $10,000. Incorporators: Wm. H. Spence, Anton H. Brex, Bennett A. Hankin.


The drumhead blew out of a 100-gallon steel tank at the works of the San Francisco Candle and Glycerine Co., San Francisco, recently, injuring two employees.

Fire has destroyed the soap factory of J. B. Hayes, Randolph, Me.

A new soap factory is a project for the vicinity of Richmond, Va.

The perfume establishment of the Doetschman Mfg. Co., New York, was almost destroyed by fire on the 2d ult., the damage being $2,000.

Jacob Levy, long familiar in the fat business in New York, has died.

F. Sigman, for a long time manufacturing soap in Cincinnati, has made an assignment.

At the recent meeting in Boston, of the New England Laundry Club, the Rev. Dr. Lorimer, was invited to speak and got off the following on a man well-known in Boston soap circles: "I was introduced early in the evening to one 'St.' or 'Wu.' or 'Mitch.' Wing, and of course I naturally looked behind his head, but am relieved to find that he is a Caucasian, though I understand his name has got him into trouble several times. Not long ago, I understand, he packed some goods to go to Shanghai, and someone saw the package, and not realizing who the proprietor was, said, 'Dear me, is he going back home after all?'"
The New York Petroleum Soap Co., whose plant was so greatly damaged by fire in February, are in full working order again.

The chemists of Kansas City and vicinity have formed the Kansas City section of the American Chemical Society.

W. J. Gibson & Co., of Chicago, have dissolved partnership, N. A. Hutchins, retiring. But the business will continue under the same name, W. A. Green having become associated with Mr. Gibson.

What is said to be intended for the largest chemical works in the United States, is to be erected by the Peyton Chemical Co., at Martinez, Cal. The product will consist largely of sulphuric and nitric acid.

Herman Tappen’s perfume factory in New York, has been destroyed by fire.

A dozen manufacturers of witch hazel extract are about forming the “National Witch Hazel Co.,” with head office in New York. The prospectus sets forth that the annual output of the extract—which is made exclusively in New England—is 20,000 barrels of fifty gallons each, but that before this reaches the consumer it is adulterated by middlemen to represent about three times that quantity. The combination purposes to obviate this evil and incidently increase its own profits very materially.

**PATENTS AND TRADE-MARKS.**

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

**PATENTS.**

668,556. Washing or cleaning apparatus. Eugene R. Edson, assignor to Buckeye Fish Company, Cleveland, Ohio.


**LABELS.**

8,155. Title: “Chinaman’s Secret.” (For washing Compound). Raymond M. Ferguson, Grand Rapids, Mich.

8,202. Title: “Medicina Medicated Toilet Soap.” (For Toilet Soap). Miltiades Cossenas, New York, N. Y.

8,217. Title: “A Dirty Hand Made Handsome.” (For Soap). Reniets C. Miller, Providence, R. I.

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**A Cake of Domestic Soap.**

Soap making, like many other industrial processes, undergoes changes from time to time, the old order passeth away, and giveth place to the new. The change is always in the direction of progress; the soap which was considered of excellent quality yesterday having today to take a second place, the quality of the material having been improved. Then new processes are being constantly brought forward, which, perhaps, for special purposes are found to be better than the old ones; and so changes have to be made in various ways to bring these new processes into use.

Then again, in the case of soap making, the great development which has taken place in the production and use of explosives has led to an increased demand for glycerine, and as the fats and oils are the chief sources from which this substance is obtained, the soap maker is now compelled to consider the glycerine as being of equal importance with the soap, and to take steps to separate it out, whereas a few years ago he simply looked upon it as a waste product, only fit to be thrown away. He has to vary his modes of working so as to be able to obtain this valuable product. It is possibly now a convenient time to describe the mode of preparing a cake of ordinary domestic soap, having in view the production of one of good quality, and the separation of the glycerine.

The fats which are used now-a-days in the preparation of such a soap are cottonseed oil, tallow, and rosin, and very good proportions to be used are one ton of cottonseed oil, half a ton of tallow and a quarter of a ton of rosin. If the soap maker aims at producing a good quality of glycerine, and we take it that such is the aim of every soap maker, attention should be paid to the quality of the fats which are used.

The old idea that any sort of fat is good enough to make a soap should be discarded, for it is not true. Good soap—and more especially good glycerine—cannot be made from poor and dirty fats. No matter how good the fats appear to be, it is in the interest of good soap making for the soap boiler to clarify them first by giving them a boil above a salt lye, using, say lye at about 5° Tw., to 10 gallons of which half a gallon of bisulphite of soda at 70° Tw. is added, this latter body exercising a purifying and bleaching effect on the fat, and much improves it for the subsequent operations.

Formerly soap makers, in making such a soap as we have in view, often boiled up the oil, tallow, and rosin together, but this is now not a wise course to pursue for two reasons, in the first place, rosin has no glycerine in its composition, and, therefore, does not add to the glycerine contents of the lye; secondly, all rosins contain some coloring matter, which, when boiled up with soda,
It, and this color goes into the lye, then into the glycerine, and the value of the latter is much reduced, therefore it is better to deal with the fats first, and this course will be considered.

Having dealt with the fats, we may now consider the alkali, caustic soda, which is used. Upon the quality of this depend, first, the quality which is required, and secondly, the quality of the crude glycerine. Caustic soda is met with commercially of various degrees of strength, denoted by the percentage of sodium oxide they contain, as 77%, and 60%. The first named is practically pure, but the last is very impure, the contrast being in the following analyses of good commercial examples of these two grades:

**Caustic Soda, 77 Per Cent.**
- Sodium hydroxide ............... 99.34%
- Sodium chloride ................. 21%
- Sodium sulphate ................ 10%
- Sodium silicate ................. 0.05%
- Sodium aluminate ............... 3.5%

**Caustic Soda, 60 Per Cent.**
- Sodium hydroxide ............... 72.50%
- Sodium carbonate ............... 1.25%
- Sodium chloride ................. 16.55%
- Sodium sulphate ................ 5.50%
- Sodium silicate ................. 0.32%
- Sodium sulphate ................. 1.50%
- Sodium hyposulphite ............ 2.5%
- Water ................................ 2.13%

It will be seen that while in the strong caustic there are few impurities which will trouble the soap maker, in the latter case the impurities are a decided source of trouble, for not only do they interfere with the smooth progress of the boiling up of the soap, but in the case of the sulphite and hyposulphite they pass into the crude glycerine and deteriorate it for various purposes, hence they ought to be kept out by all means, and this can only be done by using high strength caustic.

The soap boiler will find it convenient to make lyes from his caustics of three strengths, viz.: 15° Tw., and 25° Tw. The first, if made from 77% caustic, will contain 3 lb. actual caustic per gallon, the second 1 lb. per gallon, and the third 1 lb. per gallon.

In making a soap from the materials given above, the soap boiler will run into his pan 2 ton cottonseed oil, 1 ton of tallow, 20 gallons of water; he will now turn on his steam, heating up nearly to boiling, and then run in 200 gallons of lye at 15° Tw., carefully watching for any foaming and taking due precautions accordingly. If there appears to be much difficulty in starting the saponification, some soap scraps of a good quality of soap may be thrown in. When it is seen that the alkali and the fat have got a good grip of one another, there is run in 3½ ton more of cotton seed oil, ½ ton of tallow, and 110 gallons more lye of 15° Tw. strength, and the steam kept well boiling. After about an hour, 120 gallons of lye at 20° Tw. may be run in, and the boiling continued for an hour, when 93 gallons of lye at 25° Tw. may be added.

By this time all the alkali required to saponify the quantity of fat used will have been added, and all that the soap boiler will have to do will be to watch for the usual signs that the soap has become properly boiled up and ready to be salted out, which operation may be proceeded with, and the soap cut out of the lye. If due care has been taken the spent lye will be good quality, but dark in color, and will yield a crude glycerine of excellent quality, free from impurities.

The next proceeding will now be to proceed to the cleansing boil, and to add the rosin. For this it will be best to put into the pan a weak brine liquor, just strong enough to keep the soap open, add the 2½ ton of rosin and 78½ gallons of lye at 20° Tw., and boil up until signs are seen that the saponification of the rosin is complete, and the soap begins to close up somewhat and have a good grain. This boil will take some five to six hours. Care should be taken that the soap remains open all the time, and if there be any tendency to close up, more brine should be added to keep it just open.

After this boil the pan should be allowed to rest for 24 hours, for the soap and lye to separate out. The lye may be run away, while the soap is given a closing boil by sending steam through it until it becomes transparent and homogenous; it is then run into the crutcher, where it is mixed with scent to the soap maker's fancy, and from the crutchers to the tannery to set.

Working in this way a good soap is cheaply produced without a great deal of trouble, while the glycerine of the fat can be recovered of good quality, which will more than repay any extra trouble there may be, although there is really none, when working according to some of the accepted methods.

**Finality in Invention.**

Invention is essentially continuous and progressive. It grows partly by development from within of the original idea, partly by the incorporation of various modifications and improvements from without. There is practically no such thing as finality in invention—no stage at which the inventor may fold his hands and say, with absolute certainty, "it is finished."

The recognition of this truth has been the foundation rock upon which the majority of the epoch-making inventions of history have been built up. Few, indeed, even of the common devices and implements of life have more than a faint resemblance to the form in which
they were originally conceived and fashioned. More often than not the history of their development is a story in many chapters—a record of patient experiment, careful reasoning, countless trials, many failures, a few successes, and a triumph that came with double certainty because it came by slow degrees.

Invention as a science and art (for it involves both knowledge and practice) is better understood both as to its meaning and scope than it was. Thanks to the spread of education and the more practical spirit of the age, the popular ideas on the subject are changing for the better. The field of invention is ceasing to be regarded as a kind of idealized Klondike or Cape Nome, where the happy adventurer turns up the miner's nugget without the hardship and the heartbeat of the miner's life. This mistaken view was, and for that matter is yet, answerable for a number of half-finished but inherently valuable inventions, which, for want of a little persistence, have nothing to show but a pigeon-holed patent and a machine that lies neglected in the cellar. In thousands of such cases, the inventor has thrown down his tools, if not at its very threshold, at least within measurable distance of success.

Proof of the truth of what we say is to be found in the fact that no sooner has some successful invention demonstrated its commercial value, than a certain number of inventors—and sometimes their name is legion—announce that the device is old, and that ten, twenty, aye, fifty years ago they "invented" that identical thing, and should, therefore, be the recipients of its profits. We venture to say that, in nine cases out of ten, these claimants are sincere, and that, if asked to, they could produce the patent from the pigeonhole, and gather up the decaying fragments of the machine from the cellar. We also venture the statement that a like proportion of them differ from the successful inventor in this, that whereas they believed that they had reached finality, he did not; and by continuing his efforts upon the lines of experiment, invention and design, he carried their crude or incomplete investigations to a successful issue.

The records of the Patent Office contain thousands of half-finished inventions which are so far valuable that, if the owners would only develop them with a fraction of the zeal and intelligence with which they conduct the ordinary affairs of life, they would richly benefit both themselves and the general public. This is proved by the fact that there are not a few inventors who find it exceedingly profitable to take up the principles of discarded inventions, and by developing a practical embodiment of the same, give them that commercial value, which, by a little patience and industry might have been secured by the original inventor.

An instructive case in point is found in the hydraulic system of air compression which is illustrated elsewhere in this issue. It is possible that some of our readers will recognize in this plant a development of the ancient method of producing a furnace blast by means of falling water. The theory upon which this system is operated is by no means new, and some of the finest steel in the world has been made in the catalin furnace with the assistance of the water-blast. Yet, in spite of the fact that many attempts have been made to render the trompe, as it is called, amenable to modern requirements, and that a most careful scientific investigation was made some twenty years ago in Philadelphia of its theoretical possibilities, it is only within the last few years that the tromps, with its low efficiency, has been developed into the present highly efficient air compressor. We quote this as one among many similar illustrations of the fact that inventions with great inherent possibilities may lie dormant in a crude and impractical form for centuries, awaiting only the attention of a scientific and practical mind to make them permanently and adequately useful.—Scientific American.

Don't Worry.

When things go contrary, as often they do,  
And fortune seems burdened with spite,  
Don't give way to grieving all dismally and blue—  
That never set anything right!  
But cheerfully face what the day may reveal,  
Make the best of whatever befall;  
Since the more that you worry the worse you must feel,  
Why waste time in worry at all?

We have our troubles, some more and some less,  
And this is the knowledge we gain—  
It's work and a brave heart that lighten the stress  
Of a life's share of sorrow and pain.  
Then face with this knowledge fate's cruellest deal,  
Too plucky to faint or to fall;  
Since the more that you worry the worse you must feel,  
Is it wisdom to worry at all?

—Ripley D. Saunders in St. Louis "Republic."

The Scent of Royalty.

Young Queen Wilhelmina, of Holland, uses nothing but can de Cologne and white heliotrope soap. The Empress of Russia has on her dressing table the following French essences: Jonquille, jasmine, frangipani, violet, créme duchesse, and lavender water. The Empress of Germany prefers the perfume of new mown hay to any other. The Dowager Queen of Italy shows her patriotism by invariably using Palermo soap and Roman cream. The Empress Frederic, like Queen Wilhelmina, thinks that there is no perfume in the world which equals that of the best can de Cologne. Our late Queen's
choice of perfumes was made long ago; for half a century she remained faithful to patchouli. Queen Alexandra is more eclectic. Not a perfume, cream, dentifrice, or toilet water is put on the market which is not carefully examined for her by a connoisseur. Otherwise she has no preference, but, like the bee, flits from flower to flower.—Science Siftings.

Washing Powder and Preparations.

BY DR. STIEFEL, IN SOAPMAKER & PERFUMER, ENGLAND.

In the examination of a large number of brands, of English and German origin, all of more or less celebrity, the author found the following to be typical formulae:

1. Calcined soda .............. 80 parts
   Glauber salt ................ 10 parts
   Kitchen salt ................ 5 parts
   Water ........................ 5 parts

2. Calcined soda ................ 90 parts
   Borax ........................ 5 parts
   Water ........................ 5 parts

3. Calcined soda .............. 91 parts
   Ammonium chloride .......... 6 parts
   Soap powder ................ 2 parts
   Water ........................ 1 part

4. Caustic soda .............. 40 parts
   Soap powder ................. 30 parts
   Starch ..................... 10 parts
   Water .................... 20 parts

5. Calcined soda ........ 90 parts
   Sodium hyposulphite ...... 6 parts
   Borax ........................ 2 parts
   Water ........................ 3 parts

Jackman recommends the following as a succedaneum of the much-used bleaching solutions:

Sodium carbonate, crystal ... 6 pounds
Borax ........................ 1 pound

Dissolve in a gallon of boiling water, let cool, and add 8 ounces potassium carbonate and 6½ fluid ounces of ammonia water. Over 2 pounds of fresh quick-lime pour a gallon of boiling water, stir well, and set aside. After a little time pour off the clear liquid, and add to the foregoing. The dissolved lime decomposes a corresponding quantity of the sodium salt, and thus produces a weak solution of caustic soda.

Z. and W. Pataky, Berlin, propose the following:

1. Caustic soda ............. 150 parts
   Rosin ..................... 75 parts
   White soap, shaved up ... 50 parts
   Alum, in coarse powder ... 50 parts
   Sodium bicarbonate ...... 290 parts
   Sodium silicate, solid ... 290 parts
   Water .................... 600 parts

Bring the water to a boil, and dissolve the water-glass therein. Add the rosin in little pieces, and, when dissolved, the soap, soda, alum and bicarbonate in the order named. Stir continuously until solution is effected.

A most excellent preparation is the following:

Caustic soda ..................... 4 parts
Ammonium carbonate .......... 1 part
Potassium Carbonate .......... 1 part
Borax .......................... 2 parts
Water .......................... 32 parts

Dissolve the soda in the water (cold water can be used, as it heats up as solution progresses), and in the solution dissolve, first the potassium carbonate, then the borax, let cool down, and finally add and dissolve the ammonium carbonate.

DIRECTIONS TO GO WITH THE SOLUTIONS.

These washing liquids should be accompanied by directions for their use. They may be worded as desired, but should contain the following facts:

1. In the outset add to the cold water that is to be used for the wash sufficient of the washing liquid to render it distinctly alkaline.

2. To the first suds (Seifenwasser) add, as closely as may be, double the quantity added to the cold water. To the second suds add somewhat less, and rinse the clothing after the use of this.

3. To the last rinsing water but one, if a little oxalic acid in solution be added, it at once removes all alkalinity, thus eliminating any possible chance of its affecting the bluing subsequently used.

Finally, Dr. Stiefel adds another wash powder, especially for linen goods and wearing apparel, though also answering for cotton wear. For woolen wear it requires the addition of saponaria terete:

Ammonium soda (sodium carbonate) ............. 96 parts
Potassium carbonate, impure ... 12 parts
Sodium hydrate .................. 17 parts
Sodium silicate ................ 72 parts
Potassium permanganate ...... 2 parts
Oil of thyme ................. 1 part

Powder the solids and mix.

A point to which attention should be called in labelling the containers of all these preparations is the fact that spring and river waters almost always contain more or less iron in some form, and that this substance will gradually, but sooner or later, cause the yellowing of goods washed in such waters, no matter what preparations may be used, or what care be taken in the laundry. The remedy, where rain or pure water cannot be obtained, is to submit the wash to an occasional bleaching process.
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The Scientific American, a paper known probably to every one of our subscribers, in a recent issue, says:

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There is an extensive literature upon soap making, but most of them are adapted from foreign practice or deal with antiquated methods. The present book cannot be placed in this category. It is an excellent contribution to the literature made by a man who thoroughly understands modern American soap making and is in no sense a compilation. To those who are looking for a thoroughly practical book on soap making of all kinds, with special reference to modern practice, we heartily recommend this book. It is freely illustrated, and the number of formulas for soaps of various kinds is large. The section devoted to the actual processes used in the manufacture of soaps of all kinds occupies three quarters of the volume. It is an admirable book."

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POSITION WANTED. SPECIAL.

An expert soap maker who has made nigres the study and work of a lifetime, has devised a method by which more can be realized for the nigres than is now obtained from the settled soap. Correspondence is now desired with first-class soap companies with the view of making a business engagement. All answers strictly confidential. References given. Address: “Progressive Chemist,” care American Soap Journal.

SOAP MAKER WANTED.

Wanted—Practical Soap Maker; to take charge of the manufacturing department of an established soap company—(three kottles.) Must be familiar with the manufacture of settle, half-boiled and cold process laundry and toilet soaps. Must have up-to-date ideas for economical manufacture. Mention length of prior service, age, salary expected and references. All communications will be treated in strict confidence. Address, care of this office “Progressive.”

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Situation wanted by a practical soap maker, makes laundry, floating, mill, boiled and half-boiled toilet, red oil, olive oil, chip, tar and castile soaps, light colored soap from cotton oil fats, fine settled resin soap. Twenty years experience. Address: J. E., care of this paper.

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Situation wanted by a practical soap maker and chemist to take charge of manufacturing department, experienced in laundry and milled soaps, perfumery, etc. Address: D. L., care American Soap Journal.

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We Manufacture
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Readers in search of Supplies or Machinery, etc., not advertised in this paper, are invited to write us for information which we shall endeavor to supply.
The American Soap Journal & Manufacturing Chemist.

A MONTHLY JOURNAL OF THE MANUFACTURING CHEMICAL INDUSTRIES.

DR. HENRY GATHMANN, Publisher,
322 Windsor Place.

MILWAUKEE, WIS., May 1, 1901. VOL. XI. No. 9.

The American Soap Manufacturers' Association is once more an established fact. After many months of preliminary correspondence a meeting of soap manufacturers was held in Chicago on April 9 and 10, and a permanent organization was perfected, with James B. McMahon, of the N. K. Fairbank Co., as president, and other officers as noted in our report on a later page.

The efforts of the association, according to the constitution adopted—which we print in full on another page—will be directed to the correction of what are generally understood to be the abuses and evils of the soap trade, and Article X of the same says that "any person, firm or corporation engaged in the manufacture of soap may be elected a member by the Board of Directors on nomination by a member."

The firms who have so far joined the association are in a measure the same ones who composed a previous association of this kind, many of whom have always regretted that the latter was ever allowed to become inactive and thereby non-existent, and a few of these are indeed responsible for its revival. With the experience of the past to guide them, there is reason for hoping that the labors of the association will bear fruit and that means will be found for ameliorating the very unsatisfactory condition of a business which was once considered an exceptionally prosperous one, but which in latter years had become almost quite unprofitable in the midst of surrounding prosperity. We refer for further details to the following pages of the Journal.

Our article on "The Status of the Soap Maker" and the letter on "The Condition of the Practical Soap Maker," both of which we published in the April Soap Journal, have been commented on in various ways by a large number of our correspondents during the month. It is with regret that we have to comply with the requests not to publish these comments, most writers asserting that time was lacking to make a careful reply and preferring not to see their brief off-hand remarks printed.

They do be saying now that ghosts are about the old Bradshaw soap works, a deserted building in Minneapolis. We understand that a similar story was used in San Francisco some years ago to "make the ghost walk" about a soap factory. Perhaps the Minneapolis works are to be started up again.
A cake of “Liebig’s White Tar Soap” has been sent us by Maross Jenkins. The soap acts like tar soap and smells rather like tar soap and no doubt is tar soap, but it does not look like tar soap, for it is white. It is also unique in the way it is pressed, the dies representing “The Birth of the Pearl” according to a celebrated painting, in which the pearl is represented by a woman resting on a large sea-shell and dressed in a blue ribbon which is tied around the outside of the package.

On the advertising matter accompanying the soap it is stated, among other things, that “Baron Liebig’s White Tar Soap will make a bad boy clean and drive the bugs out of his head,” and also that it “Will not make colored girls white. Try it for the bath.”

In response to our request for a statement of the different uses to which soap is put, we have received quite a few replies for which we thank our correspondents. Unfortunately, the replies have been mostly lists of the more ordinary uses, however, and in spite of the number of replies our list has not been extended by more than three or four items. However, on another page we present the collection, such as it is, and once more invite additions.

One of these correspondents, signing his letter “Chemist,” writes some further details, as follows: “In reference to your request for special uses to which soap is put I should like to call your attention to its use as a lubricant for tin foil. The soap used must be neutral, that is, contain no free caustic, and it is best not to have any carbonate present although a small amount of silicate can be used as a filler in such a soap. The soap is made up in a very dilute solution and lubricates the tin, while passing between rollers, in the process of being rolled out into thin sheets. The foil to which I have reference is used for caps on bottles.”

We have been shown a paper box for soap which, according to the printing on it, contains “Cuticura” soap made by the Guido Moebins Soap Corporation, of Boston, Mass.

And thereby hangs a tale.

The box in question comes from Mexico, where a soap manufacturer has apparently studied the trade mark laws to advantage. According to the Mexican law, if our information is correct, whoever is first in undertaking to pay the tax on registering a trade mark is entitled to its exclusive use, and the party in question is said to have by this simple means secured the exclusive use in Mexico of the brands “Cuticura,” “Cashmere Bouquet” and one or two others. As paper boxes are next to impossible to obtain in Mexico, and the printing of boxes of the above description in this country might have certain difficulties, they are imported for the purpose from Europe, and there you are.

We are also informed that the makers of Cuticura soap in this country have brought suit against the Mexican firm, but from the foregoing the outlook for the former does not seem overbright.

A late (European) reviewer of the soap and allied exhibits at the Paris exhibition says in his report: “From foreign countries, other than European, but little in the nature of soap has been shown. Only Japan, Mexico, and the United States showed a few soaps without, however, bringing anything better than the ordinary. In the United States group we looked in vain for that black soap made from cotton oil refuse, which externally resembles tar soap, is rather low in price and as stated is made from the feet of cotton oil refining (soap stock).”

Small wonder that the learned reviewer saw nothing new! To look in vain for the soap described it was not even necessary to go to the Paris exposition; we have failed to see it in this country even on more than one occasion.

Mineral soap stock is being offered by the National Refining Co. of Cleveland, Ohio, for the use of soap makers; see their announcement on another page of this paper. The use of this material is a feature familiar to most of our readers, as it fulfills certain requirements which no other material can satisfy. This advertisement has not appeared in this paper before and readers writing the firm will confer a favor all around by mentioning the SOAP JOURNAL.

How Much Glycerine?

Editor American Soap Journal:

Dear Sir—In reference to the communication in your April issue of the SOAP JOURNAL, from J. T. Robertson Co., would state that the best way to ascertain how much glycerine is contained in 100 lbs. of olive oil foots would be to have an analysis of a sample of the foots made. A soap manufacturer may consider that he is getting good results if he is obtaining in refined glycerine 6 per cent. of the stock (tallow, grease, cottonseed oil, palm oil, or lard) saponified, and very good results if he is obtaining 7 per cent.

If he is working up a good deal of coconut oil of course his yield may be and should be higher, as this oil
On Starting a Soap Factory.

Phoenix, Ariz., April 15, 1901.

Dear Sir—In reply to the inquiry through the columns of the American Soap Journal as to the least possible amount of capital that could carry on a business for the manufacturing of soap, the idea being to start with the least possible expense and with the smallest amount of machinery with which the business could be conducted successfully, depending on future developments for the enlargement of the equipment: To my knowledge the smallest start in the soap business that was successful was Proctor and Gamble’s, of Cincinnati; they started with a barrel and a barrel, gathering grease and ashes, and their machinery was in proportion. Their best grease was made into the old-fashioned dip-candles and their inferior grease they made into a soap and sold it. I worked for them for six years and I was in a position to know their first start at soap making. I knew their first soap maker and was acquainted with him for six years. This is my knowledge is the smallest start that was ever made in the soap business; they were very successful and they are selling soap yet. Although I have been in California since 1871, I have known at least two men who have started in the soap business with capital and have made decided failures of it. The Dinmore Soap Co., of San Francisco, started with $40,000 and quit in two years. Dinmore then came to Los Angeles in 1893 and rented the A. C. Breit soap factory and took in as a partner a man named Carpenter and dropped $20,000 in two years. Then Carpenter sold out to Erkinberg, of Cincinnati, the starch man, and he also sank his wad and quit. The last named have all made failures. I don’t think there is any such thing as luck in the soap business, but there is such a thing as good management and it applies to the soap business as well as to any other line of business. Mr. Adams, you can take the top of the ladder or the bottom, and the smallest amount of capital and machinery means the bottom of the ladder in every case.

Yours very truly,

Phoenix Soap Co.  THOMAS WHITNEY.

Chinese Wax—Vegetable Wax.

From a long and interesting paper by E. Gilbert, Laureate of the Institute, in the Union Pharmaceutique, on the “Chinese Vegetable Wax” (known also as “Insect wax,” “vegetable spermaceti,” “Japan wax,” etc.), we extract the following:

According to the Chinese historian, Siu Konang Ki, this wax was first known about the middle of the thirteenth century, and for a long time the quantity produced was so small that it was excessively rare. As late as 1788 the Abbe Gosier speaks of it as a product reserved for the “Son of Heaven” (i. e., the Emperor of China) and for the grand mandarins.

Its nature and the details of its origin, etc., were first written up for European readers by Du Halde, in 1735, in his “Description Chronologique, Historique et Geographique de la Chine,” and the details given by this author have been reproduced with greater or less accuracy by almost every author who has since written upon the subject—always, it is to be remarked, making the substance one of the most curious of the natural productions of that land full of curiosities.

The general nature and properties of the substance are known to every pharmacist. Physically, it equals in whiteness the spermaceti of the whale; it fuses at 83°C.—qualities that make it of the highest industrial value, and especially in the manufacture of candles.

It must not be supposed that the substance is the result of a purely vegetable exudation, such as the wax of the Myrica cerifera, or myrtle wax (frequently also called “Japan” wax), since it has been discovered that it is the product of a special secretion, caused by a wound made in or through the bark by an insect now believed to be a new species of coccus. It is, therefore, a substance of duplex origin, the one being animal (from the nature of the insect inflicting the wound), and the other vegetable, yet in its nature it is purely vegetable, since it is the secretion of vegetable organs.

The substance has, for many years past, not been imported into France, and there are few pharmacists of the present day who know it from personal use and experience. For this reason, probably, while it is of distinctive character, it has been, and is still, frequently confounded with other, and totally different substances of insect origin—the secretion, for instance, of the Coc-cus cerifera, or white lac; or that of the Flata limbata, Flata nigricornis, or other similar insects of the family Fulgoridiae. The character, however, of substances like white lac (furnished by Flata limbata) have been shown to have nothing in common with the substance under discussion.

Today the trees bearing the wax are cultivated with great care by the Chinese, and are the source of a very
considerable income to them, the product, a year or two ago, amounting to about 400,000 pounds. The following embraces about all that is known concerning the culture of the trees; and is taken from Chinese sources:

Toward the beginning of March or April of every year those engaged in the culture (who inhabit certain districts of China and Japan) spread through the country, searching for the cocoons containing the eggs of the insects—now called *Coccus cinensis*. These, when found, they roll in leaves of the ginger plant, and as soon as possible suspend them on the branches of certain trees, of the species of which there still remains considerable doubt. After exposure of from 8 to 30 hours, the eggs commence to hatch, the insects, then white and as large as grains of millet, passing out, and at once fixing themselves to twigs of the tree or hiding beneath the leaves. They have, however, occasionally, a tendency to descend the trunk of the tree, and to hide themselves in the grass, if any be convenient thereto. For this reason the Chinese keep the tree trunks clean of moss, etc., and scrupulously remove every particle of vegetation from beneath them.

Wherever an insect has fixed itself on the limbs, or branches, there soon begins to appear, all around it, an abundant white, wax-like secretion, which slowly, but constantly augments until it completely surrounds the branch or limb on which the insect is fixed.

Now comes a curious phenomenon—as the wax augments, the insect itself dwindles in size, growing smaller and smaller, as the area of waxy deposit increases—a fact which, no doubt, gave rise to the fable (probably of Chinese origin) that the insect changes itself, or is changed, in some manner, into wax.

In June and July, and sometimes in August, when the secretion ceases to augment, the crop is gathered. This is done by scraping the branches of the tree where it is deposited. Usually the mass comes off with great ease, but sometimes, especially in August, it is difficult to remove. A fact that the indigenes were slow to learn was that the August product is necessary to furnish the insect with material for cocoon building.

In all the details concerning the wax and its production, the most difficult, as well as important points hitherto, were the discovery of the identity of the insect, and of the tree that furnishes the material. Fortunately, a distinguished English naturalist, Mr. William Lockart, has removed all doubts as regards the insect, but as to the tree, we are still in doubt.

On one of his trips to China, Mr. Lockart was fortunate enough to secure a mass of crude wax, in which he subsequently found embedded the insect in all stages of its existence (as an insect). There was also attached to the bark of the tree producing it, a valuable find, that will probably lead to the identification of the tree. Indeed, the investigation has already been narrowed to three trees (*i. e.*, the *Rhus succedanea*, the *Ligustrum lucidum*, *Hybiscus syriaca*), and it will probably not be long before the identity will be established.

As to the insect, it was found, as supposed by Westwood, to be a new and hitherto unknown coccus, to which he gave the name *Coccus cinensis*, or Chinese coccus. In its adult state, in fullest development, it is almost a spherical in shape. The skeleton, dried, was spherical, slightly wrinkled, hollow, with a glistening interior, and of a deep reddish brown color. It varies in diameter (according to the state of shrinkage, mentioned above) from four-tenths to one-tenth of an inch (0.4 to 0.1 inch). On the abdominal side there is a linear opening, showing the part attached to the bark of the tree. The microscope discovered numerous females of the species embedded in the wax.

The value of the annual product of the wax, on the spot, is about 600,000 francs, or, say $115,000, but is capable of great development. The Chinese use the substance as a medicament in many diseases. It is claimed to be very fattening, making flesh with great rapidity. The native doctors use it as an application to broken limbs, and claim that it has the power of soldering bone together, etc. The Abbé Gosier found it to be an excellent vulnerary, and when used internally to have considerable stimulating power.

The Olive Oils of Tunis.

(*Continued.*)

The Experimental Mill

was finished in 1898, and in 1899 the chemical laboratory, to which it had been attached, was charged with a course of extended experimentation, for which suitable apparatus has been provided.

The buildings are (1) a shed serving for an olive store house, and (2) the mill, properly so-called. The first is covered simply; the other is protected by grooved and jointed planks.

The shed shelters two rectangular basins, measuring superficially 3 meters by 5. In these the olives are deposited in layers 0.20 m., or 0.30 m. at most, in thickness, and are kept there as short a time as possible. Each basin, allowing the layer to be 0.20 m. thick, while therefore, contain 3 cubic meters of olives, or together nearly 5,000 kilogrammes—a sufficient supply for the mill for six or eight days.

The mill contains the motor and machinery, the stock to be speedily operated on, a laboratory and office, an inclosure of oil cisterns, and an inclosure of "cufes" (large reservoirs).
The machinery and appliances consist of a hand-
power depulper, a crushing mill with three running
stones, an Epinec depulper-crusher, a Gardner motor
of three-horse power for working the crushers, and, in
case of need, the pumps, two hydraulic presses, a water
pump arranged to be worked either by hand or by the
motor, an oil pump, four oil tanks, three oil filters, a
boiler of enameled iron, two work tables, a laboratory,
screw press, and a small laboratory crusher.

The depulper is worked by means of a horizontal
shaft and bevel gearing, which communicate the move-
tment to a vertical shaft bearing a ribbed disc. A hop-
pier, with an Archimides screw distributor, separates the
olives between the projections. The distance of the disc
from a revolving plate is regulated by an arrangement
which raises or lowers the shaft by acting on the lower
bearing. If the distance is sufficiently lessened, the
depulper acts as a crusher, and the stones are broken; but
the yield is not so good. As a depulper it can act on 100
kilos of olives an hour without overtaxing it, and with
the employment of but one man for its working.

Crushers.—The First (Tripex system), of which
M. Millian is the inventor, consists of a circular bed, on
which roll three lava millstones of uniform diameter,
but placed at unequal distances from the shaft, and
passing over three different courses. These courses
overlap to the extent of 0.10 meter, so that an olive
moving from the centre of the crusher and reaching the
periphery will undergo successively the action of three
stones running at constant pressure. Like all crushers
of this system, it carries a continuance for raising the
stones and regulating their distance from the bed, while
leaving such stone free to rise under too great resis-
tance. The vertical shaft receives the movement from
the motor by means of bevel gearing. It is centered
securely by girders.

The stone separating crusher of the Epinec system
is formed of two millstones, each connected with an in-
dependent group of three wheels, but governed by the
same shaft, on which they revolve with gentle friction.
Each group of wheels acts with four rows of flint, 3
centimeters apart. The diameter of the wheel is 0.80
meter; the thickness, 0.11 m. The bed of the crusher
is of marble, and the periphery forming the border is
lined with enameled firenie. The blades of the sides,
called "collectors," and those of the center, called "olive
dispersers," are of hard wood. Two combs of plated
metal prevent engagement between the stones and the
rows of flint. All contact of iron with the pulp is
strictly avoided. This crusher will be soon tested. Ac-
cording to the inventor, it will free the olives of their
pulp without breaking the stones.

The pulp will be subjected to a pressure of 70 kilos
per square centimeter; then the oil cake will be con-
veyed to the ordinary crusher, and the new pulp pressed
at the rate of 200 kilos per square centimeter.

Presses.—Two hydraulic presses, the one of largest
size with separating plates for second pressure, afford a
total maximum power of 1,200,000 kilogrames. The
time necessary for a first and second pressure is 15
minutes.

The oil cisterns are of cement, and four in number.
They are lined, one with glass, another with faience, a
third with cement, and the remaining one with zinc.
They have each the capacity of a cubic meter, and are
arranged on a bench of masonry 0.25 meter from the
door. The communication is by a glazed earthen pipe,
0.35 m. in diameter, which is sufficient to allow for
cleaning. The covering is of tin. This kind of cistern
is new and to be experimented with.

Oil Filters.—There are three, of a capacity of 150
to 200 liters, except the Capilleri. They are of three
different systems which are to be tested: (1) The sys-
tem Capilleri, or pocket filters; (2) the Simonston sys-
tem, or press filters; and (3) the cotton tubular system.
The Capilleri filter is patented and sold by the inventor.
The Simonston is in current use and favorably regarded.
The cotton tubular system is new, and the invention of
M. Millian. It consists essentially of a tin cylinder per-
forated with holes, 0.05 m. in diameter, in which are a
series of tubes constituting the filtering surface. The
sides are perforated with holes, and the interior filled
with cotton waste. The increase of filtering surface
obtained by replacing the foundation plate with the
tubes is considerable.

The experimental boiler is of enameled iron, and of
a capacity of about 700 liters. It is suspended within
another larger boiler of ordinary iron.

If it is desired to raise the temperature of the oil in
the interior receiver to a high degree, a bath of water,
salt or oil is put in the space between the receivers and
heated by a reverberatory furnace.

If the desire is to lower the temperature a refrigerat-
ing mixture, ice, ice and salt, or some other, is intro-
duced between the two receivers.

The interior receiver is of enameled iron, of the
Danto-Rogat system, and of a weight of about 200
kilos. It is removable, and is controlled by a chain and
pulley suspended from the roof. The heating, properly
so called, is produced by the surface of the larger boiler,
under and around which circulate the flames of the
furnace.

THE EXPERIMENTAL WORK
Embraces investigations for the purpose of ascertaining
the advantages of the different systems of crushing, and
of the different methods for preserving the oils; suc-
cessive observations on the progress of the acidity of
the oils in receivers of different materials; the study of
the different systems of filtering and of determining the most proportions time for this operation; the chemical analysis of the different varieties of olives, with details of the percentages of fatty matters, the fluid and concrete fatty acids, the density, the iodine indications, etc., etc.

A programme so vast will require years for its full development, but a sufficient commencement has been already made to justify continuing this description with some results of immediate interest.

Meeting of the American Soap Manufacturers' Association.

 Held at the Grand Pacific Hotel, Chicago, Ill., on April 9th and 10th, 1891.

The meeting of soap manufacturers, referred to on another page of this paper, was called to order at 11 a. m. by Mr. Kirkman, of Brooklyn. Mr. James B. McMahon, second vice-president of the N. K. Fairbank Co., was unanimously elected temporary chairman, and Mr. Richard B. Oleson, secretary of the Allen B. Wrisley Co., was elected temporary secretary.

Mr. Bennett, of the Central City Soap Co., moved that, as there were a number of vacant seats in the front part of the room, each member come forward as his name was called by the secretary and take one of the seats nearer the presiding officer. Proceeding upon this order, the following gentlemen were found to be present:

From Central City Soap Co.—Mr. Bennett, Mr. Delamater.

From B. J. Johnson Soap Co.—Mr. O. E. Johnson.

From the Minnesota Soap Co.—Mr. J. E. Robb.

From Havenson & Sons—Mr. M. M. Havenson.

From P. C. Tomson & Co.—Mr. H. M. Back.

From the Globe Soap Co.—Mr. H. A. Iverson.

From the N. K. Fairbank Co.—Mr. J. B. McMahon, Mr. F. H. Brennan.

From Oetinger & Co.—Mr. Oettinger.

From Allen B. Wrisley Co.—Mr. Wrisley, Mr. Drury.

From S. W. Bell & Co.—Mr. Frank S. Bell.

From William Waltke & Co.—Mr. Louis Waltke.

From Maple City Soap Works—Mr. Hanna, Mr. Meredith.

From Proctor & Gamble Co.—Mr. H. L. French.

From Colgate & Co.—Mr. Austin Colgate, Mr. Shepard.

From Haskins Brothers & Co.—Mr. Newton, Mr. L. J. Haskins.

From the Cudahy Packing Co.—Mr. Michael Cudahy, Mr. Cudahy, Jr., Mr. Strauss.

From the Liberty Manufacturing Co.—Mr. Geo. F. Sears.

From Peet Brothers & Co.—Mr. William Peet, Mr. Wyman.

From Armour & Co.—Mr. Darlington, Mr. Ross.

From Melzer Brothers—Mr. A. Melzer.

From Morris, Butt & Mueller—Mr. Butt.

From J. & G. Haas Soap Co.—Mr. M. J. Haas.

From Schultz & Co.—Mr. F. G. Grace.

From James Beach & Sons—Mr. James Beach, Mr. Edward J. Beach.

From the Marinette Soap Co.—Mr. Chas. S. Brown.

From James S. Kirk & Co.—Mr. James A. Kirk, Mr. George Schroeder.

From Joseph Biechele Soap Co.—Mr. Reinkendorff.

From the Summit City Soap Works—Mr. Gustave Berghoff.

From W. & H. Walker—Mr. James P. Walsh.

From Schulte Soap Co.—Mr. Henry Schulte.

From Kirkman & Son—Mr. A. S. Kirkman.

Mr. Kirkman announced that he was instructed by Mr. Charles F. Miller, of Lancaster, Pa., to assure the meeting of his full co-operation and assistance in any measures which might be taken looking to the benefit of the industry.

Mr. Bennett stated that Mr. Post, of the Detroit Soap Co., was on his way to Chicago and would arrive shortly.

It was also stated that Mr. Reardon would be present in the afternoon.

Mr. McMahon, in a brief speech thanking the gathering for the honor conferred upon him, made a few well–chosen, timely remarks upon the disastrous nature of the conditions at present universally prevalent in the industry, and upon the opportunity offered by this gathering to correct some of the many abuses.

Upon motion it was then voted that the chair should appoint a committee of seven (of which committee he should be himself chairman) to formulate a plan for the association on such a basis as to insure permanency. The chair, consequently, appointed to serve with himself upon this committee:

Mr. Kirkman, Mr. French, Mr. Delamater, Mr. Robb, Mr. Peet, Mr. Oleson.

Upon meeting after adjournment, it was found that Mr. E. Arnold, representing the Ricker Soap Co., had appeared. Mr. Edmund Reardon had also entered the meeting. Mr. Kirkman had been called to Brooklyn, but left assurances of his hearty co-operation in the association's work.

At the request of the presiding officer, Mr. McMahon, the temporary secretary then read a telegram from Lantz Bros. & Co., of Buffalo, and letters from:

Fairchild & Shelton.

Thompson-Chute Soap Co.

B. T. Rabbitt & Co.
The committee then submitted a constitution in seventeen articles for the consideration of the meeting. The constitution was first read in its entirety, and then taken up and voted upon article by article, and, with slight changes, the articles were all adopted with the exception of Articles X and XI, which were temporarily passed. Upon acceptance by the body of all the other articles, Articles X was thereupon taken up. The report of the committee provided that the initiation fee should be fixed at $50, with the annual dues fixed at $300, upon all alike. It developed that this was not entirely satisfactory to the body, and it seemed to be generally considered that such a provision as this was calculated to impose upon the smaller factories an unduly large share of the burden of maintaining the association, while the larger factories would escape with a comparatively low assessment. Various plans for compromise were suggested, and after considerable debate it was voted to fix the initiation fee at $50 and lay the balance of Article X on the table until the next meeting.

An adjournment was then had until 9 a. m. Wednesday morning, April 10th.

Upon the meeting's re-assembling on Wednesday morning, April 10th, the following additional gentlemen answered to the roll call:

From Conkling Chemical Co.—Mr. Stansbury.

From Swift & Co.—Mr. Munson.

Upon motion of Mr. Robb, Mr. Letts, ex-secretary of the Iowa-Nebraska Wholesale Grocers’ Association, and Mr. Kennedy, representative of the Minnesota Millers’ Association, were invited to address the meeting upon the subject of organization as a remedy for trade evils. They both spoke briefly of the particular snags likely to be encountered during the initial period of the organization, the patience necessary to properly derive the benefits from an organization, and the ultimate, inevitable good resulting to all concerned.

The committee on plan of association then reported an amended schedule of initiation fees and annual dues, providing that the initiation fee should be reduced to $10 instead of $50, and that for the purpose of assessing the annual dues, the manufacturers should be divided into classes, as follows:

1. Those doing a business of $100,000 per annum or less, who were to pay as annual dues the sum of $50 as a fixed fee.

2. Those manufacturers doing a business in soap of from $100,000 to $250,000 per annum, who were to pay a maximum annual fee of $200.

3. Those manufacturers doing a business of from $250,000 to $500,000 per annum in soap, who were to pay maximum annual dues of $300.

4. Those manufacturers doing a business of over $500,000 per annum, who were to pay a maximum annual fee of $400.

After some discussion this clause was amended to provide that the assessment in classes 2, 3 and 4 should not be less than $100, $150 and $200 per annum, respectively; and it was provided that all members should pay half of their annual dues immediately, but were not to pay the balance unless the board of directors should deem it expedient. Article X was then unanimously adopted as amended.

The association next proceeded to take up Article XI of the constitution, and with slight changes in the wording, proceeded to adopt it.

A vote was then had on the adoption of the constitution as a whole, and it was adopted by a unanimous vote. (A copy of the constitution as adopted follows this report below.)

Upon motion the chair was instructed to appoint a committee of nine upon nominations, whereupon the chair appointed the following committee:

Mr. James A. Kirk, Mr. C. E. Johnson, Mr. Darlington, Mr. Reardon, Mr. Eavenson, Mr. Ives, Mr. Walsh, Mr. James Beach, Mr. Grace.

The association then took a recess until 2 p. m. in order to give the committee on nominations opportunity to consider and report a list of officers.

A luncheon was tendered by the Chicago members to the visiting brethren in the meantime, in the German Room of the Grand Pacific.

Upon re-assembling, Mr. Letts, ex-secretary of the Iowa-Nebraska Wholesale Grocers’ Association, spoke again at some length, and answered several questions regarding the plan and method of association work.

Mr. Darlington then read the report of the committee on nominations, as follows:

President—H. J. French.
First Vice-President—J. B. McMahon.
Second Vice-President—Richard Colgate.
Treasurer—William Peet.
Directors—James A. Kirk, Edmund Reardon, John Hoge.

Mr. French immediately arose and regretted that it would not be possible for him to accept the nomination, and that it would be impossible for him to serve as president of the association. The matter was then referred back to the committee, who made a second report, as follows:
President—J. B. McMahon.
First Vice-President—Richard Colgate.
Second Vice-President—James A. Kirk.
Treasurer—William Peet.
Directors—M. M. Eavenson, Edmund Reardon, John Hoge.

Mr. Darlington stated that this report of nominations was conditional as far as the nomination of Mr. William Peet for treasurer was concerned, it being understood that if elected treasurer he was to pay into the treasury the balance remaining from the old association. Mr. Peet created considerable merriment by explaining that the high interest laws in effect out west were so stringent in their demands that the interest had long ago eaten up the capital.

Upon motion of Mr. C. E. Johnson, duly seconded, the rules were suspended and the secretary was instructed to cast the ballot of the association for the ticket furnished by the nomination committee, and the motion unanimously prevailed.

After some felicitous remarks by Mr. McMahon, a roll call was had, whereupon the members present, without exception, expressed themselves as heartily sick and tired of the conditions prevailing in the industry. Mr. Cudahy in particular brought down the house by stating that his firm had found it necessary to give, among other premiums for the return of soap wrappers, a baby carriage, and that he expected that they would next be called upon to provide a baby. The general sentiment of the meeting seemed to be that it was expedient to abolish, as soon as possible, all gift schemes, all prizes for the return of wrappers, and all deals. Upon motion the entire matter was referred to the board of directors, with the request that they take as speedy action as possible.

The meeting thereupon adjourned, subject to the call of the chair.


ARTICLE I.
NAME.
The name of the organization shall be The American Soap Manufacturers’ Association.

ARTICLE II.
OBJECTS.
The objects of the association shall be to cultivate closer and more friendly relations between members, collect and disseminate information relating to legislation, traffic, transportation, and similar matters affecting the soap industry; lessen or abolish un-business-like trade methods as regards discounts, credits, etc., and in general promote the common interests and welfare of its members.

ARTICLE III.
OFFICERS.
The officers of the association shall be a president, two vice-presidents, a secretary and a treasurer. There shall also be a board of seven directors, comprising the president, vice-presidents and treasurer with three other members. Their term of office shall be one year, or until their successors are elected and qualify.

ARTICLE IV.
POWERS OF BOARD OF DIRECTORS.
The board of directors shall have power to fill all vacancies occurring in the interval between the annual meetings of the association; to fix the duties of officers; to hire and fix the compensation of such employees as may be required; to make arrangements for the meetings of the association; to audit all bills and direct payment thereof; to raise funds and apportion the same; to devise and recommend such measures as they may deem proper and expedient to promote the objects of the association; and in general to attend to the business of the association in the intervals between its meetings.

ARTICLE V.
ELECTIONS.
The president, vice-presidents and treasurer and the board of directors shall be elected annually by ballot at the annual meeting. Each individual, firm, or corporation, member of this association, shall be entitled to one vote, and the candidate who shall receive a majority of the votes cast shall be declared duly elected. The secretary shall be chosen by the board of directors at the time of the annual meeting, or as soon thereafter as possible, and shall serve for one year, or during the pleasure of the board of directors. The board of directors shall fix his compensation and determine the expenses of his office. The secretary shall not be a member of the soap trade.

ARTICLE VI.
DUTIES OF PRESIDENT.
It shall be the duty of the president to preside at all meetings of the association and of the board of directors. He shall call special meetings of the association on the written application of ten members, and special meetings of the board of directors at his pleasure.

ARTICLE VII.
DUTY OF VICE-PRESIDENTS.
It shall be the duty of the vice-presidents to act in the absence of the president in the usual order.

ARTICLE VIII.
DUTIES OF SECRETARY.
It shall be the duty of the secretary to maintain a permanent office of the association; to give notice of and attend all meetings of the association and of the board of directors; to keep a record of all their doings; to keep a list of all the members of the association; collect all
assessments and dues and pay them over to the treasurer; preserve all correspondence of the association, and perform such other duties as the board of directors may assign to him, and he shall be required to give a bond of $5,000, to be approved by the board of directors, and be at all times subject to their control.

ARTICLE IX.
DUTIES OF TREASURER.

It shall be the duty of the treasurer to keep account of all moneys received and expended for the use of the association and to make disbursements only upon vouchers issued by the secretary and approved by the president. He shall report at each annual meeting to the association, and quarterly to the board of directors. His accounts shall be audited by a special committee of three, to be appointed annually by the president, and he shall be required to give bond in the sum of $10,000, to be approved by the directors.

ARTICLE X.
MEMBERSHIP, ANNUAL DUES, ETC.

Any person, firm or corporation engaged in the manufacture of soap may be elected a member of this association by the board of directors on nomination by a member, but not more than one representative of a firm or corporation shall be entitled to vote at any meeting of the association. All applicants for membership shall subscribe to a letter of application in form to be prescribed by the board of directors and pay an initiation fee of $10 and such additional dues as may be assessed by the board of directors, not less than $50 per member, in any association year. The members of the association shall be divided into four classes on a basis of annual sales of soap, each manufacturer to state the class in which he proposes to enter his business, and his statement to be accepted as conclusive.

SCHEDULE OF ASSESSMENTS.

<table>
<thead>
<tr>
<th>Class</th>
<th>Minimum Assessment</th>
<th>Maximum Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$100,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>2</td>
<td>$250,000</td>
<td>100,000</td>
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<tr>
<td>3</td>
<td>$500,000</td>
<td>150,000</td>
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<tr>
<td>4</td>
<td>$500,000</td>
<td>200,000</td>
</tr>
</tbody>
</table>

Assessments shall be payable semi-annually in advance, the first installment representing the minimum assessment, being payable at the beginning of the association year, and the second installment, of such amount as the directors shall determine, being payable six months later, the aggregate of said assessments, however, not to exceed the maximum indicated for each class in the foregoing schedule.

The initiation fee of $10 is payable only upon entrance and not on the occasion of subsequent annual renewals of membership.

Membership shall be for the period of one year, or until the next annual meeting, and new members joining the association in the interval shall, in every instance, pay the initiation fee and be assessed pro rata for the unexpired portion of the year on the same basis as full-term members.

ARTICLE XI.
ALTERNATES.

In the event of the unavoidable absence of its president, a corporation may delegate some representative, either an officer of employe, to attend in behalf of said corporation, any meeting of the association.

The same provision shall apply in the case of a copartnership, when no member thereof is able to attend, permitting such co-partnership to authorize any employee to represent it. Such representative, either of a firm or corporation, must bring credentials in writing satisfactory to the association. These credentials, when accepted, shall be deposited with the secretary, and the vote of such representative shall be binding on the firm or corporation for which he acts.

ARTICLE XII.
REGULAR MEETINGS.

Regular annual meetings for the choice of officers and the transaction of other business shall be held on the second Tuesday in April of each year, at such place as the board of directors may designate, notice of which meeting shall be mailed by the secretary to each member of the association at least fifteen days prior to the holding thereof.

Regular meetings of the board of directors shall be held quarterly on the second Tuesday of April, July, October and January of each year, at the office of the association, unless some other place shall be selected, in which event due notice of time and place shall be mailed to each member of the association.

ARTICLE XIII.
QUORUM, NOTICES, ETC.

At all meetings of the association a majority of the total number of members shall constitute a quorum, and at least fifteen days before each meeting a notice in writing shall be mailed by the secretary to each member. At all meetings of the board of directors four members shall constitute a quorum.

ARTICLE XIV.
REDRESS OF GRIEVANCES.

All grievances, or charges of violation of rules, if made in writing by any member of the association, shall be addressed to the secretary, and be by him referred
to the board of directors, who shall have full power to investigate said complaints and enforce the by-laws in reference thereto, and such decisions of the board of directors as they may deem just and expedient.

**ARTICLE XV.\(^1\)**

**EXPENSES OF OFFICERS, ETC.**

The members of the board of directors, or any regular or special committee of this association, or any officer thereof, shall be entitled to reimbursement for actual traveling expenses when in attendance upon any committee meeting of this association, or of the board of directors, or in the performance of any service for this association which may entail upon him expenses of any sort. Such expenses shall be paid upon vouchers signed by the secretary and approved by the president, in the same manner as provided for the disbursement of expenses. No member shall be reimbursed for his expenses when in attendance upon the regular or special meetings of the association.

**ARTICLE XVI.**

**BY-LAWS—HOW MADE.**

The board of directors of this association shall be authorized to make by-laws for the orderly conduct of their business and meetings, and those of the association, and for the furtherance of the interests confided to their care.

**ARTICLE XVII.**

**AMENDING CONSTITUTION.**

This constitution may be altered or amended by a majority vote of the members present at any meeting of the association, notice of the proposed changes having been given in writing to each member not less than fifteen days prior to the meeting at which they are to be considered and voted on, said notice to include the text of the proposed amendments.

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**How Much Glycerin is Contained in 100 Pounds of Olive Oil Foots.**

The answer to this question is a rather difficult one to formulate so that it shall bear at least a fairly correct idea of the proper amount of glycerin produced from the above quantity of material given. It is absolutely impossible to state with any degree of certainty the quantity produced. Feet differ very largely in their composition—that is, in the quantity of real oil they contain, hence the impossibility to give an absolutely correct answer. The only way in which an absolutely definite idea can be gained is to estimate the quantity of real oil in each and every lot of feet. By real oil, we mean the olein and palmitin, and from these data calculate the glycerin. It must be remembered that feet always contain a large amount of free acids, and that free acids do not yield glycerin upon saponifica-

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\(^1\) See text for full citation.
The above figures may be taken as a very fair average. It is true, foots usually contain a larger amount than 50 pounds of saponifiable matter, but the excess of the amount is usually represented by free acids. Free acids of any kind (we are having reference at the present time to the fatty acids), while they combine with alkali to form soaps, will not produce glycerin in this reaction, but produce water instead.

The second half of the question, i.e., how much glycerin is saved by soap manufacturers on the different kinds of oils used, is still more difficult to answer, for a great many of the manufacturers do not save any at all. We could, however, upon the foregoing basis, calculate how much might be saved. It has certainly proved advantageous from a commercial point of view to save, or make use of, all products which have commercial value.

L. A. HARDING,
387 Linwood Place, St. Paul, Minn.

Chemical Industries in the United States.

In the annual address of the president of the American Chemical Society many interesting statistics were presented showing the development of chemical industries in the United States. In the comparative value of chemicals imported in 1890 and 1900 the figures indicate an enormous growth of the alkali industry during the decade and show that in this branch of industry we are entirely independent as regards supplies of foreign producers. In 1890 milk sugar to the value of $16,510 was imported, as against $399 worth in 1900. The figures for glycerin show the possibilities of expansion of another industry, while the almost astounding growth of the importations of alizarine and coal tar products and dyes indicate the necessity for the further development and utilization of our own sources of crude materials of like character and the extension of that already begun. The capitalization represented in the chemical industries in this country, as reported in the stock lists, amounts to the enormous value of $1,500,000,000, and this takes no account of many of the incorporated industries not specially reported, nor the industries not incorporated and yet active. The cash capital actually invested in the recently developed electrolytic industries, and not included in the above, amounts to more than $1,500,000. The new beet-root sugar industry involves a capitalization of nearly $100,000,000. A fair estimate leads to the conclusion that more than 5,000 chemists are actually at work in the United States, and that 80 per cent. of these are connected with the industries.

The Uses of Soap.

**Home Uses.**

*Toilet Purposes—*
- Toilet soap, shaving soap, tooth soap, shampooing.

*Laundry Purposes—*
- Washing cloths.

*General Household Work—*
- Cleaning woodwork, carpet soaps, scouring soaps.

**Textile Purposes, Etc.**
- Fulling, scouring, silk manufacture.
- Rope manufacture.

**Machinery, Etc.**
- Lubricating (drills, etc.).
- To prevent slipping of belts.
- Tinfoil manufacture (lubricating it).

**Medical Purposes.**
- General cleansing and disinfecting purposes.
- Medicated soaps for skin diseases.
- Suppositories, enemata.
- Making pills, ointment bases.
- Soap plaster.
- Soap liniment.
- To neutralize excess of acids after cauterization.

**To Destroy Insects.**
- Dog soap; sheep dips.
- Washes to destroy bed bugs in bedsteads.

**As Part of Other Products.**
- Ink for typewriter ribbons.
- Furniture creams.
- Colored crayons and marking inks.
- Transfer (duplicating) paper.
- Sizing papers.
- Various polishing preparations.
- Shoe and leather dressing; harness soap.
- Phonograph cylinder composition.
- Alum soap for waterproofing fabrics.

**Odd Uses.**
- Making soap bubbles (for play and other purposes).
- Decorating mirrors in buffets, etc.
- As medium of exchange by certain tribes.
- Lastly, burglars are said to use soft soap to put on windows to prevent the noise of falling glass.

**Dealing in Olive Oil and Foots.**

The New York Produce Exchange has, through members interested in olive oil and foots, formulated rules to govern the trade in these articles in future. These new rules provide for the appointment of five members of the Exchange as a committee on olive oil and olive oil foots, whose duty it shall be to decide all
disputes submitted to them as arising between members dealing in the articles named. After providing for the licensing of inspectors, testers and weighers of oil and foots, Rule III provides:

Sec. 1. Packages must be new or thoroughly cleaned. They must be delivered in good shipping order. A barrel shall not contain under 45 nor over 60 gallons each for olive oil, and not under 325 nor over 500 pounds net for olive oil foots, in case of delivery. Deliveries of olive oil shall be made by actual gross weight at time of delivery, and invoice tares at the rate of seven and one-half (7 1/2) pounds net to the gallon, and in lots in accordance with the terms of sale.

Deliveries of olive oil foots shall be made by actual gross weight at time of delivery and invoices tares in lots in accordance with terms of sale.

Sec. 2. All tenders of olive oil and olive oil foots shall be made between the hours of 9 a. m. and 4 p. m., and unless rejected within forty-eight hours from delivery of sample shall constitute a good delivery. When oil in barrels is sampled by order of the inspector the inspector shall draw samples of not less than 10 per cent. of the lot in question, such samples to be drawn in such a manner as to prevent the introduction of any moisture. A fee of $2 shall be paid to the inspector by the party adjudged in fault.

All transactions in olive oil and olive oil foots among members of the New York Produce Exchange shall be governed by the above rules, but nothing therein contained shall be construed as interfering in any way with the rights of the members to make such special contract or conditions as they may desire.

A Remarkable Salt Deposit.

By Charles F. Holder, in Scientific American.

Few had heard of the Sea of Salton up to 1892. At this time the Colorado River broke its barriers and flowed into the desert of California, flooding it to an extent of hundreds of square miles. In the vicinity of Salton was one of the largest salt deposits in America; the water encroached upon it, and for a time threatened the industry, but after creating an excitement which spread over the entire West, it receded. The rumor was to the effect that the new sea was so vast that it would change the climate of southern California.

The deposit of salt at Salton is one of the sights of California. It lies in a depression almost 300 feet below the sea level, and was some time in the past the bed of a sea, or extension of the Gulf of California. From the train, which passes nearby, the tract looks like a vast snow field, and in the early morning is frequently the scene of beautiful mirage effects. The salt deposit, which is essentially rock salt, covers about 1,000 acres, and is at present the center of interest on account of the dispute of rival companies over the possession of the property. The company in possession has shipped from this place annually about 2,000 tons of salt, valued at from $6 to $8 per ton, according to quality. The outfit of the salt mine consists mainly of a crusher, a drying building, and a dummy line from the salt beds to the Southern Pacific railroad, not far distant. The work is carried on mainly by Indians, who can withstand the intense heat of the desert—150 deg. in June—and the glare better than white men. The work is interesting and novel. The drying house is a building 600 feet in length, about which hundreds of thousands of tons of salt are heaped, having all the appearance of snow. Here the salt is dried and milled. The salt is collected at first with a plow—a singular machine with four wheels, in the center of which sits an Indian guiding it; the motive power is a dummy engine some distance away, which hauls the plow along by cables. As it passes, the steel breaker is seen to cut a broad but shallow furrow, eight feet wide and three feet long, throwing up the ridges on either side. Indians now follow along, and with hoes pile up the salt in pyramidal forms, which later is transported to the mill. Each plow harvests 700 tons of salt per day. A singular feature of this bed is that the salt is being deposited daily by springs which run into the basin, and as the water evaporates it leaves a crust of almost pure chloride of sodium, which ranges from 10 to 20 inches in thickness, over the lake. It will be seen that there is no danger of exhausting the supply, which is forming all the time; and, in point of fact, the plows have in the past years worked almost continuously over the same area, only about ten acres having been plowed.

The salt, when delivered at the plant, is hoisted to the upper floor and placed in a bulkhead breaker, where it is reduced to particles of the same size. It then passes through a burr mill and is well ground. After this it is sifted and is finally passed through an aspirator, which cleanses it of all foreign material, when it is ready for packing in bags. The salt is used for a variety of purposes, and is of several different grades, the lowest being unrefined—a product called hide salt, used in manu factories. Large quantities are sold for sea-bathing purposes, a certain amount producing a very similar chemical equivalent to sea water. Other grades are prepared for the table, diary, and for the use of druggists.

Industry of Artificial Perfumes.

From the French of Justin Dupont (in La Nature).

Among the discoveries which have passed from the chemical laboratory into the domain of industry, some of the most fruitful have been those connected with the production of artificial perfumes. Of course, this industry, whose markets are naturally restricted, cannot be compared with that of artificial coloring matters, whose annual production is estimated as amounting to hundreds of millions of francs. Yet, as much from its successful practical results as from the ingenuity of its researches, this industry deserves attention.

M. Jungfleisch, the distinguished professor of the School of Pharmacy, thus characterizes it: "Among the industries created in France within the last twelve years, not the least original is that of which M. de Laire has been the initiator, even if it does not involve the most extended theoretical investigations; these frequently impose, under the most varied forms, the task always difficult, of transforming a laboratory experiment, always delicate, into a manufacture suitably regulated."

Up to 1876, the time when M. G. de Laire, already well known from his interesting work on coal tar coloring matters, established at Grenelle the first factory for the manufacture of vanillin, the chemical products employed in perfumery and confectionery were limited to nitro-benzol (oil of mirbane), benzoic aldehyde (oil of bitter almonds) and certain ethers having fruit odors. That date is the commencement of the history of this interesting industry.

The artificial production of a perfume can be obtained in two very different ways. In certain cases, where the odorous properties have been separated in a state of purity from the natural material, identically the same compound with all its physical, chemical and organoleptic properties can be prepared. This has been accomplished in obtaining "vanillin," the principal odor of the vanilla pod, "conmarin," the principle of the tonka bean, cinnamie aldehyde, the principle of the oil of cinnamon, etc. At other times compounds possessing intense and characteristic odors, strikingly resembling those of the natural products, have been produced, although no chemical analogy has been established between them. This is the case with the artificial musk, ionone, iso-cugenol (odor of carnations), phenyl-acetic aldehyde (odor of hyacinth), terpineol (oil of the valley), piperonylic aldehyde (heliotrope) and other perfumes.

Contrary to experience in several branches of chemical industry, that of artificial perfumes created in France by M. de Laire at the same time as in Germany by Tieman and Haarman, has never been in danger of failure, and the recent exhibit of De Laire & Co. made a good showing beside the German exhibit. We shall briefly describe some of these products:

Vanillin.—The synthetic reproduction of vanillin was really the beginning of the industry of artificial perfumes. Tieman & Haarman first effected this result. They resorted for this purpose to coniferin, the glucoside found in the sap of the pine.

Coniferin divides, under the dehydrating reagents, into glucose and coniferyl alcohol, alcohol of which vanillin is the aldehyde. By oxidizing at once the coniferyl alcohol, vanillin is obtained.

The first vanillin offered to commerce was prepared in small quantities by that process. From the scarcity of the coniferin and the limited yield, the price was very high, about 8,000 to 9,000 francs per kilogramme. Such a method could not provide a popular product. Thus it was rapidly abandoned, like that founded on the division of glucosides, the process of "aveneine," from the husk of the oat (serulas, 1879) and the oilvle of Schneider (1885).

In the course of their researches Tieman and Haarman, later M. de Laire, established the close relationship of chemical constitution existing between vanillin and the phenol of oil of cloves, engenol.

This really started the industrial manufacture of vanillin. A preparation is made, suitably oxidized, either of engenol or its isomeride, isoegenol, or some special derivatives of these, selected as indicated by the best results. All these substances have been covered by numerous patents of Haarman and Tieman in Germany, and of De Laire in France.

The artificial vanillin came rapidly into favor. The perfumer and the confectioner found speedily the advantage in using a definite compound, easily measured, always possessing the same odorous power, and with equal intensity, costing much less than the natural product. The gradual reduction in price made the vanillin product popular. It could be employed in such articles as chocolates, confectionary, biscuits, whereas formerly it had been reserved for articles of luxury.

This reduction of the price of vanillas is a characteristic proof of the industrial activity of our time. Before the assured success of the product numerous processes were attempted which might be substituted for the patented methods. Then patents were taken out by Bohringen, by Meister, Lucius and Bruning, Heinhorn, Majest, Schering, the Rhone Co., and others. In the face of this boundless competition, the price of a kilogramme of vanillin, which was in 1880 about 2,000 francs, in 1890 850 francs, fell that year to 100 francs. The successive improvements had thus brought down the price.

Heliotropin.—Another important product is piperonylic aldehyde, or heliotropin. It is obtained by oxidi-
izing safral, or better, its isomeride, isosafrol. Safrol is a special product, which forms the greater part of the oil of sassafras. Heliotropin has a considerable use in perfumery. Combined with vanillin, it forms the base of the extracts of heliotrope. Its preparation, at least from safral, has never been protected by patent, so that its price has fallen more rapidly than that of vanillin. Offered to commerice in 1879 at the price of about 3,800 francs, in 1890 it brought only 375 francs, in 1890 it brought only 375 francs, and today it sells for about 35 francs.

Coumarin does not, perhaps, appropriately have a place here, because it is not artificially manufactured, but is the extract of natural products. Since 1825 it has been known as the odorous constituent of the Tonka bean. It exists, besides, in a great number of vegetables—in the flower of the honeylotus, the fragrant “wood-ruff,” in a plant very abundant in Florida, the Liatris odoratissima, called in that section “deer tongue.”

The chemical study of coumarin has been exhaustive. Its conclusion is the synthetic production of the substance by means of salicylic aldehyde. It was thus prepared up to the time of the discovery of Liatris odoratissima. Possibly, if the original material is insufficient or it can be prepared from salicylic acid at a price sufficiently low, chemistry eventually may have an advantage over nature.

Coumarin is an excellent product, of great stability in presence of the alkalies, which renders it valuable for the soap industry. The perfumers use it principally for compounding the extract “new mown hay.”

Terpineol.—This can be taken as the type of artificial perfumes. It is made of dehydrating terpine hydrate, derived immediately from turpentine. Studied at first by List, Tanret, Bouchardat, it was industrially prepared and introduced into perfumery in 1889 by De Laire & Co.

In solutions suitably diluted, terpineol has the fresh odor of lilac or lily of the valley. It has also been found in the natural state in several oils of flowers. Its price is low (12 fr. per kil.), which allows its use in preparations of moderate price. It is unaffected by the action of alkalies, and the soap-makers have utilized it extensively.

Artificial Musk.—The odorous substances of animal origin, musk, ambergris, civet, etc., have specific qualities which are of the greatest assistance to the perfumer. These qualities have been long known and employed. If musk or ambergris is added to a bouquet of oils of flowers, not only is a special increase of strength given to it, but it acquires such a tenacity that a handkerchief thus perfumed preserves the fragrance for a long time, while that of the vegetable oils evaporates rapidly. Unfortunately, the use of these substances has been restricted by their high price. Analytical researches on such substances as musk or ambergris requires a great outlay without certainty of success. The problem does not appear so far to have been seriously entertained; the odorous principle of musk or of ambergris has never been extracted in the form of a definite compound. It is not even known whether the odor is due to definite compounds; synthetic reproduction appears therefore to be quite distant.

Happily, chemistry has again come to the aid of the perfumer. For a long time, the fact has been casually remarked that the action of nitric acid upon oils resulting from certain dry distillations gives rise to products of a musky odor. Nevertheless, no industrial application was incited until 1889, when M. A. Baur took out a patent for the manufacture of a new compound designed to replace the musk of animal origin in perfumes. This substance was trinitro-butyl-toluene, a definite compound, endowed with an intense, musky odor, having a similar and even superior tenacity to that of natural musk. This worked a complete revolution in the techniques of perfumery. At the same time the reproduction of vanillin was popularizing that perfume. Baur’s discovery allowed the perfumer to employ in his preparations a substance endowed with the specific qualities of musk.

Trinitro-butyl-toluene, manufactured in France by M. De Laire & Co., was exhibited at the exposition of 1889, and at once achieved a great success. Since that time, M. Baur, continuing his researches, has obtained a homologue of his artificial mark, the trinitro-butyl-xylene. This is the substance most generally used by the perfumers, its odors being less intense and sweeter.

Ionone.—This oil of artificial violet is not less important than that of artificial musk. Its discovery in 1895 was the fruit of long and patient researches, an example of masterly work in the domain of chemistry.

Extraction of the violet aroma, so soft and delicate, has always been an arduous task. Therefore extracts from the violet have been compounded mostly with concrete oil or with the alcoholic tincture of iris root, whose odor approaches that of the violet.

Tieman, prematurely cut off from scientific work, and De Laire undertook experiments on the perfume of the violet, which were continued more than ten years, resulting in 1895 in the discovery of ionone by Tieman & Kruger. These savants having extracted in the pure state “ironic,” the odoriferous principle of the root, ascertained precisely its composition and its chemical nature. To reproduce it artificially, they had recourse to a natural aldehyde, citrol, forming the principle of the oils of lemon and verbena of the Indies (lemon-grass). By condensing citrol with acetone in presence of an alkaline reagent, such as a baryta solution, then
submitting the intermediary product obtained to the
action of dilute sulphuric acid, which produces a special
isomerism, Tieman & Kruger obtained, not the iron
itself, but an isomer, the ionone. This substance, in
a state of extreme dilution, possesses strikingly the char-
acteristic odor of the violet. The subsequent study of
this compound or other related derivatives of citral form
an important chapter in this branch of chemistry. From
a practical standpoint, ionone has been of considerable
utility to the perfuming industry. Its use is now gen-
eral.

Besides these compounds, the most important of
artificial perfumes, are ranked other products which
have been advantageously used in artificial perfumery.
These are anise aldehyde or anise oil; phenyl-acetic alde-
hyde, having the odor of hyacinth; acetophenone and
benzophenone; the benzoates, cinnamates, salicylates of
methyl and ethyl, the methylie and ethylic ethers,
B-naphthol, and others.

Such are, in brief, the stages of this industry, in ex-
istence scarcely a quarter of a century. Many questions
remain to be solved. The number and attainments of
the investigators who are making them their sole study,
justify us in constantly expecting new revelations.

Antiseptic Soaps.

The asepsis of the hands is a prime condition of suc-
cess in surgical operations. Hence, at the beginning,
the operator cleanses his hands thoroughly and uses
soapy friction, brushing the nails and applying con-
centrated solutions of permanganate, sublimate, or other
substances.

Each has his preferences, but all subject themselves
to minute precautions to assure perfect disinfection.
Some push their caution so far as to operate only with
the hand inclosed in a rubber glove, perfectly dis-
infected.

In ordinary life such scrupulous care is not neces-
sary. In surgery it must be strict; the success of the
operation is involved; inoculation of germs may give
rise to serious complications, and the cleanliness of the
hands should be secured by every one, whenever putres-
cible matter has been touched, or the sick, affected with
tuberculosis diseases, have been approached. In such
cases we must act somewhat like surgeons, and remove
every trace of microbician existence.

For this purpose so-called antiseptic soaps have been
prepared, some of which contain sublimate, others car-
bolic acid, lysol, or similar products. Washing the hands
with these is considered a guarantee of disinfection.
There is no ground for this belief, or at least the addi-
tion of these microbicidal substances does not add much
to the antiseptic value of the soap itself.

The soap is a salt of fatty acids and of itself has an
antiseptic value.

The soluble part has this property. This fact may
be demonstrated by using a solution of soap before or
after filtration. Now the antiseptic agents, at least a
large number of them, diminish this solubility and thus
lesseu the antiseptic value of the soap.

To verify the truth of these assertions completely,
M. Coremus, physician at Andulecht, has made some
experiments which appear conclusive. He experimented
on soaps with sublimate of 1 or 2 per cent., and with
formol of 10 per cent. By heating in soapy solutions
of ordinary and antiseptic soap, cultures of the staphy-
llococcus, the coli-bacillus, and the bacillus of anthrax,
he ascertained, under trial from 15 to 20 minutes, that
there was not the slightest difference in microbicidal
value between the ordinary and the antiseptic soaps.

Another experiment disposed of the hypothesis that
the disinfecting action was weakened by solution. M.
Coremus infected the shaved skin of a rabbit with mi-
crobian cultures, and then he washed the parts with the
different soaps. The results were the same.

Thus the antiseptic soaps are of little or no value,
and should not be used if there is serious need of dis-
fection. A good, hard, white soap, in concentrated solu-
tion in warm water (30 or 40 deg. C.) will furnish
much greater security. This would not be sufficient for
a surgeon, but it would suffice for ordinary purposes.—
La Nature.

Soap in Ancient Times.

The conditions under which soap was made in Eng-
land in former times, when a duty had to be paid to the
government, are set forth in an interesting letter con-
tributed by Mr. Edward J. Weatherstone to the Globe.
He writes: "Soap was made in COPPERS, which were
kept daily locked and sealed by excise officers. Whether
a workman was unskilled or negligent, or the materials
imperfect, the proprietor was bound to produce one ton
of soap from a fixed quantity of raw material; if he pro-
duced less, he was charged as for a ton; if more, he had
to pay more. No improvement was permitted, unless
the manufacturer paid duty upon his experiments.
Soap had to be cut into lengths of 15 inches; if a bar
were cut, by accident, longer than 15 inches, all soap in
warehouse was forfeited. If any quantity less than a
pound were sold, penalty £100. Cuttings, scraps and
other waste had to be returned to the boilers, under a
duty of £50, to be re-manufactured and to pay duty
over again. On one occasion the floors of a soap house
gave way, and 20 tons of duty-paid soap were destroyed.
The excise refused to return the duty. The act of par-
liament literally teems with penalties—from £50 to
£300—for offences.
**Horse Power.**

How much boiler for a horse-power at the engine? This is a question which interests the capitalist as well as the engineer. The reply given by rule-of-thumb engineering is from ten to twelve square feet of heating surface—a reply correct enough under certain conditions, but often so far from right and so misleading as to be worse than no reply at all. Let us examine the points upon which a more comprehensive and more exact answer must necessarily depend.

In the first place, the engine in which we suppose the power to be developed will require from the boiler an amount of steam larger or smaller, depending on its own economy. In consequence the problem is one which involves the economy of the engine quite as much as the efficiency, or capability of the boiler. The engine is, moreover, a heat engine, and in strictness we should consider that the boiler furnishes heat for consumption, for which the steam is simply a carrier. We are, however, so accustomed to consider the steam as the thing used up, and to reckon the economy of the engine in terms of steam per one-horse power per hour, that the use of a heat unit basis is much less familiar, and for our present purpose the more common basis will be preferable.

Turning now to engineering experience, we find that for one-horse power there will be required all the way from eleven to twelve pounds of steam per hour in modern multiple-expansion engines of the highest attainable efficiency, to 200 or 300 pounds in small direct-acting steam pumps, such as the common boiler feed or general service pump, for example. It is very evident, therefore, that the amount of boiler required per horse power would vary between wide limits as we pass along the range from one of these extremes to the other.

It is clear, of course, that it is not fair to hold the boiler responsible for the power developed in the engine. It is the business of the boiler to produce heat, but simply to furnish to the engine the means required for such development. This, as noted above, is heat, or, as we more commonly consider it, steam. The only fair question to ask of the builder of the boiler is: How much boiler for one pound of steam?

It thus appears that the relation between boiler and horse power necessarily involves the consideration of two separate questions—the amount of steam per horse power per hour, and the amount of boiler per pound of steam. We have already briefly considered the first of these, and may now turn to the second.

The immediate purpose of the boiler is to furnish steam for the engine, and this end is attained by transferring heat from the hot gases by the combustion of the coal through the heating surface to the water on the other side. In one sense, therefore, the heating surface is the boiler proper, and all other parts are merely ordinary features, designed to enable this to act efficiently as a means for transferring heat into water, and thus transforming the latter into steam. It follows that heating surface is the feature most suitable to consider as representing the boiler, and we may therefore ask, How much heating surface for a pound of steam? To answer this we must again go to experience, and we shall find that, varying with the conditions and within the limits of what may be called current practice, a square foot of heating surface in a boiler may give from, say, 3 to 10 pounds of steam per hour, or 1 pound of steam will require from, say, 0.1 to 0.33 square feet of heating surface. The conditions corresponding to these figures we will note at a later point.

Large pumping engines and others working under like favorable conditions, triple or quadruple expansion, and with all practicable provision for economy

<table>
<thead>
<tr>
<th>Type of Engine</th>
<th>Efficiency Factor</th>
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</thead>
<tbody>
<tr>
<td>Triple or Quadruple Expansion Engines</td>
<td>11—13</td>
</tr>
<tr>
<td>Triiples and Quadruples with More Variable Load, and Good Compounds with Uniform Load</td>
<td>13—15</td>
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<tr>
<td>Compounds with Variable Load and Good Simple Condensing Engines with Uniform Load</td>
<td>15—20</td>
</tr>
<tr>
<td>Simple Non-Condensing Engines of Moderate Large Size, and Under Good to Fair Conditions</td>
<td>20—30</td>
</tr>
<tr>
<td>Simple Non-Condensing Engines of Small Size, or Under Moderate to Poor Conditions</td>
<td>30—40</td>
</tr>
</tbody>
</table>

We are now able to answer the question as to how much heating surface for a horse power. Taking the highest value (10 lbs.) for the steam per square foot of heating surface, with the lowest (say 12 lbs.) for steam consumption, we have 1.2 square feet of heating surface required for one-horse power. Going to the other extreme, and taking 3 lbs. per square foot of heating surface and 200 lbs. per horse power, we have 67 square feet of heating surface required for one-horse power. An answer from 1.2 to 67 is, however, of small value, simply on account of its vagueness; but it does, nevertheless, represent the varying possibilities found in actual practice, and contains between its limits all ordinary engineering experience on this point. What is required in order to give a more definite answer in any given case is in addition a general idea of the two separate relations, heating surface to steam and steam to horse power.

Let us now turn to the boiler and note the varying conditions. At the head of the list we assume hard forced draught, such as that used on locomotive boilers, and with marine boilers for torpedo boats and other
Detection of Sesame Oil.

Tambon (Journ. Pharm. Chem.) employs as a reagent to detect the admixture of sesame with other vegetable oils, a solution of chemically pure crystalline glucose 3 to 4, in hydrochloric acid 100. One volume of the reagent is shaken with two volumes of the oil under examination for two or three minutes; the emulsion is then warmed over the flame of a spirit lamp until ebullition just commences, when the mixture is again agitated. If the least trace of sesame oil be present, a fine rose color with a violet shade passing to cherry-red is obtained. Pure olive oil remains perfectly colorless under this treatment; if it contains from 1 to 5 per cent. of sesame oil the characteristic tint is developed in a few minutes, while with 10 per cent. an immediate reaction is obtained.

Laundry Blue.

Buyers of laundry blue (ultramarine) should test the samples they are going to buy from with starch, in the proportion of 2½ grains of blue to 100 of starch, against a standard sample; grinding the two up together to thorough and complete amalgamation into a pale-bluish mass in which no deep-blue spots appear when it is spread out on a piece of white paper with a palette knife. The sample which gives the purest and strongest and truest sky blue is the best. If any of the samples you are testing be better than your standard, preserve the best one as such, and make away with your old standard.—Oil & Colourman's Journal.

Around the Soap Factories.

News items sent us by our readers will find prompt attention in this column.

The Pennsylvania Salt Mfg. Co. has increased its capital stock for the purpose of building a large new soda ash plant in the vicinity of Wyandotte, Mich.

A $150,000 glycerin plant at Melbourne, Ky., is said to be projected by the Gordon Chemical Co.

The Rainbow Soap Co., of Chicago, with a capital stock of $5,000, is a new corporation.

The soap factory at North Bennington, Vt., will be started up again, if the plans of the promoters of the plan succeed.

The San Francisco Candle Co., an old-established concern, has been newly incorporated, to manufacture soap, candles and glycerin. Capital stock $50,000.

Among the new incorporations are: The People's Soap Co., Chicago, capital $2,000; incorporators, B. F. Chase, James M. Proudfoot, C. A. Russ.

The Michigan Soap Co., of Detroit, has increased its capital stock to $50,000, preparatory to increasing its capacity.

The Humnewell Soap Co., of Cincinnati, has taken out papers of incorporation.

Alexander Brown, who was identified with the soap business as a soap boiler for about fifty years, died at Brooklyn on March 30.

After seventeen years' partnership and active management of Messrs. Bayley & Co., perfumers, etc., St. Martin's Lane, London, Mr. N. H. Walker has severed his connection with the firm, with which his father was before him associated in the same capacity for nearly forty years.

The Rochester (Minn.) Soap Co. has become incorporated (capital $20,000), and will erect a new factory.
How Soap is Sold.
(CONTINUED.)

The Titan Soap, Limited, of Liverpool, England, advertises a special discount of 10 per cent. on all purchases during one month, provided the purchaser exhibits the firm's window bills.

* * *

The J. M. Long Co., in the same paper, make one good point at least in the following advertisement:

The cheapest soap is not the soap that is bought for the least money; that kind is often the most expensive. The cheapest soap is that which washes best, cleanses quickest, rinses easiest, lasts longest. Our soaps have been in constant use in laundries for more than a score of years. The satisfaction they have always given is because they have always been made the best. If not using our soaps, let us know the nature of the water you use and we will submit prices on the cheapest soap to be had.

* * *

Here is another specimen of the Bell & Bogart Soap Co.'s advertising matter:

A good laundress prides herself on getting out the first line of clothes.

Our laundress is complimented when told that her clothes are soft, clean, white and free from odor.

No laundress can wash colored shirts or colored shirt-waists clean, without fading the colors, with any soap except "Coal Oil Johnny's."

Soap that contains free alkali will rot the clothes, fade the colors, and make them yellow. "Coal Oil Johnny's" soap contains no free alkali.

Dirty colored white floating soaps contain cotton seed oil which imparts a bad odor to articles washed. "Coal Oil Johnny's" soap is snow white and free from cotton seed oil. It does not float.

Soap made from diseased animal fat should not be used for washing the clothes we wear, or the dishes from which we eat. "Coal Oil Johnny's" soap contains no animal fat. It does contain glycerine.

May we ship you twenty-five boxes of improved "Coal Oil Johnny's" soap as sample? Money back if our claims are not founded on facts. It is the New King of all soaps. "Long Live the King." Bell & Bogart Soap Co.

* * *

The Camden & Phila. Soap Co., in the Natl. Laundry Journal, of recent date, had a large cut representing a complete picture frame, without any picture, however. The adv. states that it is "A picture of the laundryman who said truthfully that XXX Hygienic soap was not the greatest cleaner, did not make the goods whitest, and was not the cheapest soap in the end to use. It is not a common, cheap soap. It's made of the best vegetable oils and pure, fire-rendered tallow that money can buy, and it's made by minds and heads that know by experience just what kind of a soap is required to do the most successful laundry washing. We guarantee that XXX HYGIENIC SOAP will get to work quicker, will suds more freely, will make the goods cleaner and whiter and keep them that way, and will rinse quicker than any other soap ever made. Positively always the same, always satisfactory—because its absolutely pure, all soap."

* * *

A good idea, to our mind at least, is embodied in an adv. of the Milwaukee Laundry Supply Co., who offer the following information in their advertisement:

Points on soap formulas for the wash room—
Liquid Soap for Soft Water—Twenty lbs. O'Neil's Extra Dry Chip Soap; 5 lbs. borax dissolved in 60 gallons of water. This makes a strong soap and gives good results in washing.

Liquid Soap for Very Hart Water—Twenty lbs. O'Neil's Extra Dry Chip Soap, 3 lbs. soda ash, 3 lbs. borax dissolved in 60 gallons of water. With this soap a rich, lively sud can be maintained. When the water is contaminated with mineral impurities, such as lime, magnesium, sulphur, etc., ½ lb. caustic soda or 6 lbs. sal soda may be used instead of soda ash.


Liquid Soap for Washing Woolens by Machine or Hand—Ten lbs. O'Neil's Potash or Neutral Soap, 3 lbs. borax dissolved in 25 gallons of water; use enough soap to keep up a strong sud from start to finish. Blankets should be soaked in borax water, just warm to the hand, for five minutes before washing; use 1 ounce borax to each gallon of water.

To Soften Hard Water—Use 5 lbs. O'Neil's Velvet Water Purifier to every 1,000 gallons. Dissolve in boiling water, pour into tank and stir up briskly.

Machine Washing—Dissolve 10 lbs. borax in 15 gallons of water. Use 1 quart of the liquid in first rinse water for wash of 75 shirts or equivalent, rinse five or six minutes, and the discharge water will convince the most skeptical that borax is a cleansing agent of the first magnitude.

Liquid Borax for Starchroom Use—Dissolve 5 lbs. borax in 5 gallons of water. Keep in glass or stoneware jug. Use ½ pint of above borax liquid to each gallon of boiled starch. Add the borax to raw starch before mixing. Stiffness or flexibility can be regulated to a nicety by lessening or adding to the quantity of borax. For high gloss add ½ ounce white or Japan wax to 2 gallons of starch, and iron with very hot roll. By using this formula in the starch room a saving of one-third is effected in the quantity of starch used.
The following is a specimen from the New York Petroleum Soap Co.:  

The cleansing properties of petroleum have long been known.  

The virtue of a little kerosene, a petroleum product, in the family washing has long been known to every housewife in the land.  

The expert cleaner works wonders upon soiled fabrics of delicate texture and color with benzine, another petroleum product.  

But it remained for us to combine petroleum with soap by a process known only to ourselves.  

Aladdin’s Petroleum Soap will wash clothes white.  

And the clothes being white, after the souds, means less bleach. Less bleach means less sour.  

Same soap washes white or colored clothes and flannels.  

It cannot injure colors.  

Comes in chips like any laundry soap, 225 pounds to the barrel.  

Single barrels, 5½e per pound; 5 barrel lots, 5c per pound.  

Larger lots and contracts, closer prices.  

Order a trial barrel today.  

New York Petroleum Soap Co.  

* * *  

The patent medicine people seem to have discovered that soap lends itself to their own peculiar methods of advertising about as well as do all kinds of nostrums, and the number of such firms taking up soap as a side line is increasing. As a result we have, sandwiched in with rheumatism cure, kidney cure, cold cure, headache cure, etc., etc., advertisements like the following:  

A toilet delight. The perfection of scientific soap making. Munyon’s Witch Hazel Soap soothes, heals, beautifies; makes the skin soft as velvet.  

It will soften the roughest hands. Will improve any complexion, no matter how fair. Will cure chapped hands and lips in a single night. Will cure chafing and all skin irritations. Will cure pimples, blackheads and most facial blemishes. Will cure cuts, wounds and sores and allay inflammation. Will cure dandruff and all scalp diseases. Will stop the falling out of hair, give new vitality and vigor to the roots, stimulating a fresh growth.  

Mothers will find it an ideal soap for the nursery. It will cure baby rash, milk eruptions, chafing, hives and all the skin torments of babyhood.  

Price, large size, 15c; trial size, 5c.  

**PATENTS AND TRADE-MARKS.**  

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bidg., Washington, D. C. — A copy of any of the following will be furnished by him for 15 cents.  

**Issue of March 19, 1901.**  

**PATENTS.**  


**Issue of April 2, 1901.**  

**PATENTS.**  


**TRADE-MARKS.**  


**Technical Classes at Hull.**  

We are in receipt, from an unidentified party, of a marked copy of Oils, Colours and Drysalters (England), calling special attention to an article headed as above, and reproduced below. We have alluded to these classes in former issues of the Soap Journal.  

A very successful session of a new technical class, which was commenced on October 2, 1900, at the laboratory, 5, Bishop Lane, was recently brought to a close. The teacher was Mr. Harry Thompson, F.C.S., and the course of instruction appears to have been much more comprehensive than usual, and was framed so as to have special reference to the work in which the students were engaged. It is to be noted that more students applied for admission to the class than it was possible to accommodate. Preference had therefore to be given to those who first applied. The students were all young men of 21 to 25, engaged in business in Hull, either in the oil, soapmaking, or seed crushing trades. At the commencement of the course of instruction it was found that none of the students had done any chemical work, excepting as boys at school, so that the first two or three nights were spent in a study of the balance, and in making simple experiments in order to familiarize them with the apparatus and chemicals in the work-room. While the scientific aspect of the subject was by no means neglected, particular attention was given to the chemical side, and a study was made of just those particular points concerning the various products that will be required from day to day in actual business. The prop-
properties of the cottonseed, linseed and rapeseed oils, these being the products of the seed crushing mills in Hull, were dealt with thoroughly, all the usual tests of specific gravity, fatty acids, melting and solidifying points, visosity, etc., being made.

Crude cotton oil was next taken, the coloring matter removed, and the oil bleached so as to be ready for use as commercial refined oil. The natural dye in the coloring matter, or mucilage, was shown to the class as a dried powder, having been previously prepared by the lecturer, who was able to inform students of the success he had met with thus far in refining cotton oil by means of electricity without the aid of the ordinary chemicals. The value of cottonseed oil in soapmaking, for edible purposes, and when oxidized for lubricating, as well as its use to mix with other oils to decrease the cost was also demonstrated. Then linseed oil was taken, the process of manufacture being gone through in detail, as well as its suitability for varnish making, for paints and other uses, with exhaustive information concerning the boiling the driers required, refining of the raw product, and description of some of the so-called special processes. The properties of rape oil as a lubricant and illuminant were inquired into, but time did not permit of the other vegetable oils, fish and mineral oils, being dealt with, although it is possible that next session they may be taken up. The second part of the course was given to the different varieties of seed that are shipped to Hull, special attention being given to linseed and cottonseed. The yield of oil obtained from the different varieties was compared together with the amount of cake produced, and their respective values, and the usages of the trade in connection with these seeds were explained at length. The present system of arbitration on seed in Hull, and the weight used for parcels from different countries, were viewed with disapproval, and a resolution in support of the adoption of the metric system was carried unanimously. It was pointed out that instead of the arbitrator taking a handful of cottonseed as was the custom, and crushing a few seeds under the hammer, he would obtain much more correct results by submitting the seeds to analysis, and this would give him far more idea of its oil value. The rapid increase in the manufacture of combined and feed cakes was commented upon, and their use and value for feeding stock as compared with linseed and cottonseed cake, were also dealt with.

Several lectures were devoted to the history, chemistry and manufacture of hard soap. It was pointed out that Hull is in many respects an ideal town for soap manufacturers; being the center of the oil industry of Great Britain, land is cheap, labor plentiful, and wages low. With the exception of the alkalis, nearly all the raw materials are on the spot. Soft soap, textile and laundry soaps, and the recovery of grease, were briefly dealt with. The chemistry of soaps was then taken up, and the students were taught how to test for moisture, fatty acids, combined and free alkali, resin and fillings of various descriptions. Another lecture was given on varnishes, and the principal gums used in its preparation. The course of instruction being, to a great extent, experimental, it was gratifying to learn that students had benefited considerably by their attendance, and it is fair to them to observe that they took a great deal of interest in the work. It is probable that next year another class will be formed, perhaps on a more extensive scale.

Adulterations of Essential Oils.

BY DR. GEO. R. PANCOAST AND LYMAN F. KEBLER.

In early times technical equipments for the production of volatile oils were very incomplete, and various expedients were necessarily resorted to for the purpose of extracting the many odorous principles from the host of plant tissues; fatty products, turpentine and alcohol were frequently employed for this purpose, and consequently there was a certain justification formerly for the presence of some of these solvents in certain essential oils. But modern methods render the use of these foreign substances entirely unnecessary and they must be looked upon as adulterations pure and simple. Adulteration is chiefly resorted to on the one hand because of its profitableness, and on the other hand because of the ignorance of the consumer and his desire to purchase as cheaply as possible. The latter frequently does not seem to care for quality, but wants quantity. It is often due to this that an honest producer may be induced to offer spurious goods, because he cannot get reasonable prices, while his competitor is able to dispose of large quantities of adulterated oils. It must not be forgotten that formerly the adulterator could ply his art fearlessly without much danger of exposure, and this probably emboldened him. Today he is compelled to act a little more cautiously owing to the developments of the chemistry of terpenes and their derivatives, as well as a more or less complete knowledge of the composition of a number of the volatile oils. The “black art” of volatile is passing away.

The writers are fully convinced that the large distillers and reputable wholesalers are not responsible for some of the adulterated oils met with, even though they pass through their hands. They are generally beyond their control, as will be seen by some of the subsequent remarks.

The guileless farmer or peasant who constructs a crude still and collects oils by his primitive methods (besides the impurities to be expected from this source) frequently adds a goodly proportion of a cheaper oil or
synthetic sent to him by a friend in the wicked city. Synthetic oil of wintergreen is said to be largely used in this manner, and the resulting product sold for true oil of wintergreen.

The Turkish peasant in like manner and for similar reasons adds geranium oil to his rose leaves before he begins his distillation of pure otto of rose. Even John Chinaman, forced to keep "open door," manages to return the "foreign devils" coal oil by conscientiously "plugging" some of the essential oils which he sells, especially oils of aniseed and cassia. And the warm-blooded Sicilian, in response to an increasing demand for his goods, rejuvenates a worn-out or poor quality oil by adding the necessary constituents taken from a cheaper source; for example, oil of lemon is fortified with eitrul obtained from oil of lemon grass, and oil of bergamot is "picked out" with lemon and orange oils.

Then some of the primitive distillers themselves; and possibly some of the middlemen or jobbers, try their hands at improving nature. This is practiced in some instances to such an extent that the farther the oil travels, and the larger the number of hands it passes through, the more it adds unto itself, until finally, in some instances, at least, it is not recognized by its friends. Some of these adulterations may be due to ignorance, carelessness or accident, but many, are due to design, and unless there is some improvement in this respect, we may be prepared to hear in the near future of some one liberally supplying himself with synthetics, esters, aldehydes, alcohol, oil of copaiba and plenty of French turpentine, then opening up an office with the sign "Essential Oils Made to Order While You Wait."

Essential oils are frequently met with that are unnaturally low in their characteristic constituent, so much so that, being otherwise satisfactory, only one conclusion can be drawn, viz., that they have been robbed or looted; for example, de-menthohlized peppermint oil; oil of cloves minus a large part of its eugenol; caraway, deprived of some of its carvone; and oil of lemon, abnormally low in its citral. We shall hereafter for brevity's sake call this class of oils "looted oils." By such tactics a double profit is made by the manipulator. The consumer in these cases makes two purchases where he should make but one and save money by so doing; as for instance, he buys eucalyptol and a cheap oil of eucalyptus; then, in order to make the oil answer the proper requirements, it is necessary for him to use the eucalyptol to strengthen his inferior oil of eucalyptus.

Another matter not generally known is that certain manufacturers claim that some absolutely pure oils need to be modified so as to conform to some arbitrary standard; for example, one very prominent and reliable house lists oil of pimento at $2.10 per pound, but oil of pimento said to be made to meet the requirements of the U. S. P. is offered at $1.60. The same criticism is applied to the U. S. P. requirements for oils of bay and coriander.

Among the favorite articles used as adulterants, and to be looked for, are cheaper essential oils (turpentine, copaiba, cedarwood and gurjun balsam), alcohol and fixed and mineral oils.

PRELIMINARY TESTS.

1. Physical appearance.

2. A common method and a very useful one is that of exposing a drop or two of the oil on white glazed paper, and from time to time observing the odor. By this means alone, in many cases, a cheap oil can be detected, especially turpentine. Lemon and orange require from 12 to 15 minutes; bergamot, 2 to 4 hours; lavender, 12 to 15 hours; cloves, 25 hours; and sandal wood, 2 days, for comparison. Fixed oils leave a permanent greasy stain. Results by the above procedure give only indications, which must be verified by established methods.

Alcohol.—Several tests can be applied to give indications of the presence or absence of alcohol. Oils free from alcohol (acetone or purified wood alcohol), when dropped into water, remain transparent, but the presence of alcohol causes the globules to become opaque or milky. When a considerable amount is present, it may be approximately estimated by placing a given volume of the oil in a graduated cylinder, adding an equal volume of water, agitating well, and then setting aside until complete separation results. If there is any appreciable diminution in the volume of oil, alcohol (acetone, acetic ether or purified wood alcohol) is present. The diminution of volume is generally proportional to the amount of adulterant. Glycerin can be used in place of water.

In order to positively establish the presence of any of the above, fractional distillation must be resorted to and the substance finally identified by means of the iodiform reaction, boiling point, etc.

(To be Continued.)

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<td>White Ribbon 337</td>
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<tr>
<td>Simpson’s Soap Mig Co.</td>
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<td>Newark, Ohio,</td>
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# SUPPLEMENTARY LIST OF THE BRANDS OF SOAP MANUFACTURED IN THE UNITED STATES

Including also the Brands of Foreign Manufacture Registered as Trade-Marks in this Country.

**NOTE:** This list is compiled with the greatest possible care, but the publisher does not assume any responsibility other than to correct and to complete the list according to data obtained from official sources or by the trade. Brands registered in the patent office as trade-marks or labels are given with the name of the party registering same. Brand or names marked * are those which were found to be used by more than one firm or the owner of which could not be ascertained.

*See that all your brands are entered in your name.*

![Table of Soap Brands](image-url)
The Scientific American, a paper known to every one of its subscribers, in a recent issue, says:

"The first edition of 'American Soaps' appeared in print seven years ago and was well received, and since that time the author has continually collected all the available new information that could complete, and the author has had the benefit of the experience of many of the original purchasers of the book.

There is an extensive literature upon soap making, but most of them are adapted from foreign practice or deal with antiquated methods. The present book cannot be cast aside in this category. It is an excellent contribution to technical literature by a man who thoroughly understands modern American soap making and is in no sense a compilation. To those who are looking for a thoroughly practical book on soapmaking of all kinds, with special reference to modern practice, we can heartily recommend this book. It is freely illustrated, and the number of formulas for soaps of various kinds are large. The section devoted to the actual processes used in the manufacture of all kinds of soaps occupies three quarters of the volume. It is an admirable book."

If you have a second-hand machine for which you have no use, or expect to buy a new one if you can dispose of a smaller one now in use, or any similar need, remember that an advertisement in our "For Sale" column will convey that information to one or more looking for just such opportunity—if there is any use for such apparatus at all.

An Australian subscriber to the Soap Journal and purchaser of the work "American Soaps," writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file, in black and white.
It may possibly be doing a favor to some one interested in that direction to call attention to the advertisement in this paper looking to the establishment of a soap factory at El Paso, Texas. The special point to be made, aside from the facts that El Paso is a railroad center of no mean importance in the Southwest, and that there is no soap factory there at present, is that the city is a notable health resort for certain patients who are compelled to permanently seek a different climate, and with whom it is often quite as much a question of occupation in the locality chosen as of a suitable climate. We should be happy to think that this item had become the means of solving satisfactorily for any once so important a question.

A correspondent, referring to the glycerine contents of olive oil foots discussed in the last two issues of the Journal, after commenting on the fact that a dozen samples submitted to a chemist may each show 50 per cent. of neutral fat and then the thirteenth sample comes along with only 25 per cent.—and, of course, a corresponding decrease in glycerine—remarks that a much more important question, though difficult to determine, is, how much (or how little) of the fat present is really olive oil?

Considering the but too well understood adulteration of olive oil, and even the entire substitution of other products for the latter, it is an important question to what extent foots can escape the same manipulations. No doubt the future will throw more light on this subject also.

In the course of the presidential address delivered at the recent meeting of the American Chemical Society, Wm. M'Murtrie pointed out the enormous growth of alkali manufacture in this country in the past decade, as a result of which the imports of caustic soda have fallen from $1,470,335 in 1890 to $158,793 in 1900; for soda ash the respective figures are $3,493,288 in 1890 against $665,104 in 1900. We have thus become independent from foreign producers.

On the other hand the importation of glycerine increased from nearly a million dollars in 1890 to over two millions in 1900, showing further possibilities of development in that direction.
By keeping a record last month of information asked by subscribers regarding soap brands, we find that in four weeks we consulted our lists in behalf of eleven subscribers who wanted information on altogether thirty-eight different brands they proposed adopting. Of these thirty-eight brands we found just twenty already in use, and eight more not exactly used but so closely resembling other names already in use as to make their adoption seem ill-advised. This leaves ten brands suitable for use out of thirty-eight that we were asked to look up. For the short space of four weeks this seems a pretty useful result, and we dare say that every month several subscribers get enough benefit from this one feature to pay for their subscription many times over. For that matter we looked up over forty brands for one firm in one month not long ago.

Surely there is not only considerable variety in the correspondence that comes to the Soap Journal day after day, but there are several "variations of variety." For instance, we select from recent communications the following (taking in each case the shortest specimen we can lay our hands on).

**Augsburg, 1. XII.**

Herrn Dr. H. Gothmann.

Im Besitze Ihres Geschirten vom 16. ult. bitten wir uns noch ein Exemplar Ihres gesch. Journals vom Januar an monatlich zu senden.

Hochachtungsvoll.

* * *

**Fleurs-de-l'Orne, 11 Fev.**

Monsieur Henry Gothmann.


* * *

**Barranquilla, 10 de Abril de 1901.**

Señor Dr. H. Gothmann.

Muy Señor nuestro: Tenemos el gusto de participar a Ud que, según escritura pública otorgada ante el Notario público primero del Cirerito, bajo el no. 303 hemos constituido una sociedad regular colectiva de comercio, domiciliada en esta ciudad, de la cual somos ambos socios administradores, que desde la fecha girará con la razón social de Price & González y que se ocupará en toda clase de negocios licitíos de comercio, y especialmente de la fabricación de Jabón, marca "La Corona," bien conocida en ésta plaza y otros mercados de la Re-

pública; fabricación de que hasta ahora se ocupaba por su sola cuenta uno de nosotros, González J.

Esperamos merecer su confianza, y suplicándole que se sirva tomar nota de nuestras firmas al pie de la presente, somos de Ud atentos S. S.

R. Edward Price.

J. A. González J.

* * *

So far we got along quite swimmingly, but when we got a copy of a new Italian soap paper the other day we had to take to the woods.

**Would You?**

The question, with how much or how little capital a soap factory can be safely launched, has hardly been ventilated in the last issues of this journal, when it serenely bulks up again from another part of the country. This time it is a correspondent from the South who approaches the subject more directly by asking:

"What is the usual capital invested in the soap factories of this country? Would you advise me to begin the business on a capital of $2,000? Do you think that with good business management and push it could be carried out successfully?"

Taking up these several questions separately: What is the usual capital invested in the soap factories of this country? As the factories vary between wide limits, we can answer no better than to say that there is no "usual" about it; factories in which the investment is probably in the neighborhood of the $2,000 mark (as near as we can judge) are not rarities, though they naturally are not prominently known. Factories in which there was invested a similar amount ten or twenty years ago and which have since grown larger are also in evidence. Factories in which a much larger amount had been invested more or less time ago and which have shrunken to the $2,000 mark in the meantime could very probably also be found if one had just the inside figures. On the other hand, factories representing an investment of ten or fifty thousand dollars each are probably as numerous as are those with the smaller capital mentioned, and factories with considerable more money than $50,000 invested, while less numerous, are the competitors to look out for and there are enough of them to make things very interesting at times.

Next: Would we advise our correspondent to start in the business with $2,000? Taking this question up in a general way, first we should say, no; the close competition in the soap business is such that we do not feel warranted in directly advising anyone to enter it, especially with a capital of $2,000. But as others have succeeded here and there, and as larger investments have been lost, and finally as of course there are particular cases where soap factories can be and will be started and
run successfully in the future, it would evidently be wrong to consider the matter thus peremptorily settled. Though we do not feel warranted to enter the business under the conditions stated, we by no means deny that success is possible under the circumstances. But what are the conditions for success? First, as every one knows, comes the question of a supply of tallow, grease and oils at a low figure—a question chiefly of locality—we do not know how our correspondent's locality is provided for in that respect. Next, perhaps, is the facilities for economical working, and while theoretically it should make no difference whether the factory pays rent and hired help, or whether it uses its own property and has work done by the owner and perhaps members of the family, yet in practice such items may make all the difference in the world. Another important item entering into the situation is the kind of soap made; a good boiled soap is almost out of the question with a small plant in these days, where, as one correspondent recently put it, "soap factories ought to be called glycerine factories making soap as a bye-product." Shall it be then a half-boiled soap? The decision between these may mean success or failure. Again, the facilities for selling enter into the question largely, of course, which again may or may not depend on the locality, as witness the difference between competing with large lots of some standard soap dumped into a town and selling a two-cent cake of a "medicated" soap for six cents to an agent by mail-orders to be in turn sold to the public for a quarter.

The third question of our correspondent is practically answered in the foregoing. Altogether it is a serious matter to give advice to anybody, but seeing the condition of the soap business as compared with many others, we feel that to enter it with a small capital is warranted only under especially favorable circumstances. Whether or not these exist in a given case is not for us to decide.

**Market For Soap in Spain.**

The manufacturer of soap in Spain has greatly increased during the last years, the large exports to Cuba having fostered this industry and enabled it to acquire an importance that but for that outlet it would never have reached, considering that only an insignificant proportion of the exports found a sale in foreign markets. Especially was this the case before the loss of the colonies, for in the year 1897, Spain sent 7,045 tons to her dependencies and only 112 tons to other countries. The total exports during 1900 amounted to over 6,107 tons, While those for the two months ended February 28, 1901, reached 1,739 tons.

In the province of Barcelona alone, there are over one hundred soap factories, including the extensive works of the firm of Rocamora Hermanos, which are among the largest soap factories of Europe. Their soap is manufactured almost exclusively for export, Cuba being the best market.

The Olein used is produced in their own stearin factory. This is mixed with resin, which is one of the few articles allowed to enter free of customs duty when intended for re-exportation. Large quantities of beef tallow are imported from the River Plata, and mutton tallow from Australia.

Cocoanut oil also forms one of the principal component parts of the soap made here, the cocoanuts or copra being brought from the Pacific islands and crushed at the oil mills here. Vegetable oils were formerly imported, but, owing to the high protective duties now levied on them, the principal French firm in the Spanish trade found it necessary to cross the frontier and erect a mill here in order to compete with the local oil crushers.

Common olive oil and oil extracted from the pulp left after the first crushing of the olives also enter into the manufacture of soap, and these are naturally obtained at little cost in this country.

Custard soda of 60° strength is imported from England; the present price is $3.65 francs per 100 kilograms ($1.56 per 220 pounds) c. i. f. Barcelona.

The price at which the common yellow soap is sold for export is equal to about 3½ cents per pound, delivered free on board at Barcelona. JULIUS G. LAY, Consul-General. Barcelona, April 15, 1901.

**Superfatted Soaps.**

The foundation for all medicated soaps is the basis soap. The modes of application are: 1. Simple washing with soap; 2. Friction with soap lather which is allowed to dry; 3. The soap lather is rubbed into the skin with a dry cloth; 4. The soap lather is applied and covered with a water-proof dressing.

The mild basis soap is suitable for infants and for the care of delicate skin in all persons. It is also adopted for cleansing eczematous or pruriginous skin, etc., etc.

In the ordinary cicatory anomalies, along with the before-mentioned methods of treatment, the use of the superfatted ichthyl, tumenol, and sulphur soaps is to be recommended. For prurigo mitis et ferox, beta-naphthol-sulphur soap or sulphur-tar soap is suitable; for pruritus cutaneous, menthol soap or tar soap. After the cure of scabies and of impetigo beta-naphthol soap is indicated. In lichen pilaris (a hyperkeratosis confined to the follicles, usually limited to the arms, and complicated with hyperemia) the intercurrent use of naphthol-sulphur soap is to be urgently recommended. The latter, also resorcin-salicyl-sulphur-tar soap and
Wood Alcohol as a Poison.

In 1897 Dr. Archibald G. Thompson reported at a meeting of the Philadelphia County Medical Society an unusual case of eye ejection, of which mention was made in the Circular for that year.

A sailor on "shore leave" became intoxicated by drinking an "essence of ginger" in lieu of whiskey which was unobtainable, and continuing its use remained in that condition for two days, during which time he consumed about three pints of the preparation. On the next day his feelings were similar to those that ordinarily follow an alcoholic debauch, though greatly intensified. Among other things he suffered from headache, nausea and vomiting. This was followed by total blindness; partial recovery ensued, but vision again began to fail slowly. Primary atrophy of the optic nerve had occurred. Whether it was considered likely to progress further was not stated in the report. The precise composition of the "essence of ginger" was unfortunately not ascertained.

The patient after his mishap heard of several other cases in which similar effects had been produced by ginger drunkenness.

At a recent meeting of the Maryland Medical and Chirurgical Faculty, Dr. Herbert Harlan presented some startling facts which appear to throw light on this case and do illustrate others which he mentions.

About the time of Dr. Thompson's report, he says, similar cases began to appear in Baltimore, six being reported by Dr. Hiram Woods in 1890.

It is now well known that wood alcohol is capable of producing just such effects as were observed in Dr. Thomson's patient, and Dr. Harlan finding that "essence of peppermint" had behaved in the same manner as "essence of ginger" and knowing the temptation to the use of wood alcohol as a cheap substitute for grain alcohol concluded that such substitution had been made in these cases.

Two cases came under his own notice in one of which "essence of ginger" produced total and permanent blindness and in the other "essence of peppermint" had caused serious impairment of vision.

From a newspaper report he learned of the death of two men in a Pennsylvania town from "ginger," which report was confirmed by a local physician, who stated that one of them had become blind before he died.

Dr. Harlan was fortunately able to secure samples of the ginger and peppermint essences bearing the same manufacturer's label as those which had done the mischief.

Those samples were placed in the hands of Mr. H. P. Hynson and Mr. H. A. B. Dunning for analysis and in a report published in the Pharmaceutical Review in connection with Dr. Harlan's paper they stated after giving details of the examination, that the result shows conclusively they think that the alcoholic constitution of the ginger essence was about 75 per cent. of methyl alcohol and 25 per cent. of ethyl alcohol. The peppermint essence was not in sufficient quantity for thorough examination but it was found to have the "same taint."

We may add here a report of four more cases of so-called ginger drunkenness occurring in a mining town in Ohio. Three men and a woman drank an "essence of ginger" until intoxicated. One of the men and the woman died from the effects of the essence; two men survived but were blinded.

There can be no reasonable doubt that all the people mentioned above were simply poisoned by the wood alcohol; as in addition to the finding of that substance in the ginger preparation, it is shown that the same result followed the use of a peppermint essence in which it was also detected. The ginger and the peppermint must be left out of the question, until further investigation may prove that they can produce the symptoms occurring in the cases reported.

Whether the alcohol used in making the preparations which have brought about such dire results was "crude" or "purified" is apparently unknown. It is reasonable to infer, however, that anyone employing it for such purpose would choose the latter on account of its comparative freedom from disagreeable odor.

And that wood alcohol is poisonous in itself regardless of impurities, is shown in a case reported in the Medical record several years since by Drs. Cecil MacCoy and F. M. Michael. A young man who was con-
vulesing from measles surreptitiously drank about two ounces of methyl alcohol, the article being a highly purified article—probably the best obtainable in the market. Two hours after, he took a similar quantity mixed with sugar and water, and eluding the nurse, made his way to a hay loft, where, thoroughly intoxicated, he slept for about ten hours. On awaking he sought his bed, suffering from violent euresis and gastric pain. Twenty-four hours afterwards be complained of total loss of sight, and examination showed double optic neuritis with congested retina. About a week after, lack of vision still persisting, the patient complained of visual hallucinations. Eventually he became able to distinguish light and shadow and large objects held near the eyes, but had remained without further improvement when the report was made two and a half months after the occurrence.

We see here essentially the same physiological picture which had been presented in the other cases of ginger drunkenness; destruction of the eyesight being a marked feature.

The foregoing facts should sufficiently dispose of all theorizing as to possible harmlessness of a purified wood alcohol. Even if it were known that it could be so purified as to render it no more harmful than grain alcohol, one would have to remember that there would always be uncertainty as to this purification having been fully accomplished. With ordinary alcohol we have no parallel risk.

**Scraps from Cold-Made Toilet Soap.**

BY L. ETTEWEN, IN OILS, COLORS AND DRY SALTERSIES.

The usual method of working up scraps from cold-made toilet soaps consists in melting them with a potash solution and salt water. The resulting soap with about 200 pounds yield is always brittle, and does not give the same lustre when pressed, as a cold-made soap. Milled soaps being now very cheap, the better qualities are in great demand, while there is comparatively little request for filled soaps. A relatively good soap can be obtained if the cuttings are melted in hot oil and the equivalent quantities of lye is crutched in. We recommend the use also of tallow and castor oil in the stock, as the resultant soap will be smoother than that which is obtained from the use of coconanto oil alone.

A very good product is obtained by working in the following proportions:—

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<tr>
<td>Scraps</td>
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<tr>
<td>Coconanto</td>
<td>40</td>
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<tr>
<td>Tallow</td>
<td>40</td>
</tr>
<tr>
<td>Castor oil</td>
<td>20</td>
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<tr>
<td>Lye (71° Tw)</td>
<td>47</td>
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The fats are melted, then strained through a hair sieve, and then placed into a steam jacketed kettle, together with the scraps. After melting, the lye which has been mixed with the color is run in with constant stirring. When the lye is incorporated and the whole forms a uniform thick mass, it is left to heat spontaneously for about two hours. At the end of that time the saponification is complete, and after mixing, a little of the soap can be moulded.

A method of working up the scraps that is even more advantageous than that described is employed for milled soaps. About one part of well-dried shavings of a white ground soap, made from nine-tenths tallow and one-tenth cocoanut oil, and one part of chipped scraps are melted together, the necessary color and perfume being added.

When the soap is well mixed and is quite uniform, it is charged in the plodder. If worked carefully the resulting bars are perfectly solid and free from streaks. If a soap made from eight-tenths of tallow and two-tenths of rosin is employed, one part of it may be used to two parts of scraps.

The cheaper kinds of soap half-boiled ground soap with a higher percentage of rosin, can be employed, such a one for instance as follows:—

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<tr>
<td>Tallow</td>
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<tr>
<td>Coconanto</td>
<td>20</td>
</tr>
<tr>
<td>Rosin</td>
<td>50</td>
</tr>
<tr>
<td>Lye (71° Tw)</td>
<td>65</td>
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The fats and the rosin are melted together and strained through a hair sieve into a pan, where they are heated to 167° Fahr. Then the lye is added with constant mixing. When the lye is well mixed with the fats, the mass is left over for one hour to heat itself. After being well crutched a sample of the soap should not turn red when brought into contact with phenolphthalein. If the soap is quite neutral, it can be moulded. This soap will turn out perfectly solid and smooth if milled with double its quantity of scraps from cold-made soaps until the 200 lb. yield is reached. It is evident that this ground soap can only be used for dark brown toilet soaps, such as Windsor Export, Musk, Violet, etc. In the working by the method described the products will only become rancid if the scraps are from soap which contains unsaponified fat, and this danger can be avoided in the following manner: The scraps are put in with 15 per cent. of their weight of 71° Tw. lye into a soap pan and melted by open steam. About 20 per cent. of melted rosin is then added, together with one-half of its weight of tallow, and these materials are well boiled. If the excess of the alkali after a good boiling is very great, more tallow and rosin are added. The boiling is finished, when the soap has the appearance of a half-grained soap, and its condition may be tested by the touch. The soap is left in the pan for about 24 hours in order to completely separate a pasty sub-lye, and it is then moulded. A toilet soap made from six-tenths of this soap and four-tenths of ground soap meets every possible demand.
Trade in Cottonseed Oil.

The wonderful growth of the trade in cottonseed oil which had marked the last few decades of the present century is a phenomenon well worthy of study by those who are interested in commercial matters. Up to within little more than thirty years ago, says the "India Import and Export Trades Journal," cottonseed was a waste product, and the efforts of the cotton planter were directed towards solving the problem of how to get rid of it. Now, the material made from this waste product takes its place as one of the most important contributors to the world's supply of oil and cattle food. The quantity of cottonseed produced every year is very great—much greater than most people would imagine. To take the American crop alone is sufficient to show how tremendous is the output. The cotton season if 1899-1900 came to a close with the last day of August, and the number of bales produced by American planters in this season is given as 94 million, and this is roughly about 2 million less than the quantity marked during the previous season. We may safely take America's contribution to our cotton supplies as averaging 10 million bales. The weight of a bale of cotton is about 500 lbs., but the cotton as it comes from the field, including the seed, contains about twice as much weight of seed as of cotton; hence 10 million bales of cotton represent about 4½ million tons of cottonseed; and if we reckon that about 10 per cent. of the seed is required by the farmers for next year's crop, we find that the United States can supply the world with about 1 million tons of cottonseed for oil-making purposes every year. Adding the supplies from India and Egypt, which are, of course, not nearly so important, but yet sufficiently large in themselves, we shall not have less than 5 million tons of seed available in the course of every twelve months. It is probable, however, that all this seed is not brought into play; a certain proportion, through the carelessness and indiffer-ence of cotton growers—and, in some cases, through their ignorance of the value of the former "waste product"—is lost; but it is likely that this proportion will grow smaller each year until it becomes a vanishing quantity. The oil expressed from the cottonseed of the world, however, cannot be much less annually than 250 million gallons, and the question may naturally arise—Where can it all go?

The bulk of the cottonseed produced is naturally crushed in America; there the industry has been developed more fully than elsewhere, and the quality of the oil turned out is probably better than it is in Europe. Indeed, we do not yet seem to have learned how to make satisfactorily a perfectly pure and tasteless cottonseed oil on this side of the Atlantic. There are certain secrets in refining that our manufacturers have not yet mastered. It is said that this tasteless cotton oil, some-times called "butter oil" in America—because of its use in making substitutes for butter—can be made only from seeds grown under exceptionally favorable conditions; but, no doubt, there is a great deal in the methods of refining. When it is in perfect condition, there is no doubt that, for table purposes, it is quite equal to the finest olive oil, and, indeed, it is almost impossible to detect the difference between them by the sense of taste. A very large quantity of cotton oil, more or less well refined, goes to olive-oil producing countries, and comes back to us as olive, and is under that name consumed very largely. To such an extent had this practice of adulteration grown upon the Spanish coast, that it is now illegal for Spaniards to import cotton oil unless it is first mixed with at least 2 per cent. of paraffin, to render it unsuitable for edible purposes. The intention of the Spanish Government is unquestionably good, but, unfortunately, the system which obtains in Spanish Custom Houses is such that the regulation leads merely to further bribery of the officials. Cotton oil is sent into Spain in palm-oil casks, and is declared as palm oil, and a little of the latter, in a metaphorical sense, is applied to the gentlemen who have the control of the imports. Hence we do not think that Spanish olive oil is likely to be more free from adulteration with cotton oil than the exports from Italy or Trieste. The latter port and Leghorn receive very large quantities of the product of the cottonseed, and it is openly bought for the purpose of increasing the returns from the olive groves. Mar-selles also takes a very large quantity of cotton oil, partly for adulteration and partly for the soap works, where it is used more freely in our soap factories at home. A large part of the cotton oil made in Great Britain is used in the fish-frying trade, and has of late almost entirely unsurpassed the place of the various animal oils and fats formerly employed for this purpose. The slightly aromatic taste of English refined cotton oil is not objectionable in this connection, but, of course, the oil must not be refined by "blowing." A good deal of pale cotton oil is thus refined, and dealers who have a connection amongst fishfriers must be carefully on their guard against it. In appearance and taste, when cold, it is not always easy to distinguish this kind of oil, but the difference comes out clearly enough when it is warmed. Hence all dealers in the oil for edible purposes will do well to sample each new delivery as it comes in. Warm the oil in a pan, and judge by the smell whether or not it is fit to send out to their customers. The olfactory nerves of a neighborhood in which there are many fried-fish shops are not usually very sensitive, but, for all that, the odour of warned "blown" oil will prove too much for them. It is easy to lose a very profitable trade by the distribution of a few gallons of "blown" cotton oil amongst one's customers.
Another use to which cotton oil is put in Europe is the manufacture of "lardine" or "soluble castor oil." These names are possibly rather misleading, and were no doubt originally intended to convey the impression that lard oil or castor oil formed a part at least of the thickeners so described; but, by this time, all those connected with the trade know that the names stand merely for thickened cotton oil, the specific gravity of which—originally about .922—is raised to from .970 to .990. The product is employed chiefly in preparing marine-engine o ils, and although the lubricant thus made is rather disposed to "gum," it is largely used by steamship engineers, and apparently well liked by them. By mixing a due proportion of lardine—which may sometimes be bought as low as £14 or £15 per ton, and which, even new, when oils are dear, should cost only about £21— with .885 mineral oil a cheap and effective marine-engine oil can be made at a very moderate price. When cotton oil is dear it is rather too common a practice against makers of lardine to adulterate the product with resin oil, the specific gravity of the latter being sufficiently high (.983 to .990) to render this feasible. Just now a good deal of lardine is thus sophisticated, and in this form it becomes less suitable as an ingredient in lubricating oils. Hence it is well for those who use lardine for such a purpose to ask for, and insist upon having, pure thickened cotton oil, as, if the article be bought under this designation, any adulteration with resin might be legally resented.

A good deal of cotton oil goes to Egypt, for consumption amongst the Arabs, but crushers and refiners do not obtain so large a proportion of this trade as they might were they to succeed in turning out an oil more like the American "butter oil." Lately, a curious suspicion has arisen amongst Moham edan consumers that the cotton oil supplied to them might be adulterated with animal oil, and hence contaminated with the forbidden products of the hog. Of course, anyone acquainted with the relative values of oils will know that, although lard oil might be adulterated with cotton oil, the reverse is not possible, and not likely to be possible, while there are 250 millions of gallons of cotton oil to be got rid of every year.

The Nature and Properties of Corn Oil.

BY HERMANN T. VULTE AND HARRIET WINFIELD GIBSON.

In the present investigation an attempt has been made to identify, so far as possible, the series of fatty acids contained in maize oil. Although a complete separation has not been effected, owing to the difficulty of isolating these acids and to the imperfect knowledge we have of their properties, it has been found practicable to determine the principal acids found in the oil, including three never before reported, and to definitely settle the relationship existing between maize oil and other oils possessing somewhat similar properties.

The oil or maize is a fixed seed oil, composed of a highly complex mixture of glycerides of the fatty acids, together with a small proportion of some volatile oil and a rather large percentage of unsaponifiable matter.

CONSTITUENTS OTHER THAN FATTY ACIDS.

The question of the nature of the volatile oil peculiar to corn oil has not been considered in the present article. Its existence has been recognized by nearly all observers, and it is to this cause that the characteristic grain-like odor and taste of the oil are due.

The unsaponifiable matter is very largely phytosterol alcohol. The amount present, as determined by the process of Foster and Reichelmann, is found to be 1.11 per cent., a rather large amount in comparison with that in most seed oils. To the presence of phytosterol is due one of the most characteristic tests for maize oil, i.e., a fine violet coloration when one drop of concentrated sulphuric acid is added to the carbon disulphide solution of the oil and the mixture is allowed to stand for twenty-four hours.

A small amount of lecithin is also present in the unsaponifiable matter. The method of Benedikt and Lewkowitsch was employed for this determination and the amount of phosphorus pentoxide recovered was 0.98 per cent. From this, the calculated amount of lecithin present in maize oil is 1.11 per cent., making the total amount of unsaponifiable matter 2.52 per cent.

The percentage of glycerol, as determined by Helmer's dichromate method, is somewhat high, running from 10.35 to 10.55 per cent.

INSOLUBLE FATTY ACIDS.

The mixed insoluble fatty acids were prepared in considerable bulk, for analysis, by a process analogous to that used in determining the Reichert value, except that no attempt was made to have the work quantitative. The oil was saponified by aqueous potassium hydroxide in considerable excess, the soap decomposed by dilute sulphuric acid, and the resultant liquid heated until the oily layer of liberated fatty acids became clear and transparent. The whole mass was then transferred to a separating funnel, the aqueous layer drawn off, and the fatty acids washed with boiling water until the wash water was neutral to litmus. The insoluble acids were then subjected to a steam distillation at the ordinary pressure and the residue washed with boiling water, filtered through a dry filter, and dried at 100 deg. C. Considerable difficulty was found in obtaining uniform samples for analysis, owing to the sharp separation of the acids into a solid and a liquid portion.

The ordinary constants of the mixed insoluble acids, prepared as above, were first determined, the melting point being established by the method of La Rue and
Crossley and the saponification value both by titration and by the Koettstorfer method. A tabulation of the results obtained follows:

<table>
<thead>
<tr>
<th>Property</th>
<th>Method</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sp. gr. at 100° C</td>
<td>Observers</td>
<td>0.8529</td>
</tr>
<tr>
<td>Melting point</td>
<td>Koettstorfer</td>
<td>22.4°C</td>
</tr>
<tr>
<td>Iodine absorption</td>
<td>Observers</td>
<td>120.98</td>
</tr>
<tr>
<td>Bromine thermal value</td>
<td>Koettstorfer</td>
<td>21.6°C</td>
</tr>
</tbody>
</table>

Saponification Value.

By titration: 198.29
By Koettstorfer: 200.01
Mean Combining Weight: 200.01
By titration: 282.98
By Koettstorfer: 280.64

In connection with these results a statement is given of the figures obtained by other observers, as follows:

**Comparison with Results of Other Observers.**

**Melting Point.**

<table>
<thead>
<tr>
<th>Melting-point acids</th>
<th>Observers</th>
<th>Hoppe-Seyler</th>
<th>Dufiere</th>
<th>DeNegri and Fabris</th>
<th>Jean</th>
<th>DeNegri</th>
<th>Hubl N. acids</th>
<th>DeNegri and Fabris</th>
<th>DeNegri</th>
<th>Spuler</th>
<th>Hopkins</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.5°—12.2° C</td>
<td>Observer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16°—18° C</td>
<td>Observer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18°—20° C</td>
<td>Observer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20° C</td>
<td>Observer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39.5° C</td>
<td>Observer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Iodine Absorption.

Saponification Value.

<table>
<thead>
<tr>
<th>Sapon. value</th>
<th>Mean. mol. wt.</th>
<th>Observer</th>
</tr>
</thead>
<tbody>
<tr>
<td>198.4</td>
<td>282.76</td>
<td>Hart</td>
</tr>
</tbody>
</table>

An attempt was next made to obtain an approximate idea of the relative amounts of liquid and of solid fatty acids present in the mixture, and, for this purpose, the method proposed by Muter and De Koningh was employed. The results obtained must not be regarded as entirely accurate, since the lead salts of the acetic series of fatty acids are not wholly insoluble in either and those of the oleic and the linoleic series are not completely soluble. The constants of the two fractions were then determined, great care being taken to avoid oxidation during the process, and a tabulation of the results obtained follows:

<table>
<thead>
<tr>
<th>Percent-</th>
<th>Iodine Molecular age absorption. weight.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid fatty acids</td>
<td>72.26</td>
</tr>
<tr>
<td>Solid fatty acids (calc.)</td>
<td>27.71</td>
</tr>
</tbody>
</table>

Wallenstein and Finck report an iodine absorption figure of 140.7 for the liquid fatty acids of this oil, a somewhat higher figure than has been obtained in the present investigation.

It will be noticed that the percentage of liquid fatty acids is high. The terms “liquid” and “solid” used in this connection are misleading since, as will be shown later, one of the principal acids of maize oil is both solid and unsaturated, having its lead salt soluble in either.

**Fractional Precipitation of Mixed Acids.**

Forty grams of the mixed insoluble fatty acids were dissolved in hot neutral alcohol, care being taken to use enough alcohol to insure complete solution at all temperatures. To the hot liquid was added a boiling solution of 1.5 grams magnesium acetate in alcohol, and the mixture was then thoroughly agitated and allowed to stand for twenty-four hours. As no precipitate was thrown down, the operation was repeated with a second portion of magnesium acetate and, upon standing, a white solid, like the scrapings of candles, separated out. This precipitate was filtered off and a fresh portion of magnesium acetate added to the filtrate as before, the operation being repeated as long as it was possible to obtain new precipitates. In this manner four successive fractions were separated, all white and all but the first curdy in appearance. The fifth fraction was obtained by making the liquid strongly alkaline with ammonia, before the addition of fresh magnesium acetate, and allowing the mixture to stand three days before filtering. The sixth and seventh fractions were obtained by neutralizing the liquid with acetic acid and then treating it with lead acetate. The precipitate thus obtained was filtered off, dissolved in ether as far as possible, and the insoluble portion filtered out. The final fraction, having its lead salt soluble in either, was then freed from the ether by gently heating the liquid.

Several fractions were next well washed with cold dilute alcohol, dried in filter-paper, and decomposed by hot, dilute hydrochloric acid. The liberated fatty acids were then washed with boiling water until neutral to methyl orange, filtered and dried as in the Helmer and Angell process. The purified acids were new examined for melting point, iodine absorption, bromine absorption, saponification figure and mean molecular weight.

In the determination of melting-point, a short piece of glass tubing with small bore was coated over one end with a film of the acid and bound to the bulb of a delicate thermometer. This was immersed in water, which was gradually raised in temperature. The point at which the fatty film was detached from the tube and rose to the surface was recorded as the melting point.

A tabulation of the results obtained follows, and it will be observed that the acid constituting the several fractions give a pretty regular series of values for all constants determined.

**Appearance of the Several Fractions.**

1. White waxy mass like the scrapings of candles.
2. White warty substance like soft tallow.
3. Pale yellow solid, rather harder than butter.
4. Buttery, dark brown mass. The magnesium salt of this fraction was very stable and, upon being decomposed by acid, immediately oxidized to a dark brown color. The filtrate was colored bright yellow and had a peculiar odor, showing that some decomposition-product had been formed.

5. Similar to 4, but somewhat softer.

6. Similar to 1.

7. Dark red-brown liquid, of comparatively low viscosity.

<table>
<thead>
<tr>
<th>Melting point</th>
<th>Mean mol. weight</th>
<th>Saponification value</th>
<th>Iodine absorption</th>
<th>Bromine absorption</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 . . . 32.3</td>
<td>276.03</td>
<td>203.24</td>
<td>69.74</td>
<td>. . .</td>
</tr>
<tr>
<td>2 . . . 50.2</td>
<td>272.00</td>
<td>197.00</td>
<td>101.94</td>
<td>61.55</td>
</tr>
<tr>
<td>3 . . . 35.8</td>
<td>284.76</td>
<td>193.62</td>
<td>102.77</td>
<td>66.23</td>
</tr>
<tr>
<td>4 . . . 31.1</td>
<td>289.75</td>
<td>193.62</td>
<td>114.98</td>
<td>73.22</td>
</tr>
<tr>
<td>5 . . . 21.5</td>
<td>287.60</td>
<td>195.06</td>
<td>114.98</td>
<td>73.22</td>
</tr>
<tr>
<td>6 . . . 55.2</td>
<td>288.11</td>
<td>209.24</td>
<td>9.51</td>
<td>5.32</td>
</tr>
<tr>
<td>7 . . . Liquid</td>
<td>286.07</td>
<td>196.11</td>
<td>137.61</td>
<td>85.91</td>
</tr>
</tbody>
</table>

An examination of the several fractions and of their constants, as given in the foregoing table, indicates the presence, particularly in the fourth fraction, of some unsaturated fatty acid which is readily oxidizable in the air. The melting-point and iodine absorption of this fraction suggests hypogaeic acid, and an ultimate analysis of the substance, twice repeated, gave a formula very nearly corresponding to C16H30O2.2H2O, except that the percentage of oxygen was somewhat high. The presence of water, due to the impossibility of completely drying so oxidizable an acid, explains the high molecular weight of this fraction and the excess of oxygen is, of course, due to the oxidizability of the oil. From the foregoing evidence the presence of hypogaeic acid as a characteristic acid of maize oil may be considered as conclusively proved.

A separate investigation, in the method suggested by Renard, was conducted to determine the presence of arachidic acid. A small crop of crystals was obtained, showing the characteristic form of arachidic acid under the microscope, but the quantity recovered was too small for further investigation.

The occurrence of stearic, palmitic and oleic acids in maize oil was first reported by Hoppe-Seyler in 1866. He succeeded in isolating these acids, and their presence has since been confirmed by many observers. Linolic acid was first determined in 1894 by Rokitiansky, who prepared its oxidation-product, sativic or tetrahydroxystearic acid. This result is confirmed by a late observer, C. G. Hopkins, of Cornell University, who finds a large percentage of linolic acid in corn oil. Rokitiansky also asserts the presence of a hydroxylated acid (probably ricinoleic) in the solid fatty acids, and this conclusion is rendered probable by the somewhat high acetyl figure (11.12—11.49) of the oil.

A summary of the insoluble fatty acids shown to exist in the oil of maize is therefore as follows:

<table>
<thead>
<tr>
<th>Name of Acid</th>
<th>Formula</th>
<th>Name of Analyst</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stearic</td>
<td>C18H36O3</td>
<td>Hoppe-Seyler</td>
</tr>
<tr>
<td>Palmitic</td>
<td>C16H32O2</td>
<td>Hoppe-Seyler</td>
</tr>
<tr>
<td>Arachidic</td>
<td>C20H40O2</td>
<td>Vulte and Gibson</td>
</tr>
<tr>
<td>Hypogaeic</td>
<td>C16H30O2</td>
<td>Rokitiansky</td>
</tr>
<tr>
<td>Oleic</td>
<td>C18H34O2</td>
<td>Hoppe-Seyler</td>
</tr>
<tr>
<td>Linolic</td>
<td>C18H34O3</td>
<td>Rokitiansky</td>
</tr>
<tr>
<td>Ricinoleic</td>
<td>C18H34O5</td>
<td>Rokitiansky</td>
</tr>
</tbody>
</table>

In the determination of the constants of maize oil, the Reichert value (4.2-1.3) obtained as the result of a large number of tests was found to be higher than that of any other seed oil, coconut oil (3.5-3.7) coming next. The figures obtained for this constant by other analysis differ widely in value, running from 0.0 to 6.7. The Reichert value and high percentage of glycerine indicate the presence of a notable amount of volatile acids, and, as comparatively little attention has been paid to their determination, certain observers going so far as to doubt their existence, it was thought well to attempt their identification, so far as possible. For this purpose the mixed acids are prepared as in the Hehner and Angell process, and the insoluble acids filtered off. An aliquot portion of the filtrate was then neutralized with decinormal potassium hydroxide, methyl orange indicator and the titration continued until neutral to phenolphthalein. The excess of decinormal potassium hydroxide of course represents the soluble fatty acids. (It was found that 1 gram of the oil requires 0.0088 gram potassium hydroxide for the neutralization of its volatile acids, this corresponding to a Reichert value of 3.9 and a mean molecular weight of about 130.)

The larger part of the filtrate was then saturated with calcium chloride and allowed to stand. A small amount of oil separated out, showing the presence of acids higher than formic and acetic, but lower in the series than lauric. No attempt was made to identify the acids in this fraction, but Rokitiansky reports the probable presence of caproic, caprylic and capric acids.

A portion of the aqueous liquid was carefully separated from all oily drops and heated with alcohol and concentrated sulphuric acid. The fragrant and characteristic odor of ethyl acetate was produced in a marked degree, thus establishing the presence of acetic acid, an acid never before reported for maize oil. As a confirmatory test, ferric nitrate was added, drop by drop, to a portion of the original filtrate. The blood-red color characteristic of ferric acetate was obtained and responded to the usual tests for establishing its identity.

Another portion of the original filtrate was treated with silver nitrate and gently warmed. A marked precipitate of metallic silver was formed, this proving the presence of formic acid in corn oil. This acid was re-
ported by Rokitiansky, but its occurrence has not been confirmed by any later observer.

The soluble acids thus far determined in corn oil are, therefore, summarized as follows:

<table>
<thead>
<tr>
<th>Name of Acid</th>
<th>Formula</th>
<th>Name of Analyst</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formic</td>
<td>CH2O2</td>
<td>Rokitiansky</td>
</tr>
<tr>
<td>Acetic</td>
<td>C2H4O2</td>
<td>Viste and Gibson</td>
</tr>
<tr>
<td>Caproic</td>
<td>C6H12O2</td>
<td>Rokitiansky</td>
</tr>
<tr>
<td>Caprylic</td>
<td>C8H16O2</td>
<td>Rokitiansky</td>
</tr>
<tr>
<td>Capric</td>
<td>C10H20O2</td>
<td>Rokitiansky</td>
</tr>
</tbody>
</table>

Scientific knowledge as to the properties of the various fatty acids is at present so scanty and fragmentary and the lack of any connected scheme for their analysis is so absolute that the complete investigation of any oil presents almost insurmountable difficulties. Furthermore examination of corn oil is needed in order to establish or disprove the presence of caproic, caprylic, capric and ricinoleic acids, and also to determine the relative percentages of the various acids with accuracy. The present investigation adds to the known constituents of the oil, acetic, hypogaeic and arachidic acids, and confirms the presence of formic acid, which was up to this time considered doubtful.—Journal Am. Chem.

**Adulterations of Essential Oils.**

*Continued.*

**CHEAPER ESSENTIAL OILS.**

*Turpentine* generally introduces abnormalities, lower specific gravity, diminishes solubility, lower boiling temperatures and disturbed optical rotation. The latter can easily be remedied by mixing the proportions of dextrogyrate and laevogyrate turpentines. Before a positive opinion can be given relative to the presence of added turpentine, in many cases a careful comparison must be made and the characteristic derivatives of pinene isolated.

*Cedarwood, copaiba* and *gurjun balsam* oils are generally indicated by their lesser solubilities, higher specific gravities and optical rotations, but the two latter can readily be adjusted by the proper kind and amount of turpentine.

*Mineral oils* (petroleum, kerosene, etc.) are generally revealed by their insolubility and indifference to the action of strong acids and alkalis. They may be variously isolated, by their insolubilities, polymerizing the oil with concentrated sulphuric acid and then distilling the mixture with aqueous vapor, or by oxidizing with fuming nitric acid and then removing the oxidized portion with hot water, thus leaving the unaffected petroleum behind.

**DETERMINATION OF PHYSICAL PROPERTIES.**

The *specific gravity* is one of the best known properties of oils and is the one most generally applied because it is readily determined. The specific gravity is a very important factor, but is readily tampered with, consequently very careful deductions based on it must be made.

**Solubility.**—Very definite and satisfactory data have been established for many oils relative to their solubility; so much so that this physical property is probably more reliable than any other single one. The common adulterants are generally revealed by the application of this test. The volatile oils are quite readily soluble in alcohol, ether, acetone, acetic ether, glacial acetic acid, carbon disulphide, chloroform, benzol, petroleum ether and paraffin oil.

The *optical rotation* is exceedingly valuable, frequently being the only means by which the purity of an oil can be arrived at, and should never be omitted.

**Fractional distillation** is usually resorted to in cases of admixture.

The *congealing point* is especially useful and necessary with anise oils

**QUANTITATIVE ESTIMATION OF CONSTITUENTS.**

Before an oil can be admitted to a chemical examination, it is necessary to know at least its chief constituents, and then the methods must be so adjusted that these constituents can be estimated quantitatively with a considerable degree of accuracy. Such methods have been elaborated only within recent times, and are based on well-known organic reactions.

The oldest and probably the most useful is the method of *ester determination* or *saponification*. It was originally applied to essential oils as we now apply it to fixed oils, and is based on the fact that fixed alkalis resolve the esters into their respective alcohols and acids, the alkalis combining quantitatively with the latter. Then, knowing the ester in a given oil, the amount can readily be calculated by the quantity of alkali consumed by a given weight of oil. The linalyl acetate of lavender and bergamot oils is readily estimated by this process.

**Aldehydes.**—In the case of aldehyde-bearing oils, as cassia, the property of sodium bisulphite forming a compound soluble in water, containing an excess of sodium bisulphite, is utilized. This process is of much practical value with oil of cassia, and the oil is now generally purchased on the basis of aldehyde content.

**Acetylation.**—Many of the oils contain alcohols as essential constituents. These can mostly be estimated by converting them into acetic esters, by means of acetic anhydride, removing water-soluble products by washing with water, then dehydrating the residue by means of fused sodium sulphate, and estimating the amount of acetyl group contained in a given weight of the acetylated oil.

**PHENOL DETERMINATION.**

It is the custom in France to rectify the oil of thyme with considerable quantities of turpentine oil. The original cause of this procedure is probably due to the
fact that the consumer requests a colorless oil, and oil of thyme contains a goodly per cent. of phenol bodies, which cause the freshly distilled oil to develop a coloration in a short time. The smaller the amount of phenol, the longer the oil will remain colorless. Careful analyses of this oil show that a pure product contains about 25 per cent. of phenols, and these can be approximately estimated by treating a given volume of oil with a 5 per cent. solution of sodium hydroxide, in a burette, and noting the diminution of volume of the oil. The alkaline solution forms soluble compounds with the phenols.

The following comprises a list of oils and the impurities found in them by various observers, as well as the writers:

Almonds, bitter, true.—There are no objections, so far as the writers know, to the preparation of a so-called oil of bitter almonds made from apricot or peach kernels, but it ought not to be offered as the genuine article. The true oil is often adulterated with alcohol, nitrobenzol, turpentine and benzaldehyde, the latter sometimes in toto.

Aniseed, spermaeacti up to 35 per cent., alcohol as much as 80 per cent., kerosene, wax, oils of fennel, cedar, copaiba, camphor, turpentine, fennel stearopten and oil of caraway, obtained from both the seed and the chaff.

Angelica, copaiba.

Amber, crude, resin mixed with coal oil and turpentine. It is rumored that crude petroleum is frequently supplied for this article.

Amber, rectified, resin oil, turpentine and kerosene. Note remarks made under amber, crude.

Bay, cloves, pimento, turpentine and oils containing phenols. It has also been adulterated with redistilled oil of cinnamon leaf, with a slight admixture of redistilled oil of lemon grass. Such an article has been pronounced by those of little experience superior to the pure product, appearing sweeter, more aromatic and not as heavy in odor as a pure oil.

Birch, methyl salicylate, and there is no absolute method to detect it.

Bergamot, lemon, orange, French turpentine, linaloe, fatty oils.

Cajeput; this is often looted. A mixture of rosemary or savin with camphor and resin of milfoil is often substituted. Oils of camphor and turpentine must be looked for.

Cajeput, Formosa, said to be a mixture of cajeput and oil of camphor.

Camphor, benzine, coal oil, turpentine, one case 25 per cent.

Canada snakeroot, copaiba.

Cananga, coco nut oil.

Cassia, coal oil, fatty oils, resin (one case 18 per cent.), oil gurjun balsam, cloves, cinnamon leaf, cedarwood. A 90 per cent. aldehyde containing oil of cassia reduced to a 70 per cent. strength oil, by the addition of enough coal oil. A large profit in coal oil.

Caraway seed, often a looted oil; turpentine, oil of caraway chaff and added limonene. The term “twice rectified” for this article is rather misleading, as each rectification reduces the percentage of carvol. The single distillation of Dutch caraway seed produces a superior oil of much greater strength than the so-called “twice rectified.”

Cedal, a mixture of orange and bergamot.

Cedar, hemlock, spruce, turpentine, oil of camphor.

Cedar leaf, cedarwood, thuja.

Celery seed, celery leaf, turpentine.

Chamomile, cedar, copaiba, turpentine, milfoil, lemon. The manufacturer sometimes distills lemon or turpentine over his chamomile flowers.

Cinnamon, cloves, cassia.

Citronella, Japanese oil of camphor, the light variety. This article was preferred by some, as it had a sweeter odor. Fatty oils, oil of gurjun, coal oil, coco nut oil. A controversy occurred in England as to whether a mixture of citronella 35 per cent., lemon 10 per cent. and coal oil 55 per cent. could pass as citronella oil.

Coriander, orange, cubbebs, cedar, turpentine, oil of orange distilled with coriander.

Copaiba, oil gurjun balsam.

Cloves, clove stems, fatty oils, copaiba, pimento, coal oil, turpentine and carabolic acid. A looted oil is sometimes met with.

Cubeb, copaiba.

Curacoo orange, bitter orange and bergamot.

Dill, caraway chaff oil, mace, turpentine.

Eucalyptus, looted oil, cheaper grades of eucalyptus. Turpentine is said to smooth a rough oil.

Fennel seed, looted oil, fennel chaff, alcohol, oils containing phenols.

Geranium, gingergrass, rectified citronella, fatty oils.

Geranium, Turkish, fixed oils, turpentine, coal oil.

Gingergrass oil, mineral oil and turpentine.

Hemlock, spruce, turpentine.

Juniper wood, turpentine.

Lavender, garden, spike, oil of camphor, turpentine.

Lavender flowers, turpentine, alcohol. A poor oil is sometimes found “plugged” with ester. According to Schimmel, the test for solubility, one part to three of 70 per cent. alcohol, does not prove or disprove the presence of turpentine. The method of distillation is responsible in the majority of cases for the variations in specific gravity, optical rotation and solubility.

Lemon, poor lemon oil, with citral from lemongrass added, poor or old orange oil, turpentine. When testing on paper, use a piece of fresh lemon peel for comparison.

Lemon grass, fixed oils.
Limes, expressed, lemon.
Melissa, lemon, citronella or lemon grass distilled over melissa leaves. Mixtures of lemon and citronella or lemon grass.

Matric, alcohol, turpentine.

Mace, distilled, poor quality nutmeg oil.

Neroli, petit-grain, with a little bergamot, improves the quality of a poor oil. Lemon or orange increase optical rotation. Petit-grain or linoloe decrease optical rotation.

Orange, alcohol, turpentine. When testing on paper, use orange peel for comparison.

Origanum, a mixture of thyme, oil of camphor, turpentine and coloring matter; crude oil of sassafras, rectified resin oil, Barbasoes tar, crude petroleum.

Palmrose, coco nut oil, petroleum.

Patchouli, cedarwood, cubels, turpentine, coal oil.

Peppermint, mixture (peppermint, glycerin, alcohol and turpentine) copaiba, erigeron, turpentine, castor oil, nnyroyal, alcohol, glycerin, oil of camphor, sassafras, booted oil.

Pennyroyal, de-methylized mint, turpentine, alcohol, residue from peppermint distillation.

Petit-grain, turpentine.

Pimento, cloves, carbolic acid.

Pine-needle oil, turpentine. Much confusion exists in these oils, due partly to the nomenclature of the coniferae.

Pinus sylvestris, Scotch oil of fir, coal oil, turpentine. Very little genuine is to be had.

Rose.—The leaves of rosa alba added to the Bulgarian rose, as the oil from this mixture contains more steareten, so that the distiller is able to add more geranium oil without reducing the melting point below the minimum. Indian geranium or gingergrass, palmarosa, true oil of rhodium, light paraffin oils, fixed oils, guaiac wood oil, alcohol, spermaceti, paraffin. This is the record breaker for number of adulterations.

Rhum, a mixture of rose and copaiba.

Ruemary, camphor and lavender, turpentine, spike oil, petroleum oil, alcohol, rectified camphor oil.

Rue, turpentine, coal oil.

Sandal, “German,” mixture of sandal-English and copaiba.

Sandal, “East India” or “English,” castor oil, copaiba, fatty oils, cedarwood, oil of gurjun, West India sandals. Chloroform and alcohol were found in one sample that is said to have answered the U. S. P. requirements. This oil should be from one to two years old, as ageing considerably improves the fineness of the aroma. The U. S. P. requires a specific gravity 0.970 to 0.978. Ten observers, including Schimmel, Umney, Parry, Bush and Squires, average 0.971 to 0.979. Optical rotation, —12° to —20°; santalol, from 86 to 98 per cent. A safe average for a good oil would be, optical rotation, from —17° to —19°; specific gravity, 0.975 at 15° C.; and santalol at least 90 per cent. A lot of oil made by a certain firm had a specific gravity of 0.9767; optical rotation, —17.5°; contained 97.16 per cent. of santalol, and was freely soluble in five volumes of 70 per cent. alcohol.

Savin, juniper, turpentine. Dr. Dohme found 80 per cent. of turpentine in one sample.

Sassafras, safral, coal oil, oil of camphor.

Spearmin, turpentine.

Spruce, turpentine.

Tansy, spruce, turpentine.

Thuja, cedar, pine leaf, turpentine.

Thyme, camphor, turpentine. A recent examination showed that a pure article can be obtained, but generally it runs low in phenol content.

Verbena, lemon grass.

Vetiver, fixed oils.

Wine, light oil, fusel oil and the distillate obtained from the residue left in the manufacture of ether.

Wormwood, turpentine. Residue from the distillation of oil of tansy. A mixture was once sold as oil of wormwood which cost about 65 cents per pound to make. It consisted of oils of cedar, spruce, amber, tansy refuse, alcohol and turpentine. One of the authors had a sample of this unique compound shown him. Even a hasty examination should have disclosed most of the ingredients.

Wintergreen, true.—There is practically little of this oil to be had. Birch, pure methyl salicylate and mixtures of the two are often sold for it. When it was a common commercial article, Japanese oil of camphor, other light oils, coal oil, sassafras and chloroform were the chief adulterants. There appears to be no satisfactory test to identify an admixture of methyl salicylate and birch except optical rotation, and this observation must be made with extreme care.

Ylang Ylang (flower of flowers), kananga, fatty oils, synthetic oil.

In conclusion, the writers would state that they make little claim for originality. This paper contains the results of some years of observation and information supplied by friends. Existing literature was largely drawn upon, chief among which were Die Aetherische Oele, von E. Gildemeister und Fr. Hoffmann; the English translation of this by Edward Kreurers; The Chemistry of Essential Oils and Artificial Perfumes, by Ernest J. Parry; Odorographia, by J. Ch. Sawer, and the Semi-Annual Reports of Schimmel & Co.

We learn with regret the recent death of William, Dunwoody, Jr., of Denver, Colorado, and extend our sympathies to the firm.
YIELDS OF STEARIC AND OLEIC ACIDS, GLYCERINE, ETC. FROM TALLOW, ETC.

In answer to several inquiries regarding the various yields of stearic and oleic acids, glycerine, etc., which may be obtained from tallow, I give the following figures, which are easily susceptible of proof:

The ordinary or usual tallow on the market purchased for the manufacture of glycerine, etc., will run from 42.0° to 42.5° titre. In exceptional cases a tallow of 43° or more titre may be obtained, but always at a higher price than the former material. Assuming that the tallow has the high titre of 44°, from this, theoretically, may be obtained 47.5 per cent. each of stearic and oleic acids. But in these figures no account is taken of the usual loss in working on a commercial scale, which in this manufacture is usually from 5 to 6 per cent. Neither in the above proportions is any account taken of the usual impurities in the stearic acids, such as a large or small percentage of oleic acid, always present in commercial stearic acid. It is not possible, on a profitable commercial scale, to entirely separate the two acids from each other.

Taking the ordinary and usual tallow used for the purpose of manufacturing glycerine, 42° titre to 42.5°, the first-named titre would yield, theoretically, 39.9 per cent. stearic acid and 55.1 per cent. oleic acid. Using the latter tallow, the theoretical yields would be 42.75 per cent. stearic acid and 52.27 per cent. oleic acid, otherwise known as saponified red oil. Our inquirers may rest assured that working on a commercial scale, with modern methods and appliances, it is impossible to obtain a yield of 45 per cent. of oleic and stearic acids, for the reasons above stated.

GLYCERINE YIELD.

The yield of glycerine from the usual tallow (sweet) is from 9 to 10 per cent., and, in exceptional cases, somewhat higher, depending largely upon the freshness of the tallow employed for distilling.

The greater the yield of oleic acid or saponified red oil, the less the profit in the manufacture of glycerine and oleic acid. While at present unusually high priced (400 per lb.), oleic acid is ordinarily a troublesome by-product to dispose of, the manufacturers frequently being compelled to store and hold large quantities for a market, even at a far lower price than it is quoted today.

The item of loss or waste in the manufacture of glycerine is a serious one in this industry, and many distillers have frequently found that, figure as they would, many carloads of tallow were distilled at a positive loss, owing to the unavoidable loss sustained in the working. Naturally this does not obtain too frequently, but, from actual figures, it has been found serviceable to figure from 5 to 6 per cent. loss as a general average.

WHY MUTTON TALLOW MAKES POOR CANDLES.

Strange as it may appear, mutton or goat tallow would be considered an adulterant in tallow for distillation by the candle maker, the chief user of stearic acid, notwithstanding its very high titre. Although it has a high melting point and consequently a large proportion of stearine, it is not suitable for candles, on account of its fatty acids not crystallizing well, but solidifying into an amorphous or mixed mass, from which it is extremely difficult to remove the entangled oleic acid.

The candles prepared from mutton or goat tallow are of low quality, not possessing the metallic ring of first-class candles. They also become easily discolored on account of the oleic acid they contain.—J. C. Duff, in National Provisioner.

MANUFACTURE OF COCOANUT BUTTER IN MANNHEIM.

The manufacture of cocoanut butter is an industry of some importance in Mannheim. This factory is said to be the only one of any considerable size in Germany. It has an output of about ten tons of butter per day. The business was started in 1886, and, the proprietors say, shows a steady increase. The product is sold under the name of "Palmin"—a registered trade name—or cocoanut butter (German, "Kokosnussbutter"). It is manufactured from the kernels of cocoanuts and is used as a substitute for butter and lard in cooking. As sold, it is generally white in color, almost tasteless, melts at about 80° F., and is of about the consistency of mutton or beef tallow. When desired by consumers, as bakers, confectioners, etc., the product is colored to resemble ordinary butter. When furnished to dealers, it is unlawful to color it. The proprietors claim an analysis of their product shows it to contain more than 99 per cent. of vegetable fat, with but a slight trace of water, while ordinary butter contains about 85 per cent. of fat and nearly 15 per cent. of water. It is stated that the substance does not become rancid easily, that it will keep for three or four months in a cool room, and that it is much more wholesome and easily digested than the ordinary fats used for baking and cooking. For this reason the product has met with considerable favor in German hospitals and other institutions, and for use in army camps.

Cocoanut butter is generally put up in square packages wrapped in parchment paper, a small percentage being sold in tin cans. The latter are hermetically sealed for shipment during hot weather. The product is sold at one price throughout Germany, namely, about 16 cents per pound, or about half the price of ordinary butter. It is handled in somewhat limited quantities by about fifty grocers in Mannheim.
The process of manufacture are, for the most part, secret, and, it is claimed, are protected by patents. The kernel of the cocoanut is imported in thoroughly dried strips, forming the "copra" of commerce. It is subjected to various refining processes by which all the free acids and other substances are separated, leaving only the vegetable fat. In the latter stages of the manufacture the product resembles ordinary butter recently churned. It is placed in machines similar to the separators used in creameries, in which the water and other foreign substances are separated by centrifugal force. In the manufacture of cocoanut butter a by-product, consisting of free acids and other substances, is obtained and sold to soap manufacturers.

Quantitative Analysis for Glycerine in Fats and Soaps.

M. Laborde, of the Agricultural Station, of Bordeaux, has recently discovered a process for the gravitative analysis for glycerine in fermented liquids, based on the action exercised by concentrated sulphuric acid or glycerine under heat. He has ascertained that glycerine heated to about 200 degrees C. with concentrated sulphuric acid, produces a quantity of carbon, from which the corresponding quantity of glycerine can be exactly deduced. The reaction is represented by the following quotation:

The process, simple, rapid, and exact, constitutes an important progress in analytic chemistry; for previous processes for ascertaining the proportion of glycerine have left much to be desired. The researches of M. Laborde for establishing the accuracy of his process, applied to the analysis of fermented drinks, have led him to the conclusion that the alcohol-glycerine proportion is very valuable in red wines, and that it can scarcely serve to characterize a natural wine; since the limits of its variation may extend from 10 to 16 per cent., thus exceeding the figure 14 given by M. Gautier as a minimum. He has also discovered large variations in the alcohol-glycerine ratio in liquids of a different nature, as well as in different samples of liquid of this same nature.

His process, therefore, elucidates a very interesting point in the chemistry of fermented drinks, demonstrating that the proportion of alcohol-glycerine is far from having the influence attributed to it in the analyses of wine and other fermented liquids.

We have applied the process of M. Laborde to the quantitative analysis for glycerine in fats and soaps. The results have been quite satisfactory, and we believe it will be of benefit to publish the method we have employed.

In the analysis for glycerine in soft soap or in loaded soaps, ten grams of soap are dissolved in hot water, and precipitated with a concentrated solution of zinc sulphate, which is added cautiously until precipitation ceases; then filtered, to separate the insoluble zinc, and washed with warm water. The filtered liquor and washing water receives an addition of ten drops of sulphuric acid and is evaporated on a sand bath. M. Laborde noticed that in an acid liquor and glycerine is entirely retained at the point of boiling water, so that, for concentration, it is necessary to acidulate it. When there remains not more than 3cc. of liquid, the analysis for glycerine proceeds conformably to his process; 5 or 6cc. of concentrated sulphuric acid are added to the mixture and closed with a rubber stopper, to which an open tapering tube 50cc. in height is fitted; then heated on the sand bath to about 150 degrees C.

The matter flacks disengaging white vapors of water and sulphurous acids, and the temperature mounts to 200 degrees C., and is kept back of the water condensed in the tube.

When the carbonaceous matter forms lumps floating in the acid, it is taken from the fire and allowed to cool; then 3cc. of half diluted chlorhydric acid are added, and the whole heated over, until the white vapor reappear. On corking, about 100cc. of water are poured in, raised to ebullition, and the whole deposited on a flat filter in order to collect the carbon, which is washed with boiling water until the acidity ceases.

The filter is punctured, and the carbon made to fall by a jet of hot water into a tarred platinum capsule. Some drops of ammonia are added, and the excess of water evaporated on the sand bath or a stove. The dry residue is heated below the red to drive off the traces of ammonia sulphate which it may retain and then weighed. The weight of carbon obtained, multiplied by 2.56, giving the corresponding weight of the glycerine.

In the quantitative analysis for glycerine in an oil, tallow or fat, ten grains are saponified with soda and alcohol; water is added to the drying soap, and the analysis proceeds, according to the method we have indicated for analyzing a soap.—Revue de Chimie Industrielle.

To Fill Collapsible Tubes.

F. Edel, in the Spatula, gives this advice on filling collapsible tubes: "To those who have had no experience in filling collapsible tubes with tooth paste or toilet creams, I would say that I have found nothing as handy as a large-barreled metal syringe. Remove the pipe and fill the barrel with paste and then force the given quantity into the tube and close with a broad pair of pincers (which are furnished by the manufacturers for that purpose). It only requires a little ingenuity, however, to improvise pincers that will close the tubes nicely, and any tinsmith can make a suitable apparatus for filling the tubes."
Training of the Technical Chemist.

In his annual presidential address before the American Chemical Society, Dr. William McMurtrie discussed the condition, prospects and future educational demands of the chemical industries. Regarding educational training he said the future technical chemist must be trained in the principles and practices of engineering, trained to make and operate the mechanical means for carrying out effectively the chemical reactions of the industries in a large way. These reactions differ only in degree from those of the research and preparation laboratories, and the students must be taught to apply them in the large way in the works. Indeed, the only difference between the preparation laboratory and the chemical works may be comprised in the terms microchemistry and macrochemistry; chemistry and the operations belonging to chemistry carried on in a small way with limited or small quantities or volumes; handling solids and liquids in quantities of a few grams or a few cubic centimeters or liters on the one hand, or of tons of solids and thousands of gallons of liquid on the other.

How, for instance, would the chemist, untrained in the principles of engineering, proceed in handling materials in quantities involving several tons of solid matters and 30,000 to 50,000 gallons of liquid in a single charge, a requirement not uncommon in the modern industries and sure to be more common in the future industry? Time and labor must be saved by training in the methods, whereby such means may be established and a knowledge of means already at hand acquired. Students must be prepared to put into practical operation in a large way the results of the researches they have been called upon to make.

Soap.

W. Shaw, at Illinois Laundrymen's Meeting.

It would seem to the uninitiated that soap should play the most important part in the laundering of soiled linen, but it is safe to say that in most cases less thought is given to the quality of soap used than is given to the shape and color of the button that goes in the neckband. The laundryman demands that his starch be thin cooking and non-acid; his blue must be pure and must produce certain shades; his machinery must give certain finishes and do a given amount of work in a certain time. All these demands made by the laundryman have resulted in a general improvement in the supplies used in the trade. With soap, however, it is different. Most anything goes. To be sure, we ask that it produce a reasonable suds, but how often do we talk about its purity, its detergent power and other qualifications of a good soap? Isn’t it generally a question of price?

Now, why does this state of affairs exist? Largely because the laundryman has discovered that by the use of alkalis added to the soap, or used in connection with it, he can use a cheap grade of soap with little, or no, detergent power, and thus clean the clothes effectually, even if at the expense of the linen. It is a strange fact, but nevertheless true, that while the average laundryman is willing to pay good prices for his starch, blue, machinery and other supplies, he feels it necessary to buy his soap as cheaply as possible, and you cannot buy a good soap cheap.

There are two things that keep laundrymen from becoming wealthy—agents and alkalis. Although, alphabetically, they both stand at the head of the list, we hear “agents” discussed in conventions and elsewhere, but we don’t hear much about “alkalies.” The amount of money that is paid to agents in commissions, and to the public for damaged goods due to the use of alkalis, would swell the balances of the laundrymen at the bank greatly.

That alkali, especially caustic alkali, is corrosive, or that it has an eating effect, so to speak, upon linen, is a scientific fact beyond dispute, and it would seem to me that the future of the laundry trade rests upon the broad principle that it is best to wash clothes as far as possible by soap and not with alkalis. By alkalis I mean caustic soda, caustic potash, and so down the line of the whole tribe of alkalis.

At the risk of insulting the intelligence of the gentlemen here assembled, I would repeat what they probably already know, that soap is a combination of a fat and an alkali. When just enough alkali is used to exactly saponify a given amount of fat, we have a neutral soap. When too much alkali is used we have a caustic soap, or one said to contain “free caustic alkali.” If too little alkali is used we have a soap containing unsaponified, or free fat.

It is safe to say that the majority of the troubles in the laundry business, always excepting those arising from “agents” or “shorts,” may be traced to the soap with free fat, or free alkali. Briefly stated, the great fault of the soap with free fat is, that in combination with the lime or magnesia found in most waters, it will produce the despised black speck, or soap spot. The soap with an excess of alkali, especially caustic alkali, affects colors, rots fibers and helps to convince the public that “laundring” is but a term synonymous with “ruining.” Yet, in spite of this latter fact, a laundryman has been heard of who buys a caustic soap, “builds” or strengthens it with more caustic, uses a bleach made with lime and caustic soda, and in some cases breaks the water he washes with with still more caustic.

What is the remedy for all? you will ask. First, buy a good soap. If the water you are compelled to use is hard, arrange to break, or soften, it in tanks. The expense of breaking water in this way is slight, although it takes tank room, to be sure. This would do away
with caustic for breaking the water. If you desire to make a soft bleach use one of the various forms of carbonate of soda. That will do away with the caustic in the bleach. "But," you say, "a mild, neutral soap won't clean the soiled clothes. I must have a strong soap to do the cleaning." My answer to that is to advise you to change your soap dealer or insist that he give you a neutral soap with detergent power sufficient to clean the clothes. Apply this test: When you get a soap that will clean the white clothes with the usual two suds without building the soap and you can then take exactly the same soap and wash the colored clothes clean without fading the colors, then you have got the soap that is going to help increase the laundry business of the country. There is no reason why this shouldn't be done. Every department of the laundry except the wash room has been helped by improved machinery and supplies. Why not the wash room with an improved soap? That is the question.

In conclusion, to sum up the arguments set forth in this paper, use on your white clothes a soap that will wash colored clothes without fading the colors; for if a soap will not fade colors, it will not rot fiber.

The Chemistry of Bleaching—Theoretical and Practical.


Chlorine gas is made by a mixture of black oxide of magnesium and hydrochloric acid, another plan being the ignition of the anhydrous chloride of magnesium. The atomic weight of chlorine, taking hydrogen at the base 1, is 35 451-100, according to the best authorities, and is 2 451-1000 times heavier than air. Its absorption by water is greatest at about 30° F., when two measures of chlorine are absorbed by one measure of water. When manufacturing chlorine for bleaching purposes the hydrate of lime slightly moist is the vehicle used for absorbing the gas. One of the chief requisites in manufacturing this is to obviate with the greatest care all elevation of temperature, which can be accomplished if the chlorine is supplied moderately. The product, when freshly and well prepared, should be a soft white powder, and is quite hygroscopic to the surrounding moisture in the atmosphere, giving a sensibly different odor than that from chlorine. It is soluble in about ten parts of water leaving the unmalted hydrate behind.

If the chlorine has been impregnated in the hydrate of lime too rapid, increasing its temperature, or where the compound has been subsequently exposed to heat, its bleaching properties are impaired, and in some cases destroyed, the change producing a compound of chlorate of lime and chloride of calcium; oxygen being set free. Laundrymen should see that the lime cask and the barrel containing the hydrated solution should be kept almost air-tight, as its strength is speedily destroyed by the carbonic acid of the air. While I have specially referred to chloride of lime, there have been many instances since the invention of bleaching powder that chemists have tried to substitute various chemicals instead of the chloride of lime, but up to the present time they have met with small success. Among those that have been introduced may be mentioned permanganate chlorate, which is an efficient bleach. One method of obtaining it is by passing a mixed current of hypochlorous acid and air through a solution of caustic soda, and it is claimed by many to bleach better than the hydrochlorites, and also chloro-chronic. The chlorates and peroxide of hydrogen, which is a quite harmless bleach, but too expensive for laundry purposes, not being much more than a laboratory product, contains twice as much oxygen as water. The method of its preparation is difficult and requires many precautions. Its active properties depend upon the facility with which it parts with the extra atom of oxygen which it contains, usually oxidizing bodies placed in contact with it, especially animal matter. One of the most novel methods for bleaching is that adopted by Engler, the English bleacher, who bleaches with the vapors of chloroform generated by means of quick lime, chloride of lime, alcohol or acetic acid, sulphuric acid and water. Chloride of lime is more extensively used than any other product in the steam laundry. It consists of a combination in variable proportions of the hypochlorite of the real agent, calcium chloride, and the hydrate of lime, and its value depends upon the amount of available chlorine in it.

While there are several methods of estimating the amount of available chlorine in bleaching powder, we will refer to Penot's method as ranking with the best. It relies on the oxidation of arsenious into arsenic acid, and is conducted as follows:

A standard solution of normal arsenious acid is prepared by dissolving 1 95-100 grammes pure sublimed arsenious acid (A S203) and 25 grammes recrystallized sodium carbonate in 200 cc water. The whole is boiled, shaking the glass repeatedly until dissolved, and then made up to one litre solution which is kept in a well-stoppered bottle for use. One litre of this, one-tenth normal solution, corresponds to 3 546-1000 grammes chlorine, while 1cc will correspond to .0035 4-6 grammes available chlorine. When the laundryman is conducting tests by this method, a specially prepared paper is used which serves as an indicator, and is obtained by moistened ordinary filter paper with the following preparation: Three grammes of starch are mixed with 200cc water, with a wooden spatula, until the lumps are all broken up, the whole is boiled, then one gramme of iodide of potassium and one gramme of pure carbonate of soda are added, both previously and
separately dissolved in a little water. Enough water is then added to make up 500 cc in all. The filter paper saturated with this starch and iodide of potassium solution, is then dried and can be kept in a well-stoppered bottle for use. The first thing to be done in determining the value of a sample of bleaching powder is to bring it into a solution, which is best managed as follows: 35-100 grammes weighed and put into a mortar, a little water added, and the mixture rubbed to a smooth cream; more water is then stirred into the pestle, allowing it to settle a little while, then pour off into a litre flask, the sediment again rubbed with water, poured off and repeated till all the chloride has been conveyed into the flask with loss. The flask is then filled to the mark with water, well shaken, and 100 cc milk limed taken out with a pipette, put into a bucket and the arsenious solution delivered in from a burette, until a drop of the mixture taken out with a glass rod and brought in contact with the prepared starch paper till it gives no blue stain. It is easy to see when enough arsenious solution has been added, as the blue spots on the prepared paper become gradually lighter towards the end of the progress. The percentage of available chlorine in the sample of the bleaching powder or liquid is proportionate to the number of cubic centimetres of arsenious solution used, and as a good sample of bleaching powder contains about 35 per cent. of available chlorine it will require 35 cc of arsenious solution.

While we have referred to the various vehicles and agents for bleaching, we must not lose sight of the real bleach, which is liberated oxygen. Whether the bleaching is accomplished in the washer, on the grass, on the clothesline or the roof top, the forces of oxygen will be found concentrating its oxidizing action. When liberated by chlorine in the water, or in a diluted state with the other compounds of air, when decoloring is effected in the atmosphere. Oxygen is a colorless, tasteless and odorless gas. It is not a natural product, but always made by art. It combines with the metals depriving them of all their metallic properties, converting them into powders of an earthly appearance known under the name of oxides. It combines with the non-metal producing acids. It produces and destroys color, such as changing indigo white into blue, and in turn changing indigo blue into some colorless substance. Its power as a bleacher is not when it exists as a pure gas, but the moment of its breaking away from its compounds, there being as much difference between common oxygen and ozonized and liberated oxygen as exists between a horse car and a locomotive, both having the power of locomotion but in different states of activity and possessing different powers. In water will be found the ratio of eight parts of oxygen to one of hydrogen by weight, and by volume two of hydrogen to one of oxygen. In the air oxygen forms about one-fifth and nitrogen, with the other gases, four-fifths.

The subject of oxygen in an ozonized state will be highly interesting from a practical point of view for the laundryman of the future, for while bleaching can be done with very little injury under the present method of washing, it has added to it the evil effects of neutralizers or acids which will be obviated entirely when the chemist or experimental laundryman has succeeded in ozonizing the oxygen in his dry room.

The clothes having been washed and blued in the Suds with ultramarine blue or some substitute giving them a slightly heavier shade than desired, to allow for the bleaching effects. The ozonized oxygen being produced by the combustion of phosphorous or through electricity or some other agent which no doubt will make its appearance when our business has developed into one of the scientific trades of the industrial world, however, we will discuss this method more extensively in the near future in an article under the title of "The Dry Room." We will return to briefly refer to the methods of bleaching linen and silk goods. The present method of bleaching in laundries consists chiefly in the hard and soft bleaching systems. The hard bleach is effected by the action of the chlorine in the water separate from the Suds. It is much better when using this system to have the solution in the lime barrel stand about four degrees Beam, or five Twaddle, which gives us a specific gravity of 1.028. The liability of the liquid being injurious to the fabric is considerably diminished by using a greater volume of the weaker solution than by concentrating its strength. The soft bleach is the mixture of soda or potash, or their carbonates or substitutes, with the lime and incorporating the same with the Suds, and while this may be a much quicker method still it is believed by many to eat up more soap than is generally required through the method of simple washing. The bleaching of woolens is not so difficult as that of cotton. In dealing with the action of bleaching on fibrous substances, we might define it as two classes, that of the vegetable class, which consists of cotton, flax and a great number of minor substances extracted from vegetables, possessing nearly the same properties and characteristics, the principal substance being liguine, or a composition of carbon, oxygen and hydrogen in variable proportions. The animal fibrous class, of which the principal are wool and silk, have no connection with the nature of liguine, being more complex in their chemical action, besides carbon, hydrogen and oxygen contained in vegetable substances. They have also nitrogen, and some of them traces of sulphur as an integral portion of their structure. Soap and very weak alkalis are all that are used in primarily bleaching of woolens, and instead of chlor-
ine, which would destroy the fibre of the wool before it could destroy the coloring matter, the gas from burning sulphur is used to give it the final whitening. The sulphuring is given while the goods are moist; a good plan consists in passing the goods through a box filled with sulphurous gas produced by burning sulphur in a small furnace connected with it. It has the advantage of being continuous and permitting inspection throughout the whole process.

In treating silk, soap of the best quality only should be used; alkalies should be avoided entirely. The coloring matter being generally of waxy nature is easily removed by the neutral soap, care being taken to avoid long boiling as it injures the silk considerable both in appearance and strength. Sulphuring may be utilized the same as in wool to give the finishing degree of whiteness to the silk.

The Heating of Soap Pans and Kettles.

A very important point for the soap-maker to consider is the method of heating of his soap pans and kettles, because, to a very great extent, the ease and comfort with which a batch of soap can be turned out depends very greatly upon the method of heating which is adopted.

Soap pans and kettles may be heated directly by fire or gas, or similar means, or indirectly by the use of steam. Which of these means is adopted depends entirely upon the amount of soap that is to be made in one batch. For a small lot of soap it is most economical to make use of gas or oil heating, because with these the degree of heating can be regulated to a nicety, and that is a matter of great convenience to the soap-maker. Fire has practically been discarded by the soap-maker. All large batches of soap are now boiled up with steam, and it is the manner and method in which steam works and is applied that will be dealt with in this article, first noting some of the properties of water and steam which cause it to be of so much value for this purpose.

Water makes its appearance in three forms, all of which are familiar to every person—solid, as ice; liquid, as water; gas, as steam. The ice can be transformed into water by the agency of heat, and the water into steam by the agency of still more heat. Suppose that a quantity of ice is put into a saucepan, and in this a thermometer. Now, the latter instrument will register a temperature of 32° Fahr. (0° C.). Apply heat to the saucepan, and the ice will begin to melt, but until the whole of the ice has been converted into water the thermometer will not rise, showing that, notwithstanding the fact that heat has been applied the whole time, the temperature has not risen. How is this, and where has the heat gone? It is considered that the heat has gone to do a certain piece of work, that is to transform the solid ice into the liquid water, and as such heat does not show itself in the thermometer this heat is called latent heat. Now heat the water in the saucepan, and the temperature begins to slowly rise until the thermometer indicates a temperature of 212° Fahr. (100° C.), when the water boils; the heat given to the water, showing itself on the thermometer makes itself visible. Now continue the heating; the water boils away, and passes off in the form of vapour—steam—but the temperature does not increase. The thermometer stands the whole of the time at 212° Fahr. (100° C.); and here, although heat is being continually applied to the water, it only goes to transform the water into steam, and, not showing itself on the thermometer, is latent. That the steam contains heat is readily shown by the fact that if it be carried into cold water it will heat the latter up, and the heat it contains is called the latent heat of steam, and must be given up when it condenses back into water.

Suppose that 1 lb. of water at 150° Fahr. be mixed with 1 lb. of water at 60° Fahr., the temperature of the two lbs. of water so obtained would be the mean of the two temperatures, that is, 150 + 60 + 2 = 105° Fahr.; or, again, we take 1 lb. of water at 175° Fahr. and 1 lb. of water at 32° Fahr., and mix the two together; we get 2 lbs. of water at 103.5° Fahr., which is the mean of the two temperatures. Now, suppose 1 lb. of water at 175° Fahr. is mixed with 1 lb. of ice at 32° Fahr. we should get 2 lbs. of water at 32° Fahr. The heat contained in the hot water has apparently disappeared, but it has done some work, and has changed the ice into water. The amount of heat thus absorbed is called the latent heat of water, and amounts to 143 units on the Fahrenheit scale (that is, 175 - 32), or, 79.4 units on the Centigrade scale, taking as a unit of heat one thermometerical degree.

If 1 lb. of steam, which has a temperature of 212° Fahr., be passed into 9.669 lbs. of water at 32° Fahr., it will itself be condensed, and at the same time will raise the temperature of the water to 212° Fahr., so that we shall then have 10.669 lbs. water at 212° Fahr. Evidently the steam contains sufficient latent heat—that is, heat not shown by the thermometer—to raise the temperature of 9.669 lbs. of water 180°. The unite of heat on the Fahrenheit scale is that requires to heat 1 lb. of water 1°, so that we should find that 1 lb. of steam will raise 966.9 lbs. of water 1°, so that we have the latent heat of steam as 9.669 on the Fahrenheit scale, or 537.2 on the Centigrade scale.

A knowledge of these units is sometimes valuable, as enabling one to calculate how much steam will be required to heat a given quantity of water to a certain temperature. Naturally, it is to the latent heat it possesses that steam owes its value as a heating agent for soap pans and kettles and for other purposes.
Steam can be applied in several ways for the heating of soap pans and kettles. Each of these various ways has its own peculiar advantages and disadvantages, which will be noted presently. So far as regards the mere efficiency of heating all are about equal, and, therefore, in making a choice of method to be adopted in a particular case regard must be paid to that which will best suit for other reasons.

The first method which we will notice is that known as the steam jacket. The pan to which this method is applied is made double, with a space between the inner pan and the outer jacket. The pan should be fitted with a steam-pressure gauge and an outlet pipe for the steam. Steam-jacketed pans, owing to their double construction, are expensive, and so are not used for large pans, only small ones, for making trials of special soaps on a small scale. It should be noted that in working a steam-jacketed soap pan there is much evaporation going on of the water which is put in the pan, and so at the end of the process the material is stronger than at the commencement.

The second method of heating the soap pan is by a coil of pipe placed inside the pan, in some makes forming a series of circles on the bottom of the pan; in others, being arranged in a coil round the sides of the pan, the steam goes in at one end and out at the other end. This is called a closed steam coil. While the steam is passing through this coil it imparts some of its heat, if not all of it, to the contents of the pan. At the same time, it becomes condensed to water; this water being pure, it is worth while collecting it, and using it for making caustic lyes.

The third method is similar, only that the coil of pipes is perforated, and the steam passing out of these perforations goes into the contents of the soap pan. In some cases, instead of a coil, a cross of pipes is laid on the bottom of the pan. This system is known as the open steam coil. Most soap pans are fitted with both open and closed coils. In the open steam coil the steam passing through the contents of the pan imparts its heat to the latter; at the same time becomes condensed, and the water so formed mingles with soap masses in the pan, and increases the volume, how much will depend on several factors—the volume of materials started with, the length of pipe through which the steam has passed, which governs the amount of condensed water formed before it enters into the soap pan, the pressure of the steam, and the duration of time during which the steam is passed through the pan. Of course, some amount of evaporation takes place from the contents of the soap pan, but not so great as the amount of dilution. In the case of the closed steam coil, the evaporation which occurs tends to increase the strength of the soap mass, and so soap-makers must regulate the quantities of fat, alkali, etc., which they put into their soap pans to suit the different conditions produced by their using opened or closed steam coils.

The quantity of steam that is required to boil a batch of soap will depend, of course, on a number of factors, but may be considered the same whether open or closed steam be used. First, there is the size of the batch, then the pressure of the steam, for the higher this is the higher is its temperature, and while steam at ordinary pressure and a temperature of 212° Fahr. contains 966.9 units of heat, steam at 20 lbs. pressure has a temperature of 230° Fahr., and contains 1,152 units of heat. It may be pointed out that the increase of temperature does not rise proportionately with the increase of pressure, so that from the point of view of using the steam as a heating agent there is nothing to be gained by using high pressure steam. The soap boiler must, however, have his steam at such a pressure that it will overcome the pressure of the soap mass in his pan.

Supposing that a soap boiler has a pan of 2,000 gallons capacity, which is by no means large, and this has to be raised from 70° Fahr. to 212° Fahr.; he has here an increase of 145 degrees, and so he will have to provide 2,000 multiplied by 10 and by 145, that is, 2,900,000 heat units, and so he should see that his pipes are of sufficient size to pass these units in not too long a time. One lb. of steam at pressures ranging from 20 to 30 lbs. may be taken to contain 1,000 heat units, so that to produce the heat needed to raise the temperature of the soap pan from 70° to 212°, the boil, 2,900 lbs. of steam will be required, and his boilers and steam pipes must be so adjusted as to supply this steam. In the following table is given some information as to the quantity of steam various sized pipes will pass, and this will be found useful at times:

<table>
<thead>
<tr>
<th>Initial pressure on gauge, lbs. per square inch.</th>
<th>Diameter of pipe in inches.</th>
<th>The length being 240 times the diameter.</th>
<th>Weight of steam in pounds per minute, allowing a loss of 1 lb. in pressure.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2</td>
<td>1</td>
<td>1/2</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>1.16</td>
<td>2.07</td>
<td>5.7</td>
</tr>
<tr>
<td>10</td>
<td>1.44</td>
<td>2.57</td>
<td>7.1</td>
</tr>
<tr>
<td>20</td>
<td>1.70</td>
<td>3.02</td>
<td>8.3</td>
</tr>
<tr>
<td>30</td>
<td>1.91</td>
<td>3.40</td>
<td>9.4</td>
</tr>
<tr>
<td>40</td>
<td>2.10</td>
<td>3.74</td>
<td>10.3</td>
</tr>
</tbody>
</table>

It will thus be seen that a comparatively small pipe will pass a large quantity of steam. From this table we can see that using a pipe of two inches in diameter and working at 40 lbs. pressure the 2,900 lbs. of steam required in the instance given above would take 156 minutes.—Oil and Colournman’s Journal.

Houchin & Huber have become the New York agents for the Davis Johnson Co.’s rotary pump (see the latter’s announcement on another page).
Chicago soap manufacturers are organizing a local association, their first meeting having been held on April 30. The first members comprise The N. K. Fairbank Co., Jas. S. Kirk & Co., Armour & Co., Globe Soap Co., and the Allen B. Wrisley Co. R. B. Oleson of the firm last named is the only officer, namely secretary.

The firm of A. Hoefner, has taken into partnership George Hoefner, and the name has been changed to A. Hoefner & Sons. The firm is growing in other respects as well.

The Larkin Soap Co. of Buffalo, has erected a beautifully designed building of its own at the Pan-American Exposition, designed solely for the purpose of exhibiting the firm’s soaps and premiums and to distribute souvenirs of the exhibit.

A correspondent last month asked: What are the latest filling agents that you can recommend? We do not know just which may be the “latest”; but so far as we know silicate and silex, mineral soap stock, talse and sal soda are still holding their own, each in its respective field.

In the recent catastrophe at Jacksonville, Fla., we are sorry to hear, F. Mouli, in spite of his greatest efforts to save them, lost about 200 lbs. of yellow jasmine pomade and a similar amount of orange blossom pomade which he had just made, along with other materials. He is considered fortunate to have escaped unhurt and to have saved at least part of his plant.

The Burlington (Iowa) Tallow Co. is a new concern.

The San Francisco Examiner of recent date has been sent us, containing the following:

Walter R. Dinmore, the unexpected relict of the Denver widow, who carried away his name and left him nothing but three-score neckties, has filed a petition in insolvency. The ghost of a lost fortune stalks through the petition in the shape of a liability of $4,881 due by the Wieland-Dinmore Soap Company, which made famous the name of Dinmore’s soap, if not the soap. This debt represents over one-fourth of the liabilities which amount to $17,179.94. The assets are valued at $300—all exempt—and alleged to be wearing apparel.

As Mr. Dinmore is engaged in working up another business with fair prospects of success he does not want to be hampered with the old debts, hence his petition.

Geo. A. Wrisley of Chicago is another of the men prominently identified with the soap business who died recently, succumbing last month to apoplexy.

The Rochester (Minn.) Soap Co. has been incorporated for the purpose of manufacturing soaps, polishes, etc., and rendering. Capital $20,000. The incorporators, all Rochester men, are: Augustinus F. Nelson, Mark Olin, George W. Waldron, Marcus Wing, Arthur C. Goding, Harlen E. Miller, Ellis D. Fisk, John J. Fulkerson, Clare W. Blake, Thomas Fraser.

The factory has been operated by the first named incorporator for a number of years.

The Vinolia Soap Co., Ltd., has offered a prize of £10 for the best paper on the subject: “A twenty per cent. profit for the grocer; is it too much?” The papers, not to contain over 500 words, are to be submitted by June 15.

How to Increase the Sale of Perfume.

BY C. J. SACKSTEDER.

The perfume department in our drug stores is an interesting and delightful, as well as a profitable one.

To increase the sale of perfume the principal medium to employ is, of course, advertising.

The daily newspaper furnishes, perhaps, the best means of conveying to the minds of the public, and appealing to their purses, that your delicate odors and delightful extracts are to be desired. Next cards with dainty samples of a certain favorite odor attached, distributed among the people as souvenirs, please them and bring them to your perfume counter, though it may be for any other odor than the one advertised.

It is foolish for a druggist or dealer in perfumes to give a lot of talk about his perfumes and perfume department, unless both appearance and reality substantiate what he is saying.

The perfumes in the store should be neatly and tastefully arranged. The goods sold in bulk in a very convenient and proper place. The fancy goods must be arranged nicely in a show case which occupies a conspicuous position.

Ladies all like perfume. Treat them to it by scenting their handkerchiefs when they visit your store. Tell them about the particular odor you have presented in this manner, and if they like it they will be sure to get it the next time they want perfume.

If a customer brings an unsuitable bottle, for instance an eight ounce or even larger (as it sometimes happens), for twenty-five cents worth of perfume, present the person with a smaller bottle, accompanied by a polite remark, such as: “I’ll give you a nice glass stoppered bottle to keep your perfume in.” This glass stoppered bottle later on acts greatly as an incentive to purchase more perfume and the donor is sure to be remembered.

All manufacturers have a long list of odors. As we cannot keep them all we must limit our purchase to the
better odors and carry those of all leading manufacturers. In this way we can satisfy the public and give them anything they may want.

A good salesman can increase the sale of perfume to a great extent. He will show the perfumes well while making a sale. He will remark about some late odors just received, show them and allow their delicate fragrance to be inhaled. Give customers a good look at your goods instead of hurrying them into buying something which they perhaps would rather not have had.

We should make a study of perfumes, learn how they are made, where manufacturers are located, etc., etc., so that a customer can be readily answered correctly any question he may ask.

A window display of perfume is a great advertiser; I think the best manner to advertise them in this way is to display only one odor at a time and dress the window accordingly. For instance, if we are showing violet perfume, the decorations and colors of our show bottles should all have exactly the same color as the violet perfume we are showing. We can use colored waters in showing goods in this way, thereby not only protecting our goods from the injurious sunlight, but also making it appear as though we have a mammoth stock. If in the violet season, or if violet can be procured, bunches of them in the window make the trim a very attractive one.

If the perfumes we are showing are white rose or red carnation, we can use white or red carnations to beautify the displays. The prices should be conspicuously displayed in the windows and mention should be made that any other odor can be had at prices ranging from so and so to so and so.

Circular letters are also an excellent means of gaining new customers as well as reminding our old patrons of arrivals of new odors, or calling their attention to our perfume department.

These letters should be sent mainly to the better class of people, and to those who, we know, purchase perfumes.

A good quality of paper should always be used, as an inelegant and cheap grade will not make the impression that it is made with a neat and good quality of paper.

Perhaps the greatest piece of advertising we can accomplish is the scenting of public buildings, for instance, an opera house. Select a time when a good entertainment is to be given and when the house will be filled with people. The perfume can be sprayed with large atomizers a half hour before the doors open. Large placards should be hung up in conspicuous places, announcing (in large type) that the house has been perfumed by "Jones, Smith & Co." A blotter scented with the odor and giving the name of it, where it can be pur-

chased, also the price, should be placed on every seat.

The manufacturer will be glad to aid the retailer in this kind of advertising by furnishing the perfume to spray and also blotters.

A local ad in a daily paper or papers run at the same time, announcing this wholesale odorizing and calling attention to the odor will simply work wonders.

Enumerating the points brought forth, i.e.: Newspaper advertising, window displays, goods displayed otherwise in store, salesmen, cards as souvenirs, presenting glass stoppered bottles, scenting ladies' handkerchiefs, making a study of perfumes, circular letters, using flowers in connection with window displays, and last, but not least, the scenting of an opera house. I think these are the best methods to employ "To Increase the Sale of Perfumes."—Phar. Era.

Some French Toilet Preparations.

The following are from the Journal de la Parfumerie et savonnerie Francaise:

CHERRY TOOTH POWDER.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honey purified</td>
<td>225 parts</td>
</tr>
<tr>
<td>Chalk, precipitated</td>
<td>225 parts</td>
</tr>
<tr>
<td>Orris root, powdered</td>
<td>225 parts</td>
</tr>
<tr>
<td>Rose leaves, powdered</td>
<td>28 parts</td>
</tr>
<tr>
<td>Simple syrup, sufficient</td>
<td></td>
</tr>
<tr>
<td>Oil of clove</td>
<td>30 drops</td>
</tr>
<tr>
<td>Oil of mace</td>
<td>30 drops</td>
</tr>
<tr>
<td>Oil of geranium</td>
<td>30 drops</td>
</tr>
</tbody>
</table>

TOOTH SOAP.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castile soap, white</td>
<td>225 parts</td>
</tr>
<tr>
<td>Chalk, precipitated</td>
<td>225 parts</td>
</tr>
<tr>
<td>Orris root, powdered</td>
<td>225 parts</td>
</tr>
<tr>
<td>Sugar, powdered</td>
<td>112 parts</td>
</tr>
<tr>
<td>Rose water</td>
<td>112 parts</td>
</tr>
<tr>
<td>Water, distilled, sufficient</td>
<td></td>
</tr>
<tr>
<td>Oil of peppermint</td>
<td>7 parts</td>
</tr>
<tr>
<td>Oil of clove</td>
<td>4 parts</td>
</tr>
</tbody>
</table>

Dissolve the soap in the water by aid of gentle heat, let cool down and add the rose water. Mix the chalk, orris root and sugar, and rub up the oils in the mixture. Add the soap mixture gradually, rubbing continuously. Put into suitable cups or jars.

SARA BERNHARDT'S FACE POWDER.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venice, very finely ground</td>
<td>50 parts</td>
</tr>
<tr>
<td>Rice flour</td>
<td>50 parts</td>
</tr>
<tr>
<td>Zinc oxide (or oxychloride)</td>
<td>25 parts</td>
</tr>
<tr>
<td>Oil of bergamot</td>
<td>3 parts</td>
</tr>
<tr>
<td>Attar of ylang-ylang</td>
<td>2 parts</td>
</tr>
<tr>
<td>Neroli oil</td>
<td>2 parts</td>
</tr>
</tbody>
</table>

Mix and pass through the finest bolting cloth twice.
PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.

673,663. Soap-holder: Alice E. Seashols, Minneapolis, Minn.
673,866. Washboard: Frank Everts, assignor to St. Louis Wooden Ware Works, St. Louis, Mo.
674,134. Washing-machine: Charles B. Crofford, Vicksburg, Miss.

TRADE-MARKS.


LABELS.

8,315. Title: "California Citrus Washing Powder." (For Washing Powder.) Citrus Soap Company, San Diego, Cal.
8,316. Title: "Good as Gold." (For a Washing, Scouring and Cleansing Compound.) Martha C. Snider, Salt Lake City, Utah.
8,354. Title: "Omega Oil Medicated Soap." (For Soap) Alpha Soap Co., New York, N. Y.
8,379. Title: "Lucky." (For Soap.) Enterprise Soap Works, Nashville, Tenn.
This list is compiled with the greatest possible care, but the publisher does not assume any responsibility other than to correct and complete the list according to data obtained from official sources or furnished by the trade. Brands registered in the patent office as trade-marks or labels are given with the name of the party registering same. Brands or names marked * are those which were found to be used by more than one firm or the owner of which could not be ascertained.

**SUPPLEMENTARY LIST OF THE BRANDS OF SOAP MANUFACTURED IN THE UNITED STATES**

Including also the Brands of Foreign Manufacturing Registered as Trade-Marks in this Country.

**NOTE:** This list is compiled with the greatest possible care, but the publisher does not assume any responsibility other than to correct and complete the list according to data obtained from official sources or furnished by the trade. Brands registered in the patent office as trade-marks or labels are given with the name of the party registering same. Brands or names marked * are those which were found to be used by more than one firm or the owner of which could not be ascertained.
An English exchange prints the following which every one familiar with our patent office practice will recognize as—a good story, but which is worth while re-printing as showing how funny we are thought to be by foreign writers: "Some patent stories were told the other night, at the Society of Arts. One of the best came from Professor Ayrton, and was told at the expense of the American Patent Office. Some time since the Professor wished to protect a new kind of varnish, but the Washington authorities refused him a patent, on the ground that he had not supplied a drawing or diagram of the varnish! In the end, the Professor drew three vertical lines, and explained them in this way: A and B represent the class, and C the varnish. Then the patent got through."

A chemical firm writes that if we will send a good receipt for a certain soap, one that we know "to be a number one," with full directions for making the same, they will send us $1.00.

Verily, these are the days of large developments.

A gentleman has been trying a curious experiment on black beetles. He dropped a number of them in soap and water, and then placed them on the ground. They first stood on their heads, and then fell on their backs. After that their companions ate them. The moral is clear.—Exchange.

We fail to see that the moral is so clear; does it mean that soap is a fatal thing to use, or does it mean that a cleanly person is good enough to eat?

Between recent visits within a few days from Messrs. James A. Cannon (with Geo. M. Sterne & Sons), Fred Stansburg (with the Conkling Chemical Co.) and H. Dons, all of Chicago, we felt quite as if we were back in our old Chicago office for a while.

A number of changes have lately been ordered in our advertising columns to which we can hardly call separate attention. It might be well worth our readers' while to look over our advertisements and see what they can find to interest them there.
Speaking of advertisements, those concerning mineral soap stock have always seemed to attract particular attention. Years ago a Pennsylvania firm had such an advertisement in the Soap Journal and the representative who called on us spoke of having received inquiries in consequence from everywhere, one having come from Timbuctoo; this has always been a mystery to us insomuch as, though we do have a number of subscribers in Africa, we never had any reader that we knew of within hailing distance of Timbuctoo. However that may have been, the firm later went into soap making and out of the mineral soap stock business. Then D. A. Stuart & Co. put their advertisement into the journal and many interesting stories were told us in this connection by Mr. Stuart. When that gentleman died the advertisement also dropped out. Now this article is offered once more, this time by the National Refining Co., of Cleveland (See advertisement on another page), and we trust the interest in it is as lively as ever.

Rosin Soap.

BY GEORGE H. HURST, MANCHESTER, ENGLAND.

Rosin is a product of the distillation of various exudations of the pine tree. When these are distilled the turpentine which they contain is volatilised, whilst the rosin remains in the retort. It is a solid yellowish transparent substance, opalescent when broken, and is generally met with in angular garments. It consists chiefly of sylvic acid, fusible at 261° F., a monobasic acid, the alkaline salts of which are soluble in water, and capable of crystallizing: an isomeric body is primaric acid, quite similar to the former, but its melting point is 300° F.

The solution of rosin in a large excess of carbonate of soda bears the name of rosin soap because of its analogy with the fatty soaps. Whilst these latter, which are compounds of a fatty acid with the alkalis, serve to dissolve or emulsify grease, rosin soap serves to dissolve the natural rosin contained in raw cotton. It fulfils also, probably, another function, that of preventing by its presence the disassociation of the fat soaps produced by the combination of the fatty acids (isolated in the cloth by former operations) with carbonate of soda. We know, in fact, that soaps are more liable to decomposition the smaller the proportion in which they are present in a solution.

Its employment is very ancient since the laundresses of the Vosges and of Alsace have from time immemorial added to their pans for lixiviating wood ashes, branches of pine and fragments of rosin. By repeatedly pouring over them hot water they obtained a dilute rosin soap.

According to Wurtz, under the head “bleaching,” rosin soap was discovered in 1827, by Mrs. Bruckbroeck. The patent which she obtained was sold to a certain Heinzelman, who, in 1836, transferred the process to Scotland, from whence it was subsequently reintroduced into France.

Before the invention of rosin soap, it was almost impossible to obtain good white grounds after dyeing in madder. When the pieces left the dye-beck the grounds were much soiled. They were then grass-bleached, or taken through chloride of lime. Rosin is therefore a very useful substance, which enables the calico printer and dyer to obtain tissues perfectly indifferent to the majority of coloring matters which attach themselves only where mordants have been printed on.

To prove the existence and the function of the natural rosin contained in cotton, as also the efficacy of rosin soap in dissolving it out, we may repeat a curious experiment cited by Wurtz. If a swatch of raw cotton cloth is steeped in an alizarine red dyebeck, it will absorb a certain quantity of coloring matter, which it will be afterwards difficult to remove. If a similar swatch is steeped in alcohol, it will dissolve out a sort of rosin, and the cloth will then be incapable of taking up color in the dyebeck. If a swatch of cloth which has been deprived of its rosin, in an alcoholic solution of rosin and allow the alcohol to evaporate, the rosin will be deposited on the fibres, which will then again take up color in the dyebeck.

Under the name of rosin size there is used in the paper trade large quantities of rosin soap; this has a treacly consistence and is made by boiling rosin and soda together. It usually contains 50 to 53 per cent. water, 45 to 46 per cent. rosin and 5 per cent. soda. Some of the rosin exists in the free condition in the size.

Guarantees in Cotton Seed Oil Deals.

W. W. Boyd, at the recent meeting of the Texas Cottonseed Crushers' Association read the following paper:

Mr. President and Gentlemen of the Texas Cottonseed Crushers' Association: It is generally conceded that every man in any vocation or profession thinks that his neighbor in some other vocation or profession is more pleasantly situated, and has work more congenial than his own. And so it is that every man thinks that the subject assigned to him to discuss, either in an after-dinner speech or in a paper to be delivered before an assembly of people, is more difficult than that assigned any of his associates.

I trust, however, that it will not be concluded that any complaint is here made against the gentlemen who arranged the programme and assigned to me a subject for discussion.

I am asked to discuss the question, namely: “Under the clause commonly inserted in contracts, weights and quality guaranteed at destination, what evidence should the buyer present to substantiate his claim?” As to
what evidence should be presented by the buyer to substantiate his claim naturally depends on the circumstances. If the seller has agreed to sell certain goods, and has guaranteed the weights and quality at destination, he, by his agreement, has placed his property rights, so far as they are affected by the contract, in the hands and within the discretion of the party with whom he deals and to whom he sells. It is manifest, therefore, from the statement of the question, that no fixed rule can be stated, but such evidence should be presented by the buyer, of course, as will in the first place be honest, and in the second place satisfy the seller that his claim is just and proper, to the end that litigation may be avoided. The question, then, as between buyer and seller, may be answered by the simple statement that such evidence should be presented as will satisfy the seller that the claim is bona fide and honestly made. It is at once apparent that when the seller has such experience as makes him competent to test the quality, in addition to the fact that he knows he has given full weight, that it would be exceedingly difficult for such evidence to be furnished him by the party to whom he sells. Such practical suggestions as may be made by members of this association in the general discussion of this question will, of course, result in benefit to each individual here assembled.

If by the question under discussion is meant such legal evidence should be presented in a litigated case, I respectfully submit that it is a question that cannot be, under the system of jurisprudence in this country, and especially in this State, measured by any fixed rule or set of rules, for the reason that in all litigated cases tried before juries there can be no rule of law fixing the amount of evidence, or the nature of evidence which shall be conclusive of a given question, all questions of fact being required to be submitted to the determination of a jury. To illustrate: If the purchaser at destination should claim that the goods sold failed to come up to the quality of the goods purchased, and should testify thereto and have his testimony corroborated and supported by that of a dozen other witnesses, and the seller should alone testify that he shipped goods of a given quality and of given weight, that question would be submitted to a jury for determination, and the trial judge is prohibited from even intimating what effect or weight should be given to the testimony on either side. Thus it is conclusive that no rule can be laid down as to what in law would be satisfactory testimony. It therefore follows that as a question of law the question pronounced cannot, in the nature of things, be determined.

It occurs to me, however, that there is something radically wrong with the contract, and that something should be done to the end that a more equitable contract could and would be made is such cases, and if so it would tend to the building up and continuation of a better feeling between parties engaged in the purchase and sale of manufactured products. If such result is reached, however, it would be necessary to change the terms of the contract, and the discussion of what the contract should be is foreign to the question assigned to me for discussion. I would suggest, however, that as a practical solution of the matter, it might be well to inaugurate and build a custom between seller and buyer to provide that in the event there is a disagreement as to whether the weights are full and the quality good at destination, that that difference should be settled by two disinterested persons (experts), one chosen by the seller and the other by the buyer, and in the event that they could not agree that they choose a third, and let the decision of the three experts thus chosen determine the question between buyer and seller.

Making Fine Toilet Soap.

Under this heading the following letter was recently published by the Soapmaker and Perfumer (England).

BRUSSELS, MAY 4, 1901.

Sir,—We have read with interest the article published in the “Soapmaker and Perfumer,” of April 17th, entitled, “Making Fine Toilet Soap.”

The way in which this article is treated, shows, on the author’s part, a perfect knowledge of his subject, and there is nothing to object to in his treatment. We should only like to make some observations which have been suggested to us by experience. In effect, the degree of alkali in a soap, or more exactly the quantity of free alkali which remains after the complete saponification, is a very important point in the matter of toilet soaps, since, as the author very justly observes, this free alkali in excess acts not only on the colors, but even on certain perfumes, which are very expensive, and especially besides having irritating effects upon the more delicate skin of the consumers.

On the other hand, the neutral soap, which should be the desideratum in the matter of toilet soaps, presents serious inconvenience from the point of view of its proper preservation, since it ends always by becoming rancid after a time, and that in spite of the addition of bodies antiseptic or reputed so.

We speak of soap chemically neutral, which is easy to obtain by observing certain rules as to proportions.

A soap cannot then be neutral, neither must it be too alkaline, but must contain just so much free alkali to keep it from becoming rancid.

Under these conditions, it affects neither the colors, the perfumes, nor the skin of the consumer.

“In medio stat virtus, utrinque reducta,” etc.

How are we to arrive at this result?
(1) By a measure as exact as possible of matters to saponify: Animal fat and alkali.

The use of lye in different degrees being indispensable, to have the tanks gauged in a way so as to register the quantity of lye, etc., employed.

(2) It is also good (we speak from our own experience) for the duration of pause of the boiling after liquefaction to be always the same.

And, if during the course of a saponification, one has taken care to take off first samples at the regular moments, one can keep count of the degrees of alkaline in the soap and can correct it if necessary.

Working in this way, it is impossible in the last degree to miscalculate.

Naturally, one knows that the operation of drying, whether it be slow or quick—that is to say, whether it be obtained by the old method of drying or by the more modern method of grinding, and of mechanical drying, will carry off part of the alkali in excess. In the first case, slow decastification, in the second, rapid decastification. But, as one already knows by experience, what is the importance of this decastification, it is advisable that one keep count of it.

The author of the article fore-mentioned speaks of the "Degree of Dryness" of the soap. We are quite of his opinion. A soap too moist dries in keeping, and takes a bad appearance; a soap too dry has other inconveniences. Once more one must watch, the exact medium.

How to attain this object?

A method of drying has been known and employed ever since toilet soap has been made, and we know it to have had long practice.

It is precisely because we have known the ineffectiveness of it that we have conceived our "Continuous Crusher and Dryer," which not only produced in a few minutes what the dryer produces in fifteen days, but which permits during the operation of taking count of the state of dryness of the soap, and of remedying this if necessary.

Here, we speak as soap makers using these machines, and we are not afraid to say that the mechanical drying is the only rational method. It completes, very happily for us, the series of experiments on the manufacture of soap in a way that nothing, from the putting in the boiler of the first matters to the plodding is left to empiricism.

But the most important of the advantages which this method presents over the old is without doubt that of obtaining the soap immediately at the desired consistency for the plodding—that is to say, obtaining this malleability of wax so much in demand by the soap makers, and which is not obtained by the dryer for a long time.

It is for this reason that the soap maker is obliged to get in advance large stocks of material for the exigency of his ordinary customers, and finds it impossible to deliver at short notice unexpected orders. At the origin of this new method it was said that the crushing of the soap would affect the matter, and make it unsuitable for the manufacture of fine soaps. Not only has the practice long since dispelled these perverted ideas, but the homogeneity so obtained is so large that very often the soap acquires a semi-transparency—a positive proof of homogeneity. Is not this the best eulogy that one could make on this method? But if one wishes to avoid the transparency, which is, on the whole, a proof of quality, it is easy to do so by the addition of a very weak proportion (1 in 1,000 about) of snow white, first quality (green seal).

We must add that the work of the Continuous Crusher and Dryer would be incomplete if it was not seconded by that of powerful plodders capable of agglomerating the soap as required.

We remain, yours truly,

A. AND E. DES CRESSONIERS.

Making Starch Polishes.

Though many women in carrying out their laundry work use nothing more than the ordinary borax, or else stir a paraffin candle into the made starch whilst it is hot, there are thousands of others who prefer to purchase proprietary starch glazes, and this is especially so in the North, where, perhaps, forty or fifty packets are sold and used to every one in London and its surroundings.

And this is applicable to other similar goods—baking powder as one instance—for in some populous Northern districts several manufacturers have managed to build up quite a snug and paying business out of these two lines alone, and were this attempted in the metropolis it would almost certainly end in failure. The main cause of this curious fact is very probably owing to the poor facilities London offers for drying and the like, the greater part of the linen being despatched to the suburban steam laundries, whereas, in the other case, it is done up at the home.

The laundry people usually employ borax and ordinary liquid gum as glazing mediums or powdery mixtures, of which borax is the chief ingredient, paying fancy prices therefor, and some use compound starch and gloss, already prepared for immediate use, the "goods" being starched with this much in the usual way, then steamed and dried, next sprinkled with soapy water, then stamped, and again steamed, and finally finished off.
The following may be taken as the composition of the most popular and best known of these mixtures, designated

**COMPOUND LAUNDRY SIZING.**

- 70 gals. water.
- 80 lbs. fine wheat starch.
- 20 lbs. farina.
- 10 lbs. heavy magnesia.
- 6 lbs. white curd soap.
- 5 lbs. spermaceti.
- 5 lbs. Japan wax.
- 2 lbs. crystal carbonate of soda.
- 1 lb. ultramarine blue.

**Method.**—Dissolve the blue in the water; then melt the soap, spermaceti, and wax, and add the soda, stirring well. Next mix starches and magnesia, free from lumps, with the water; add others, and boil until thoroughly mixed. Then run out through a strainer.

**PEARL GLAZE FINISH.**

- 1 cwt. powdered white starch.
- 56 lbs. powdered borax.
- 4 lbs. rectified spirit.
- 2 lbs. 11 ozs. stearic acid.

**Method.**—Dissolve the stearic acid in the spirit; absorb this with the starch, leave exposed until the spirit evaporates, then add the borax, and mix thoroughly in the machine.

**Directions.**—One teaspoonful to be used to half a pound of starch.

**PARISIAN LINEN ENAMEL.**

- 130 lbs. powdered borax.
- 20 lbs. powdered starch.
- 10 lbs. spermaceti.
- 7½ lbs. powdered white gum arabic.

**Method.**—Thoroughly mix. **Directions for using as above,**

**PORCELAIN LAUNDRY GLOSS.**

- 24 lbs. powdered borax.
- 21 lbs. farina.
- 20 lbs. white dextrine.
- 7 lbs. tungstate of soda.
- 2 lbs. powdered white wax.
- 1½ lbs. powdered white soap.

**Method.**—Mix intimately.

**Directions.**—One tablespoonful to be added to about one piece of boiled starch; the articles to be ironed in the usual way. A twofold result is obtained by using the sodium tungstate; it helps the gloss, and also renders the articles proof against fire.

As the directions indicate, the foregoing are for producing these varieties of glaze which are added to the mixed starch, but another sort is a "rub on" kind, like Redford's, the starching being performed in the approved fashion. Then, previously to ironing, a damp flannel is dipped into the following powder, and lightly rubbed over the front of the shirt or what not, the result being a very smooth surface:

**SATINETTE STARCH FINISH.**

- 30 lbs. powdered French chalk.
- 28 lbs. powdered white soap.
- 2 lbs. powdered borax.

**Method.**—Run through the machine several times, to mix efficiently.

A consolidated form of glossing agent that has met with some considerable degree of favor may be produced as below. Neither added to the starch nor rubbed over the fabric, but passing it across the face of the hot iron, is the correct method of using the—

**LINEN-POLISHING BLOCK.**

- 30 lbs. bleached carnauba wax.
- 21 lbs. powdered French chalk.
- 12 lbs. powdered Castile soap (white).
- 2½ ozs. citronelle.

**Method.**—Convert the wax and soap into shavings, melting at a gentle heat; then stir the chalk in, the citronelle oil when a little cooler. Then pour out into moulds to set.

A continental article of this form is varied a trifle, the block consisting of two pieces—one wax and soap, the other a cube of French chalk—these being held together by means of a paper band pasted round where they meet. The directions are printed upon the band, and tell the user to first rub the chalky end over the linen, then the other end, and iron as usual.

An American article (Troy starch enamel), taking the shape of so many lozenges in a box, is nothing but hard paraffin scented with citronelle, melted, and poured out a quarter of an inch thick, then starched into squares the size of a lozenge. The quantities of the ingredients are four ounces of citronelle to fifty-six pounds of paraffin wax. "Two of these cakes added to each pint of boiled starch will make the iron impart the finest possible finish, besides perfuming the articles in first-class style." So the printed matter states.

**CREAM GLOSS.**

- 70 lbs. lard.
- 10 lbs. liquid ammonia, .880.
- 5 lbs. bleached beeswax.
- 5 lbs. glycerine, 1.260.
- 2 fl. ozs. citronelle.

**Method.**—Melt the wax and lard, stirring till creamy; add citronelle, then mix the glycerine and ammonia together, and mix all up.

It may be used by addition of a small portion to the starch or by rubbing lightly over the linen previous to
the ironing, or both. Being a double purpose compound, it can be separately put up as a window-cleaning pomade, for which it is good.

**LIQUID STARCH GLOSS.**

6 gals. water.
7$\frac{1}{2}$ lbs. powdered white starch.
5 lbs. powdered white gum arabic.
4 lbs. powdered borax.
2$\frac{1}{2}$ lbs. glycerine, 1.260.

*Method.*—Boil the gum in the water; add borax, then glycerine, and mix up with the starch, straining, to exclude any lumps. Then bottle.

A tablespoonful or thereabout to be added to a quart of starch.

14 pts. water.
4 pts. turps.
3 lbs. Japan wax.
4 ozs. lemon resin.
4 ozs. borax.
4 ozs. white curd soap.

*Method.*—Dissolve the wax (sliced) and resin in the turps; boil the soap and borax in the water, mix all, and churn well until amalgamated.

**SNOWFLAKE STARCH ENAMEL.**

44 lbs. Lux soap flakes.
5 lbs. powdered borax.
4 lbs. powdered French chalk.

*Method.*—Sroead the flakes out, sift borax and chalk over, moving about, to well and evenly distribute.

In place of the proprietary soap flakes mentioned, any kind of white soap may be utilized by first reducing to a granular form, then passing through a pair of rollers, to form flakes.—Oil and Colourman's Journal.

**How Soap is Sold.**

(Continued.)

This time we bring quite a collection of short advertisements collected from daily papers, laundry papers, drug papers and magazines. Some of these specimens are models of how to make a point briefly, others are interesting for the kind of point they make, all have something or other to make them worth reading.

* * *


* * *

Ninety-five out of every hundred orders received come to us by mail, without any question as to price, the trade knowing that we have absolutely but one price, and that orders coming that way receive precisely the same prompt and careful attention as if received through our salesmen. That is the reason why you are bothered so little by frequent calls on our part. H. Kohnstamm & Co., New York, Chicago.

* * *

Do not forget that we have a branch store in St. Louis, Mo., and are doing a very nice business through it in that vicinity and the southwest. If you desire to place an order there instead of Cincinnati, it will be as fully appreciated. We will see to it that you get just what you want, and that too on short notice. J. M. Long Co., Cincinnati and St. Louis.

* * *

Trying to excel in turning out good work in the laundry is materially aided by using the right kind of supplies. Chip soaps, such as are made by Wm. Waltke & Co., St. Louis, go far to help make a laundry successful, and cause it to be patronized not only for the admirable appearance of the work turned out, but chiefly because combined with this is the good condition in which clothes are returned to customers.

To make the claim that Waltke's chip soaps assist in this may seem bold to some, but the many who use them know that they get these results only when using Waltke's soaps. This is due to the knowledge and care which is applied to their make and to the pure materials used and is therefore what laundrymen need to make success a certainty.

Besides turning out the very best of chip soap Wm. Waltke & Co., handle only the purest and best supplies and furnish these to their customers at prices that defy competition. Wm. Waltke & Co., St. Louis.

* * *

The trademark above is potent in significance to every laundryman in the United States. It is the emblem of reduced expenses.

It is the conquering trademark of Wyandotte Washing Soda cuts the soap expense from 25 to 33$\frac{1}{3}$ per cent. Wyandotte Washing Soda cuts the labor expense fully 25 per cent. To say nothing of the enhanced appearance of the goods washed. How can the thinking, earnest laundryman close his eyes to the above saving facts?

Order one or five barrels. If you are not satisfied return the unused amount at our expense. The trial shall cost you nothing. The J. B. Ford Co., Wyandotte, Mich.

* * *

When you buy goods under the Monogram brand you know they are right because we guarantee them the best of their kind, and we stand behind our guarantee. Monogram Liquid Bleach. Monogram Potash Chips. Monogram Laundry Soap. All winners and the prices are right. Schoellkopf, Hartford & Hanna Co.
Aladdin’s (the only) Petroleum Soap. Without building or strengthening it washes white, colored and flat work, flannel underwear, blankets, etc., thoroughly cleansing, yet without injury to color or fabric. Prices no higher than good tallow soaps. Send for catalogue, prices and testimonials. New York Petroleum Soap Co.

* * *

Use Lessive Phenix. Laundrymen save time and money and turn out better work by using Lessive Phenix. The marvelous French Washing Powder. A scientific compound that will not injure the finest fabric. It does the work in two-thirds the time.

Lessive Phenix is used exclusively and recommended by the well-known laundymen, Messrs. Gardner & Vail, 773 Broadway, New York. Evans and Sons, Limited, New York, and Montreal, Canada.

* * *

The “Open Door” Policy. Confining ourselves strictly to pure soap, we cordially invite tests of the severest kind as to the virtue of our soap.

The more it is tried the better the trade becomes convinced of its absolute purity, and hence, utility.

Made expressly for practical wash-room use, and going 25 per cent. farther, it lessens your expense, which is money saved.

Can’t we convince you?

Samples and prices for the asking. Get copy of “Wash-room Formulas.” Buckeye Soap Co.

* * *

The French soap and perfumery manufacturers of Paris, known as Maubert, are now introducing their products in this country, and are contracting for considerable advertising with the view to placing their fine French soaps, perfumes, toilet articles, etc., before the American public.

The Perfumerie Maubert is said to be one of the oldest houses in France, and one the quality of whose goods and the manner in which they are put up, is such that they will appeal to all lovers of delicious perfumes. They have applied the name “cendrillon” to one of their soaps because of a unique poetic parallel that exists. The transformation of the poor scullery maid, Cinderella, from her coarse dress into a beautiful princess is typified by this soap, which, being taken from its coarse and uninteresting wrapper and exposed to view, exhales what is described as being a “most exquisite perfume.”

The Maubert people have consigned a large quantity of their soaps to their American agents, and are about to issue a very handsomely embossed booklet in colors, entitled The Story of Cinderella (Cendrillon) Applied, which is unique in its arrangement, and in character parallels the idea expressed above. This booklet will have the druggist’s name on the cover, in letters of gold, and will be a good advertisement for the druggist as well as for the soap. Druggists wishing to have a quantity of these handsome booklets for free distribution can have same by applying to the American agents of Maubert, Thomas F. Condon & Co., New York.

* * *

Wrinkle Skin Soap is prepared with the choicest material for the removal of wrinkles and facial blemishes. Use the soap as you would ordinary soap with warm or cold water, absorbing in the skin pores by gentle rubbing, it revives and restores the skin’s vitality, the relaxed muscles and fibrous tissue resume their normal and youthful condition. The blood, which is the skin’s life, will gradually, by its continued use, restore to the face its former condition. Quick seller. 1 gross lots, delivered, $9.00. Packed 3 cakes in a box. The most exquisite toilet soap ever offered to the dealer.

Agencies given in each city or town when ordered in five gross lots, with the understanding the agent will push the sale of “Wrinkle Skin Soap.” S. B. Thorp, New York.

* * *

Buttermilk Toilet Soap, the finest soap in the world for toilet and bath. Notice the cut of the cake and see that you get the genuine. We have two United States Circuit Court decisions establishing our exclusive right to the word Buttermilk. We will prosecute every dealer and manufacturer selling other than the genuine Buttermilk Toilet Soap. Remember, the dealer is equally liable with the manufacturer for selling an imitation. Cosmo Buttermilk Soap Co., Chicago.

* * *

B. T. Babitt’s Best Soap can’t hurt the clothes, and doesn’t hurt the hands. The top-notch of economical effectiveness. Does its work and does it well. There’s the safety of certainty about it.

B. T. Babitt’s 1776 Soap Powder, greatest percentage of soap with the highest cleaning and purifying qualities. Entirely harmless. Always the same. The best and quickest results every time.

* * *

There is as much character in soap as in people. There are some that never die, fearless and intrepid to the last. Nugget Soap is a brave soap. It performs its duty under all conditions. Open the cover of the washing machine, there you will find it as you left it, the suds are rich and abundant. It hasn’t that sneaking habit of laying down in the battle with dirt. It uses the goods gently, never harshly. The goods are left soft and silky to the touch. That is because the almost invisible nap on the goods is free from all soap after the rinsing. Nugget Soap requires one half as much water for rinsing as other soaps. Made by the Alden Speare’s Sons Co., for fine trade exclusively.
A request from you for sample and prices U. S. P. Soft Green Soap will be appreciated. We make strictly high grade soaps from either linseed or olive oils. If you seek quality, we can please you. Address W. A. Walter & Co., Baltimore, Md.

The Killer of the cattle should be the maker of the soap. We kill the cattle, render the tallow and make the soap. One firm, one profit. Our chip soap is of the very highest grade and is low in price. Write for sample and prices or order a sample barrel. Kingan & Co., Limited, Indianapolis, Ind.

Do not be discouraged if your work does not turn out bright and clean after using that cheap soap that was guaranteed to do so much, but wire us immediately for Wadhams Extra Dry Borax Chips, for white goods, or Wadhams Olive Chip Soap, for colored goods and woolens. These soaps will never disappoint you, because they are correctly made from the best materials that the world's market afford. Important unscrupulous parties are using this brand originating with us, “Extra Dry Borax Chips.” Beware of such imitations. See that the name Wadhams is on every barrel.

Our White Milled Toilet Soaps for the towel supply service are exquisitely perfumed and just the right size. You can have your name on one side if desired. Send for samples and prices in 10, 25, 50 and 100 gross lots. Wadhams' Oil & Grease Co., Milwaukee.

A few months ago we made some important changes — improvements — in the make up of our already famous XXX Hygienic Soap and since then have been thoroughly testing it in our own laundry. It is a great success. The soap is now of much greater body and is still strictly neutral. We absolutely guarantee that XXX Hygienic Soap will wash whiter and cleaner, and do more work than any other soap we ever heard of, or came in contact with in any way. Positively yellow seams, spots, etc., cannot happen in the laundry where XXX Hygienic Soap is regularly used. Camden & Phila. Soap Co.

Hot air that is what we use in drying our Soap Chips. Every pound of Soap Chips we make is dried out 25 per cent. before being barreled for shipment. No fillers or artificial driers used in our soap. Milwaukee Laundry Supply Co.

The United States Circuit Court some time ago rendered a decision to the effect that “American Wash Blue” and “American Ball Blue” are brands lawfully owned exclusively by the Heller & Merz Co. This decision has been confirmed by the Court of Appeals.

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The Detection of Methyl Alcohol in Pharmaceutical Preparations.

BY PROF. FERDINAND A. SIEKER.

Some weeks ago a sample of liniment of soft soap was handed to the writer for examination. It was evident from the price at which it was sold that it was not prepared from ethyl alcohol.

It has been stated that the consumption of wood alcohol has increased enormously withing the past two or three years. It was generally supposed that it was used for preparing liniments, but according to recent reports by Dr. H. Harlin, and by H. P. Hynson, and H. A. Brown Dunning (Pharm. Review. Feb. 1901, pp. 51-56), it has been found in household remedies, such as the essence of Jamaica ginger and of peppermint. It appears that in certain local option towns in Maryland and West Virginia these remedies were taken in considerable quantities by victims of alcoholism, with the result that they were stricken blind.

A simple method for the detection of wood alcohol in pharmaceutical preparations is therefore of some interest.

The following properties of methyl alcohol are well known, and, while tests based on them can be readily applied to the pure substance, they do not apply so well if the alcohol is contaminated with other substances:

Methyl alcohol is more readily oxidized by potassium permanganate than is ethyl alcohol.

When methyl alcohol is oxidized by potassium dichromate and sulphuric acid, formic acid results, while ethyl alcohol yields acetic acid on oxidation. Formic acid can be recognized by its reducing properties.

While methyl alcohol boils at 66° C., ethyl alcohol boils at 78° C.

Pure methyl alcohol when treated with iodine and sodium carbonate will not yield iodoform, but when it is contaminated with acetone it will yield iodoform. Ethyl alcohol also yields iodoform.

The following tests have been proposed more recently:

A. Lam (Journ. Soc. Chem. Ind. 1898, p. 385, from Zeit. für Angew. chemie 1898, 125-130) determines methyl alcohol in ethyl alcohol by first converting the mixture into methyl and ethyl iodides and then ascertaining the density of the mixture. The percentage of methyl alcohol is determined by referring to a table.

A. Trillat (Journ. Soc. Chem. Ind. 1898, p. 879 from Compt. rend. 1898, pp. 127, 232-234; also 1899, p. 711, etc.) gives a rather complicated method which consists in oxidizing the alcoholic distillate with potassium dichromate and sulphuric acid, then treating with dimethylamin and oxidizing with a mixture of lead peroxide and acetic acid. When methyl alcohol is present,
a blue color results which is not destroyed on boiling. Quantitative determinations are made by comparing the color with standards of known strength.

S. P. Mulliken and H. Scudder (Journ. Soc. Chem. Ind. 1899, p. 402 from American Chem. Journ. 21, p. 266) have criticized various methods for determining methyl alcohol as not simple. Tests that have been devised for methyl alcohol are acetone and not methyl alcohol reactions. They refer to Rich and Brady's method (Compt. rend. 80, p. 1076) of converting methyl alcohol, successively into methyl iodide, dimethylanilin and methyl violet, which method while very exact is tedious. They state that J. F. Miller's method (Allen's Organic Analysis, 3rd edition I. p. 81) depending on the oxidation of methyl alcohol to formic acid by potassium dichromate and sulphuric acid is not conclusive because acetone and allyl alcohol also yield formic acid on oxidation. They have discovered a simple method that can be directly applied to an aqueous distillate of low boiling point. A spiral of thin copper wire about 2 cm. in length is superficially oxidized in a gas burner, and while still red hot is plunged into 3 c.c. of alcoholic solution contained in a test tube. Concentrated spirits are diluted with 3 or 4 volumes of water before oxidizing. One drop of an 0.5 per cent. solution of resorcinol is added and the mixture poured on a layer of concentrated sulphuric acid contained in an inclined test tube. The formation of a pure, rose-red zone will indicate the presence of methyl alcohol.

The writer found this method satisfactory when working with commercial wood alcohol but the distillate from the "liniment of soft soap" gave a yellowish-brown color when treated according to this method. This was evidently due to traces of the oil of lavender present in the liniment, which could not be separated without repeated fractionation, which is a rather tedious process.

It is well known that when methyl alcohol is carefully oxidized, formic aldehyde will result and this has an exceedingly pungent odor. Ethyl alcohol on oxidation yields acetaldehyde which does not possess this odor.

Formic aldehyde was first prepared (Roscoe and Schorlemmer's Chemistry, Vol. III., part I., p. 266) by passing methyl alcohol vapor mixed with air over heated platinum.

Some years ago the writer found copper in a number of samples of commercial formic aldehyde and concluded that cupric oxide was used in preparing them. The oxidation of methyl alcohol vapor with a hot copper spiral was tried with satisfactory results. The oxidation takes place according to the following equation: \( \text{CH}_3\text{OH} + \text{CuO} \rightarrow \text{HCOOH} + \text{H}_2\text{O} + \text{Cu} \). The formic aldehyde is detected by its pungent odor. It is ordinarily not necessary to prepare a distillate from the suspected preparation. The method evidently cannot be applied to preparations containing only small quantities—less than 1 or 2 per cent. of methyl alcohol. A preparation made with strong alcohol should be diluted with an equal volume of water. The details of the method are as follows:

Pour 4 to 8 c.c. of the suspected preparation into a long test tube and heat carefully so as to vitalize a part of the alcohol present. Immediately insert into the test tube, and over (not into) the liquid, a copper spiral that has been previously heated to dull redness. Withdraw the spiral so as to permit its reoxidation. Again insert it into the tube and repeat this a number of times. As the oxidation of the alcoholic vapor progresses the color of the spiral is changed from black (CuO) to red (Cu).

The odor of formic aldehyde will be perceived if methyl alcohol is present in sufficient quantity.

The copper spiral that was used in this work was made from copper wire 1.6 millimeters (1-16 inch) in thickness.

According to this method the presence of methyl alcohol can be established in a few minutes. Some of the other tests described above (all of which are more complicated) can be used to verify results in important cases. The method applied to the following preparations or dilutions with satisfactory results:

To a mixture consisting of two parts of methyl alcohol and 98 parts of water; to a suspected sample of limiment of soft soap that contained about 30 per cent. of methyl alcohol; and to a mixture consisting of 19 minims of fluid extract of ginger, 20 minims of methyl alcohol, 10 minims of ethyl alcohol and 50 minims of water.

To detect methyl alcohol in a tincture of iodine, it will evidently be necessary to remove the free iodine with a slight excess of sodium thiosulphate, before applying the test.

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Crude Cotton Oil.

PAPER READ BEFORE THE INTERSTATE COTTON CRUSHER'S ASSOCIATION.

BY W. B. ALBRIGHT.

Mr. President and Gentlemen:—At the request of our esteemed secretary, I am to say a few words upon the importance of a higher quality of crude cottonseed oil, and yet it seems almost unnecessary to call the attention to such an intelligent body of men to a fact of such self-evident importance.

The past season has been an exceptional season in demonstrating the value of quality. It seldom happens that a season is more favorable to the marketing of high grade oil at a premium than the cotton oil season now just coming to a close. The season opened with all sur-
rounding fats commanding high values. You mill men started your season under favorable circumstances and paid high prices for seed.

As is customary with each new season, the buyers stood eager and ready to exchange their gold for prime crude cottonseed oil at a price f. o. b. mill, terms sight draft, bill of lading attached. Business started at good prices and in large volume, when suddenly the buyers became timid. They knew the quality of their gold in the bank, but they did not know the quality of prime crude cottonseed oil which would be delivered to them in exchange for their good money. It is safe to estimate that a loss of four million dollars was sustained by the cotton oil industry the past season, on account of the uncertain quality of prime crude cottonseed oil. It is true that the buyer expected some depreciation in grade on account of the climatic conditions prevailing during the latter half of the growing season of the cotton crop, but it soon became evident that many crude oil mill managers had an idea that any kind of crude oil made out of high-priced seed must necessarily be prime, and when this fact was pressed home to the buyers the whole industry was made to feel the evil of such loose methods of thinking.

I am sure a much larger volume of prime crude oil could have been made the last season than was made, and I wish now to call your attention to a very great evil practiced by many crude oil mills. I refer to the habit or custom of working up poor quality of seed in small proportions with a better grade. Many mill managers do this, perhaps honestly believing that in connection with their superior method of cooking, the oil will come out prime, and possibly there are some managers who actually believe that a certain amount of off-seed worked with a large amount of prime seed (in their superior method of cooking) will actually produce a better grade of oil than they could make from the best quality of seed alone. However, seriously speaking, the evil of mixing poor seed with better seed is a great evil, and is largely practiced. It should be the object of mill men to grade their seed and to work one grade at a time.

I know of no fat where quality commands so little premium as crude cottonseed oil. This is largely due to the absence of well defined standards of grade. Cotton oil crushers have been founding along, selling crude oil for years, in every sense of that word "crude," strictly crude, guaranteed crude. Happily, there are signs of improvement in this direction, and if definite standards are established, then the members of this association can safely trust buyers to pay full value, according to grade received. But the question of quality is not entirely a commercial question. The manufacturing points involved in this question are many. I will offer, however, only one or two suggestions in this direction.

1. The capacity for working up seed promptly should be as great as possible, to avoid heating of the seed when full of moisture.

2. The method of cooking should be submitted to careful investigation by each mill, and the special requirements of the seed should be ascertained from time to time by means of a small experimental cooker.

It will be found that the best oil can be made by a proper adjustment of the time of cooking and the temperature at which it is cooked. These two features will be found to vary with different seasons and from time to time, according to the conditions of the seed, and I can think of nothing that promises such profitable returns to mill men as the establishment of some convenient place in the mill of an experimental test cooker.

3. Should a mill man wish to get to the top of his profession, it would pay him to investigate through his chemist the character of the red coloring matter, which is always contained in crude cottonseed oil. Some of you have probably done already, and it is hardly practicable or possible for all mill men to do this; but it may be interesting to you to know that the most objectionable color that we have to deal with in cottonseed oil is a red resinous substance, not completely removed from crude oil by caustic soda, but largely removed from yellow oils by means of clays. This red coloring matter can be obtained by abstracting it from the clays with boiling alcohol.

It might be a good thing for this association to undertake, through some competent chemist, investigations of this red coloring matter, but for the crude oil mill manager it is practically sufficient that he knows what kind of yellow oil can be made from this crude, and, in order to ascertain this, every mill should make daily tests of its crude oil with caustic soda solution. Variations in the quality of oil manufactured would be quickly discernible when tested in this way, and an active mill manager would not be long in discovering the source of the trouble.

I believe there is room for very great improvement in the manufacture of higher grade crude cottonseed oil, and the time is fast approaching when cottonseed oil can easily take a higher range of value in comparison with other edible fats, provided a higher-grade quality can be maintained for a very large percentage of the product. The trouble is that the percentage of strictly high-grade oil is small. The best cotton oil is only known to a small class of manufacturers. The public eats it under a different name. The cotton oil the public eats and knows as cotton oil is, as a rule, a very common quality. Whenever, therefore, it becomes possible to reverse this order of things, and most of the oil made is of a superior grade, then cottonseed oil will begin to receive its true market value as an edible fat.
Pine Needles Industry in Oregon.

By Enos Brown.

The utilization of the pine needles of the yellow Oregon pine, botanically Pinus Ponderosa, is becoming an industry of considerable importance on the Pacific coast. Fifty years ago it was discovered that the extracts and products of the long, slender leaves of the pine possessed real efficacy in complaint of a pulmonary character. It is claimed that insomnia yields to the influence of the pungent odor, and asthmatics have found a real relief in partaking of the oil and in sleeping upon pillows stuffed with the elastic and fragrant fiber manufactured from the interior substance of the pine leaves. The illimitable forests of yellow pine leaves. The illimitable forests of yellow pine abounding in the State of Oregon, with their accessibility to through lines of transportation, suggested to a German from the forests of Turingia the transfer of a lucrative business to the Pacific coast. In Germany the leaves never exceed two inches in length, while in Oregon they often exceed thirty inches, and average twenty. In the former country the forest laws are extremely strict and often prohibitive, obliging the maker of the product to use the dried leaves that have fallen to the ground and thus insuring an inferior and less effective quality of goods.

In the Western State denuding the yellow pine of its leaves has been encouraged, the expert of the Forestry Commission having pronounced the process as beneficial. A tally kept of the weight gathered from a certain number of trees indicated that the crop taken in April weighed 650 pounds while that of the same trees in October yielded 775 pounds. Two crops are gathered yearly, the latter one always being the largest. The leaves of the young trees are preferred, yielding a better quality of oil, it is said; though this fact is doubted. The leaves are stripped from the trees by women and men, who are hired for the purpose, and who are paid 25 cents a hundred pounds for the needles. Five hundred pounds is regarded as an average day's work. The leaves are picked into casks and hurriedly sent to the factory. Exposure to the sun cause the leaves to wilt, and impairs the quality of the product. In picking, the thickest bunches of leaves are selected, and the scanty ones neglected. The vast quantity available, so far beyond any present demand, permits the picker to thus discriminate. The factory at which the essences and extracts of the needles are manufactured has a capacity for handling 2,000 pounds of leaves per day; but it is soon to be enlarged to about four times its present size.

In the extraction of pine oil, 2,000 pounds of green leaves are required to produce ten pounds of oil. The process is the ordinary one of distillation. In the manufacture of fiber the leaves pass through a process of steaming, washing, drying, etc., twelve in all, occupying four days. Two qualities are produced, first and second. The first, from which no oil has been distilled, is worth, upon the market, about ten cents per pound. The fibre is elastic, and the staple only little shorter than the green leaf from which it was made, and with strength sufficient to enable it to be spun and woven into fabrics. Mixed with hair, the fibre makes an excellent material for mattresses or pillows, and repose comes quickly when resting upon them. It is also used as a partial filling for cigars, imparting a flavor not the least disagreeable, and calming to the nerves. The oil extracted gives an agreeable flavor to candies. Toilet soaps are made, strongly impregnated with essential oil of pine needles.

The fiber itself, after curing, looks like a slender shaving of some dark wood, retaining its odor indefinitely. Insects abhor it on that account. It is said that the Oregon factory is the only one in the world outside of Germany.

It Wasn't A Funeral.

One day when Mr. George Ade was out walking with a guide in the naval quarter of Kioto, Japan, he observed coming down the street the head of a great procession. Interested he paused to watch the procession pass. On they came, gaudy in apparel, but grave in face, flaunting flags and great banners on which were Japanese inscriptions. The mournful chant which announced their approach was broken only when the kettle drums or tom-toms were pounded or the cymbals clashed. As the weird and solemn procession approached, Mr. Ade uncovered and bowed his head reverently, it being his custom and settled principle invariably to show the highest respect for the rites and ceremonies of the people with whom he came in contact. He is a firm believer in the doctrine, "When in Rome do as Romans do." His fact was very grave.

"Buddha?" he inquired.

The guide looked more puzzled.

"Shinto?" then asked Mr. Ade.

"I do not understand," the guide finally said.

"Was not that a funeral procession?" inquired Mr. Ade.

A light began to dawn upon the guide's face. He almost smiled as he replied:

"No; tooth powder!"

The Japanese, it seems, are rapidly learning American ways—even in advertising. A visitor to Japan may now see, as in some portions of America, almost every hillside plastered with advertisements. They are very enterprising and, as this incident indicates, one of the advertising methods employed is that of having a procession march through the streets.—Kansas City Times.
Medicinal Toilet Soap.

BY E. GEORGET.

Medicinal soaps fall into two classes, the stirred cocoanut oil soaps, made by stirring together oil, lye, and drug, and the milled soaps, in which the drug is incorporated with the finished soap. The latter are by far the better kind, as the maker can satisfy himself that his soap is perfectly neutral to begin with, and the drug is not subjected to anything like the same extent to heat or chemical action. Hard medicinal soaps should be packed in vegetable parchment, or other impervious material, and soft ones in glass or China. Metal boxes are to be avoided, as the soap is sure to react with them sooner or later.

Glycerine and herb-soaps are not to be regarded as medicinal. In making the milled soaps care must be taken that the shavings of the ground soap are not too dry. For sulphur soaps, the sulphur should always be added in a soluble form, such as liver of sulphur. The following are some receipts:

**TAR SOAP.**

Milled: Brown ground soap .......... 40 lbs.
Wood tar ................. 5 lbs.

Stirred: Cocoanut oil .......... 80 lbs.
Caustic soda lye, 38 deg. B. .......... 43 lbs.
Wood tar ................. 8 lbs.

The tar is first dissolved in the oil.

**SULPHUR SOAP.**

Milled: Yellow ground soap .......... 40 lbs.
Liver of sulphur, in concentrated solution .......... 4 lbs.

Stirred: Cocoanut oil .......... 80 lbs.
Caustic soda lye, 38 deg. B. .......... 41 lbs.
Liver of sulphur .......... 12 lbs.
Dissolved in water .......... 12 lbs.

**TAR-SULPHUR SOAP.**

Milled: Yellow ground soap .......... 40 lbs.
Liver of sulphur .......... 4 lbs.
Wood tar ................. 4 lbs.

Stirred: Cocoanut oil .......... 40 lbs.
Caustic soda lye, 38 deg. B. .......... 21 lbs.
Liver of sulphur .......... 5 lbs.
Wood tar ................. 6 lbs.

**CARBOLIC SOAP.**

Milled: White ground soap .......... 40 lbs.
Pure carbolic acid .......... 1 lbs.
Mixed with solution of carbonate of potash .......... 1 lbs.

Another soap is got by stirring 5 lbs. of liquid carbolic acid into 100 lbs. of unfilled soft soap, and then making neutral with a little lye.

**TANNIN SOAP.**

Milled: White ground ............... 40 lbs.
Tannin .................... 1 lbs.

Stirred: Cocoanut oil .......... 120 lbs.
Caustic soda lye, 38 deg. B. .......... 62 lbs.
Tannin .................... 3 lbs.

*Dissolved in warm water.* 10½ pints

Scent: Lavender oil ............... ½ oz.
Geranium oil ............... ½ oz.
Bergamot oil ............... ½ oz.
Peppermint oil .......... 1 oz.

In making the stirred soap, add the tannin as late as possible, as it rapidly changes in the presence of alkalies and atmospheric oxygen.

**LANOLINE SOAP.**

Milled: White ground soap .......... 160 lbs.
Borax (dissolved in boiling water) ............... 20 oz.

Stirred: Cocoanut oil .......... 96 lbs.
Lard ............... 24 lbs.
38 deg. B. caustic soda lye .......... 60 lbs.
Borax (dissolved in boiling water) ............... 20 oz.

Scent: Bergamot oil .......... 5 oz.
Linaloe oil .......... 4 oz.
Lavender oil .......... 1 oz.

**CAMPHOR SOAP.**

Milled: White ground soap .......... 80 lbs.
Finest powdered camphor .......... 6 lbs.

Stirred: Cocoanut oil .......... 60 lbs.
38 deg. B. soda lye .......... 32 lbs.
Camphor (dissolved in the oil) .......... 3 lbs.

If the camphor smell is to be concealed scent with:
Sassafras oil .......... 5 oz.
Rosemary oil .......... 5 oz.
Thyme oil .......... 2½ oz.

**THYMOL SOAP.**

Milled: White ground soap .......... 80 lbs.
Thymol (dissolved in a little spirit) .......... 4 lbs.

Stirred: Cocoanut oil .......... 120 lbs.
38 deg. B. soda lye .......... 64 lbs.
Thymol (dissolved in a spirit) .......... 4 lbs.

**ICHTHYOL SOAP.**

Milled: White ground soap .......... 80 lbs.
Ichthyol ammonium .......... 3 lbs.

Stirred: Cocoanut oil .......... 120 lbs.
38 deg. B. caustic soda lye .......... 62 lbs.
Ichthyol ammonium (in conc. aq. solution) .......... 7 lbs.
IODEINE SOAP.

Milled: White ground soap ......... 40 lbs.
       Potassium iodide ............ 4 lbs.
Stirred: Cocoanut oil ............ 120 lbs.
       38 deg. B. caustic soda lye. 62 lbs.
       Potassium iodide (in conc. aq. solution) ......... 17 lbs.

CREOLINE SOAP.

Milled: White ground soap ......... 40 lbs.
       Creoline .................... 1 lbs.
Stirred: Cocoanut oil ............ 60 lbs.
       38 deg. B. caustic soda lye 31 lbs.
       Creoline (diss. in the oil) .. 3 lbs.

TURPENTINE SOAP.

       White ground soap .......... 15 lbs.
       Unfilled soft soap .......... 15 lbs.
       Oil of turpentine .......... 30 lbs.
       Carbonate of potash ......... 3 lbs.

Mix intimately to the consistency of a perfectly smooth ointment.

OPEEDELDOC.

Dissolve on the waterbath 8 lbs. of white ground soap, 4 lbs. of pale unfilled oil soap, and 4 lbs. of camphor in 140 lbs. of spirit. Then add 8 lbs. of ammonia, and perfume with half a pound of thyme oil and 1 lb. of rosemary oil. Filter if necessary, but while warm.

SOAP-SPIRIT.

Dissolve on the waterbath 4 lbs. of unfilled oil soap in 10 lbs. of spirit and 4 lbs. of rose-water. The solution will have to be filtered, or else allowed to settle and then decanted from the sediment.

The Way of Business.

A problem in soap selling is illustrated by the following letter from an English retailer to a grocery paper of that country:

"Are the grocery and oil trades prepared to see shops opened shortly for the retail sale of soap and soap makers' specialities? We have known tea agents and oil agents making such good business for proprietary brands and packages that the greed of the packers and owners has been sufficiently excited to prompt them to open establishments of their own ("by way of assisting the agent," they said), and the same thing is likely to happen in the soap trade immediately it is worth the doing; for no man's interest or business seems to be regarded. When that day arrives, perhaps those who now think the soap question only concerns the wholesale trade will more fully appreciate the drift of things, and, too late, decide to leave soap makers to do their own advertising."

The Profession of an Industrial Chemist.

BY DR. JULIUS LEKWOWITSCHE, F.I.C., F.C.S.

When your genial secretary asked me to read a paper before your Society, I was not a little puzzled to find an appropriate subject. But I quickly escaped from my embarrassment by asking him to set me a theme on which to address you.

This being the opening meeting of the Winter Session, he took a more general subject than is usual, and gave me as the text on which to address you the title of this paper: "The Profession of an Industrial Chemist." No doubt, your secretary was guided in his choice by the consideration that since you are engaged in industrial pursuits, or are at least preparing to enter chemical works, it might be useful from one who has had some experience you wish to acquire.

I have not the presumption to speak authoritatively or to lay down golden rules which will necessarily lead to success. But as it not infrequently happens that young men, like yourselves, or their parents, converse with me on this subject, I propose to chat with you, as I do with them, for the time allotted to me, about the profession you are desirous to enter upon, and to give you such hints as I consider may be of advantage to you.

It will be useful at the outset to clearly define our subject, and to arrive at a proper understanding as to what is meant, or, at any rate, what I understand by the term industrial chemist. The subject of our discussion should be, as the noun defines him, a chemist. You all know, as members or students of this Institute, what a chemist is, and I need not for the moment discuss this further; the adjective—industrial—qualifies and more precisely defines our chemist, differentiating him from the academic and the professional chemist, our chemist is to be an industrial chemist, that is, a chemist who applies his knowledge and his energy to industrial pursuits.

True, so does the analytical and pharmaceutical chemist. But, although the former may find an appropriate place as an industrial chemist in a works large enough to employ an analytical chemist to make their control tests, and although the last decades have shown that the pharmaceutical chemist pure and simple may blossom forth into a manufacturing chemist—witness the Trommsdorff, Merck, and Schering in Germany, and similar firms in this country—we must leave these two callings out of consideration, for they are usually associated with pursuits entirely distinct from chemical industry proper.

What, then, we ask, is the sphere and the object of industrial chemistry? If I were to give a blunt and perhaps somewhat brutally sounding definition I should say Industrial Chemistry is the art of making money by manufacturing chemical products.
You may smile, and this would show me that I have either expressed myself somewhat awkwardly, or perhaps that you have not grasped the definition fully by understanding it to mean that an industrial chemist is merely a man who wants to make money with the aid of chemistry. That is, however, not my meaning. For my title speaks of the profession of an Industrial Chemist.

You are going to be, and, I hope, to remain, professional men for whom the making of money is not, and must not, be the first consideration. This is the business of the commercial man, or, if you like, of the chemical manufacturer. It is his business to make money with the help of the handmaid—chemistry.

He is, therefore, not merely a merchant like the chemical merchant who buys and sells chemicals and derives his profits therefrom. Our chemical manufacturer goes farther than that. He buys the raw material, and transforms it with the help of chemical operations into the new material which he desires to sell. To do this successfully, he must, of course, be aided by chemistry! Must he, then, be a chemist? Not necessarily. You may well imagine the ease of a man putting his money into a chemical works, and, in addition to finding the capital, claiming to manage the business on the strength of his commercial abilities. Commercial ability is the first quality required for carrying on the business successfully; this may demand the full attention and full time of the man who risks his capital. But even if he could find time to assist in the work by controlling the workmen and generally directing the operations carried out, he would, if well advised, engage a chemist to do the chemical part of his business for him. You would all expect him to do that.

There was a time, and, unfortunately, not so long ago—nor can it be said in this country to have quite passed—when the chemical manufacturer was merchant and chemist in one person. You know with what result. Excepting, of course, the princes and leaders of chemical industry—like Losh, Gossage, Muspratt—that chemical manufacturer was a merchant only, and what he understood by chemistry was left to the foreman who had learnt from his father how to burn sulphur to sulphuric acid or how to render tallow and to make soap. The proprietor made money by buying and selling; he was satisfied that his foreman knew all the chemistry that was required for the business; and the foreman in turn was satisfied that his chemical knowledge was the reason of the prosperity of the works, and he, therefore, jealously regarded his "chemical secrets" and hard won experience. Both were satisfied and looked sneeringly at the outsiders who professed a knowledge of chemistry and told both master and man that they were on the wrong path. What did these croakers know! And if complaints were made about the manufactured product, they told the complainant he knew nothing about it, and if he did not like it he might go elsewhere, for did they not prosper and make money through what they called manufacturing?

In those halcyon times it was easy to prosper and to make money in this country, for what competition there existed outside was not of very great importance. Continental nations were suffering from the consequence of their little wars and political unrest, and had, therefore, little time to devote to chemical industry. I, myself, am old enough to remember the existence of somewhat similar conditions in the eastern parts of Germany, where the chemical manufacturer was chiefly a merchant. And he even then thought that he was marching with the times when he took into his works a "young man," as he would call him—or a superior bottle-washer, as we would call him—to act as a testing machine, and later on, when he had shaken off the last remnants of chemical knowledge, to make him assistant works manager.

But all this is now changed on the Continent. You have heard and read of the extraordinary outburst of chemical enterprise that has taken place during the last three decades, and of the formidable competition raised against the chemical industry of this country. Thus, to take only one example, Germany has become a soda exporting country. I call this competition formidable, not for the reason that it so qua competition—for competition stimulates and brings out the best qualities of a nation or a man—but for the reason that our competitors fight with weapons which are the best, and because the fighters are wielding these weapons in a very skillful manner.

At the last Paris exhibition we have all had an opportunity of convincing ourselves that what has been said and written about the progress of chemical industry on the Continent is but too true. But I must not turn away from my subject and add to the never-ending tirades of which you hear and read so much. This country has undoubtedly been outstripped in chemical industry, and is only slowly bethinking itself of regaining lost ground.

Yet I suppose we must be satisfied to find that the rule-of-thumb method is slowly, very slowly, but yet unmistakably being abandoned. The chemical manufacturer begins to recognize that he must not only be a merchant, but a manufacturer, and that to command success, he needs, from the outset, the aid and guidance of chemistry. He is beginning to find that chemical knowledge must govern his manufacturing operations, and that for the success of his works it is imperative for him to engage the services of a professional chemist to assist him in his business. We, in the pride of our
profession, will be only too apt to say that the chemist, though he be only an assistant to the manufacturer, should be and must be his first and chief assistant.

Here, then, is the field on which you are to win your spurs, my, your laurels, and, let us hope, also, your fortune.

But nowadays fortunes are not made without extraordinary efforts; continuous hard work is essential to the attainment of that eminence for which the laurel is the just reward, and even the spurs are not won without putting forth one's best endeavors from the very outset. Let me remind you of the words of the poet Hesiod:

"Before excellence the immortal gods have placed the sweat."

What are, then, the conditions necessary to launch you successfully on the path of an industrial chemist? The answer is, of course, that you must have been trained properly for your future calling.

I cannot dwell at any length on this subject, partly because most of you have passed beyond that stage, but chiefly because your course of studies is laid down by the authorities of the various teaching institutions you attend.

I wish, however, to lay stress on the necessity of looking upon the study of chemistry as one requiring quite as good a preparatory education as any other learned profession. Unfortunately, at any rate, in this country, as far as I am aware, the fact that chemistry is a science, perhaps the most logical science next to astronomy—is not yet fully appreciated. Hence it is too frequently looked upon as an art, requiring rather a certain dexterity in manipulation than close application to scientific thinking. Thus it happens that a boy, who carries on a few experiments to the horror of most of the inmates of a house, is considered to be a budding chemist. In ten cases out of twelve such a boy will turn out a very poor chemist.

For the earlier years in school should be devoted to the training of the mind and the development of the mental faculties, and the more time spent thereon the better the future chemist will be prepared for his later studies. Should he, therefore, learn no chemistry in school? If it is taught as a logical science then it will form an excellent subject in the curriculum. Unfortunately, the danger is too great that a teacher in an elementary school finds it easier to let off fire-works, or, worse still, that a boy is induced to do experimental work. In my opinion, it would be better to let him have no chemistry at all; let him rather learn Latin and Greek. I for one cannot agree with those who consider the learning of these languages is a waste of time. I do not judge so from a utilitarian point of view—as helping to grasp technical terms more easily than otherwise—but because these languages, if taught properly, form a splendid training of the mind by teaching one to think logically. Long after the grammar and even the meaning of many words are forgotten, the logical bent of mind persists, and this is a result which modern languages do not produce, because they do not possess the fixity of rules peculiar to dead languages.

He will be best prepared for the study of chemistry proper who enters the college with a good sound general education, having his mental faculties broadly developed rather than being crammed with facts which are as rapidly forgotten as acquired.

(To be continued.)

A New Perfume.

For some aesthetically-minded people the discovery of a new perfume is as great a joy as the unearthing of a fresh species is to the botanist; but there is more money for the business man in the find of the former. Mr. D. Hooper, of the Economic Museum, Calcutta, comes to the assistance of both the aesthete and perfumer with a recent report which he has published. In this he names the origin of a perfume, which, he says, is certainly a novelty, and might be used in the preparation of sachet powders or as a blend with other essences. As a simple powder, "it might be employed as an insectifuge in place of lavender or camphor."

"Gondo matri," the name of the root yielding this perfume, is from Homalomena (Syn. Homalonema) aromatica, a plant of the Arum family, growing in Cachar and Sylhet. It was described by Dr. Roxburgh a hundred years ago, who called the plant Calla aromatica, and observed the agreeable aromatic odor of the root. The root is considered by the natives to possess medicinal properties, and was sold in Roxburgh's time for Rs.10 to Rs.16 per maund. The fragrance of the powdered root has been described as similar to ginger, but the root from Cachar has a distinctly peculiar odor in which a soupçon of nutmeg prevails. The powder exposed to the air rapidly fills the room in which it is kept with a delicate perfume. Enclosed in a box or drawer it communicates its fragrance to the contents. The root submitted for distillation yielded a greenish volatile oil of a somewhat different odor to the original material, and the proportion of oil was slightly less than 1 per cent.

In addition to the volatile oil, the root contained a resin, an amorphous saccharine body, a trace of alkaloid, albumen, and other plant constituents. Some needle-shaped crystals, called raphides, were detected by the aid of the microscope, and these are a source of irritation if administered internally.
PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.


TRADE-MARKS.


PRINTS.

347. Title: “Kirkman’s Borax Soap.” Kirkman & Son, Brooklyn, N. Y.

LABELS.

8,426. Title: “Salt Water Soap.” (For soap.) Charles E. Bonte, New York, N. Y.

The Technical Education of Business Men.

BY W. A. SCOTT, PH. D.

The present academic year seems destined to mark the beginning of a new development along educational lines in the United States. No less than five of our leading colleges and universities have opened new commercial courses or schools of commerce. In the case of at least two of these institutions the courses announced are of the same character as those which have been pur- sued in our larger institutions for many years, and, therefore, represent nothing new for the country as a whole, though they mark an important step in advance for the institutions in question. The Universities of the Cities of New York, Pennsylvania and Wisconsin, however, have inaugurated a genuinely new departure in the form of technical courses for the training of young men who wish to engage in commercial pursuits. Their purpose is to furnish to such young men the same sort of training that is now supplied to prospective engineers and farmers in schools of engineering and agriculture. This particular branch of technical education is new in this country. The University of California made a begin- ning along this line two years ago and, therefore, deserves the honor of having been the first to enter this new field; but this seems now destined for the first time to take its place by the side of other branches of tech- nical education in the leading colleges and universities of the country.

The term technical education as applied to commercial pursuits needs explanation. It must be distin- guished, on the one hand, from the study of history, political science and economics, as it is ordinarily pur- sued in our institutions of higher learning, and, on the other hand, from the study of those features of the tech- nique of commerce which can only be learned in the actual conduct of business.

The study of history, political science and econo- mics, as now pursued, deals with the characteristic features or the more general aspects of society. Its aim is to discover the laws of social development. It deals with facts for the purpose of revealing the general principles which lie back of them, and the subject matter of the study, as it is presented to students, consists chiefly of the general principles which have already been discovered, and concrete facts are presented usually by way of illustration only. There are, of course, ex- ceptions, to this general statement. Advanced students are put to the study of details and concrete facts, but the purpose of their work and the aim of the instruction which is given to them is to establish scientific prin- ciples, and not to solve practical problems. The impor- tance of studies of this sort cannot be overestimated, and it is certain that they must constitute the basis for the technical education of which we are speaking; but the fact is patent that a student may pursue these lines of
study to a very great length without acquiring that familiarity with the business world and with the problems of actual business life which is essential to a person who expects to succeed in large commercial enterprises. The technical education of the prospective business man must aim primarily at giving him this familiarity. Its purpose must be to enable him to solve successfully the problems which he must meet in the actual conduct of affairs. It must aim to give him such information as is of importance in his business, and it must teach him to apply the principles of natural and social science to the actual conduct of commercial enterprises.

There is a certain form of technical education which no school or course of study can supply. Every business establishment has its own peculiar methods which can only be acquired in the business itself. The management of a great business concern also involves the control of men, the organization of details, and the solution of problems which arise from day to day may assist a young man in developing his power along these lines; may reveal to him in a general way the nature of the questions which will confront him; but the actual skill which is essential to success can only be acquired in the actual doing of the things themselves. One cannot be certain that he possesses the ability to lead, organize and control men until he has actually attempted to do these things. No amount of instruction about the problems which such leadership involves will actually give him the power although it may assist him in the work.

Between this sort of technical education, and the study of history, economics and political science, as it is at present pursued, there is a wide gap which it is the purpose of the new schools of commerce to fill. It is manifested that they cannot guarantee to turn out successful business men any more than the engineering school can guarantee to turn out successful engineers. They cannot furnish all the knowledge that is necessary for the conduct of business any more than the engineering school can furnish all the knowledge that the engineer needs. Nothing can take the place of the actual conduct of business in the acquisition of certain forms of knowledge, and nothing can take the place of history, political science, and economics as a means of educating the student, and of laying the necessary foundations for the technical studies which it is the especial purpose of schools of commerce to supply.

The problem before these schools is a difficult one and it will not be perfectly solved until considerable experience along this line of education has been acquired. Mistakes will unquestionably be made at the beginning, but it is a matter of no small significance that such institutions as the Universities of the Cities of New York, Pennsylvania, Wisconsin and California have definitely attacked the problem, and have placed themselves in the way of acquiring the experience necessary to correct the mistakes incident to pioneer work. The programmes which are being followed during the present year are necessarily tentative, and they represent the solution which the institutions in question have proposed for the problem before them.

In working out its programme the faculty of the University of Wisconsin asked itself the question—what sorts of knowledge does the young man need who in the immediate future is to carry to a successful issue the great commercial enterprises of the United States. Its answer to this question is in substance as follows:

1. He should be familiar with the nature and workings of the industrial organism of which he is to be a part and through the manipulation of which he must accomplish his end. In order to give him this familiarity the following lines of study are offered:

   (1.) Courses in commercial geography which deal with the sources and distribution of the raw materials of manufacturers and commerce, the present location of the most important branches of manufacturing industry, and of the chief routes of commerce, and the circumstances which determine, and from time to time, modify their localization.

   (2.) Courses in transportation, in which the student studies the transportation systems of the most important countries of the world including their railroads, canals and ocean steamship lines, the various methods of rate-making, the various systems of government ownership and control, consolidation and pooling, traffic organization, and in particular the characteristic features of the transportation system of the United States.

   (3.) Courses in money and banking, which are designed to acquaint the student with the nature and functions of money and banks, the monetary systems of the great commercial nations, the laws and methods of foreign exchange, the various kinds of securities which are used in international and domestic commerce, stock markets, bi-metallism and monometallism, and the history of the currency of the chief commercial nations.

   (4.) A course in business organization and management, which might perhaps better be described as a course in private administration to distinguish it from the courses in public administration which are given in the departments of political science of our universities. The course includes a study of the various forms of business organization, such as corporations, partnerships, private business concerns and trusts, the organization of commerce in its various branches including the various classes of middle men and the markets for various sorts of products, and the methods of organization and management of typical concerns in the various lines of industry.
(5.) Courses in economics and economic history. It is impossible to understand existing business institutions without the study of the circumstances which brought them into existence, and which from time to time modify their character and forms. Hence the necessity of courses of this sort. The study of economic history familiarizes the student with the actual growth and development of industry, while the study of economics reveals to him the principles involved and the real nature of the forces with which he has to deal. In these courses emphasis is laid upon the history of commerce and upon the theories which have influenced and still affect the commercial policy of nations.

II. Besides a knowledge of the nature and workings of the industrial organism the prospective merchant should be familiar with the various processes through which the chief articles of commerce have to pass before they reach their finished state. This sort of knowledge the school proposes to furnish in the form of courses in what it calls the materials of commerce, which courses will be carried on in connection with a commercial museum. The courses in the materials of commerce will consist of a study of the history of the various commodities from the raw material to the completed article, and will include a study of the various processes and forms of adulteration, of the qualities of goods, the costs of their manufacture, etc., etc.

III. A knowledge of certain branches of law is now a desideratum for the business man. Accordingly among the technical courses are included a course in the commercial law of the United States, courses in tariff legislation, laws pertaining to labor, capital, corporations, etc., and courses in the commercial law of various foreign countries with which the United States engages in commerce. All of these are special courses designed to meet the needs of business men and in consequence will not be so detailed and technical as the courses on the same subjects given in the law school for prospective lawyers.

IV. The man who expects to represent an American business house in a foreign country should be familiar with the language which his customers speak. In many parts of the world American firms are now at a great disadvantage. Their agents lack knowledge of the language and are obliged to deal with their customers through interpreters or by means of printed circulars and announcements translated from English. This disadvantage has been felt to such an extent that foreign agents are employed in large numbers to transact business for American houses. It seems to us at the University of Wisconsin that young men who expect to engage in the commerce of the United States in the immediate future should be equipped with at least one foreign language, and we have accordingly made the acquisition of a reading, writing and speaking knowledge of French, German or Spanish a requirement in our School of Commerce. In addition we offer instruction in Italian and Russian and have so arranged our courses that it is possible for a student to acquire a second language if he so desires. In the instruction given in all these languages special attention is devoted to commercial correspondence and business and legal forms.

V. The sciences of Physics and Chemistry are used in industry in such a variety of forms that at least an elementary knowledge of them is necessary for the well equipped business man. The course, therefore, includes a year of work in each one of these sciences. The course in physics is followed by a course in the generation and transmission of power which will give the student such a practical knowledge of the application of steam, electricity and water power to the conduct of business as will enable him to avoid the mistakes in the expenditure of energy and the investment of capital which have so frequently wrecked otherwise promising business enterprises. The course in chemistry is necessary to the study of certain of the materials of commerce mentioned above, as well as useful in a thousand ways which cannot be anticipated.

VI. The above branches of study are required of all students who are candidates for the degree no matter what particular line of business they expect to enter. In addition the plan of the school includes certain groups of courses designed to furnish preparation for particular lines of business. We offer a group of courses preparatory to the consular services, a group of courses preparatory to the banking business, and other groups designed to give students the technical knowledge necessary to engage in commerce in the Orient, in South America and the West Indies, and on the continent of Europe. At Wisconsin we propose to place this new course in commerce on the same level with the other courses in the College of Letters and Science and Engineering. We believe that the educational value of the course will be in no respect inferior to that of any other course given in the university, and in the correlation of the courses and the methods of instruction we expect to keep in mind the fact that the young man who expects to do business on a large scale needs to be educated in the best sense of the term, as well as equipped with the technical knowledge which the prosecution of his business requires.

The Sodatine Mfg. Co. has been incorporated at Philadelphia, to manufacture alkalies and other chemicals. Capital stock, $300,000.

Incorporated at Springfield, Ill.: The People's Soap Co., by B. F. Chase, James M. Proudfit, C. A. Rust; capital, $8,000.
A Paste that will Adhere to Anything.

Prof. Alex. Winchell is credited with the invention of a cement that will stick to anything. Take 2 ounces of clear gum arabic, 1½ ounces of fine starch and ⅛ ounce of white sugar. Pulverize the gum arabic and dissolve it in as much water as the lamadess would use for the quantity of starch indicated. Dissolve the starch and sugar in the gum solution. Then cook the mixture in a vessel suspended in boiling water until the starch becomes clear. The cement should be as thick as tar, and kept so. It can be kept from spoiling by dropping in a lump of gum camphor, or a little oil of cloves or sassafras. This cement is very strong indeed, and will stick perfectly to glazed surfaces, and is good to repair broken rocks, minerals, or fossils. The addition of a small amount of sulphate of aluminum will increase the effectiveness of the paste, besides helping to prevent decomposition.—Journal of Medicine and Science.

Around the Soap Factories.

Burglars made a formal call last month on the safe of the Graham Bros. Soap Co., of Chicago, we hear.

Along the Pacific coast there is a rumor (perhaps a new edition of the old one) that a contract has been let by the Columbia Star Manufacturing Co. for a large mineral soap factory building at Latona, Wash. "The material will be brought from the Blue Mountain mines near Ione, Oregon. The natural deposit there is a powder of very fine silica, clay, lime and free alkali. Chemists pronounce it an excellent detergent and an ideal powder for soap."

The candle factory of the Will & Banner Co., of Syracuse, N.Y., has sustained some damage by fire.

The Greenbaum Perfumery Co. has been incorporated in San Francisco by W. L. Greenbaum, S. L. Ackerman, J. R. Howell, A. Hockwald and C. L. Ackerman. The capital stock is placed at $25,000.

The California Essential Oil Works, San Francisco, have been wrecked by an explosion.

Woodstock, Ga., expects the establishment of a soap factory, according to the Atlanta Constitution.

We would hardly consider our office complete without the American Soap Journal.—Remmers Soap Co.


The Texas cotton seed crushers met at Dallas on the 5th, 6th and 7th ults. in their seventh annual session.

A recent incorporation is the Herb Soap Co., of New York City; capital, $10,000. Directors: C. A. Bode, G. J. Helmer and B. L. Burrows, of New York City.

The Franklin Soap Co. has been incorporated at Cincinnati. Capital stock, $50,000.

Sardine Oil Industry.

How many products are unknown to the majority of people and yet are not unimportant! They may sometimes have unexpected applications. They may also, by utilization of residues, apparently without value, increase the direct remuneration.

Every one is acquainted, at least by name, with the industry of sardines in oil, which is of prime importance on a portion of the French coasts. On the other hand, few are aware of the existence of the industry of oil of sardines. And yet this is closely united to the other, of which it utilizes what might be considered as the wastes of the industry. We do not know whether this is practised in all places where sardines are packed in oil, but it is the case on the Spanish littoral and especially on the coasts of Galicia, where the preparations of sardines constitute the chief occupation of the population adjoining the rivers.

The sardines in oil of that locality do not, perhaps, equal those of Brittany, but they keep up a lively competition and sell, not only in Spain and in the ancient Spanish colonies, but to foreign nations. More than a million kilograms are annually exported. Also, sardines pressed and salted and put up in kegs. It may be asserted that the sardine production was the starting point of the prosperity of Vigo.

The various operations are attended with waste; first, because the head is cut from the fishes before packing, and in the second place, the sardines are pressed after salting and the oil is thus expelled. This oil of sardines, denominated "sain," is mixed with that obtained by a special operation of pressing the heads and exported just as it runs from the presses.

As no precaution is taken to preserve the heads in a fresh condition before treatment, the oil thus obtained possesses an odor "sui generis." Although repugnant, this does not prevent its being eagerly sought for by foreign leather dressers. It also serves after refining, either alone or mixed with linseed oil, in the preparation of colors for cheap painting. In country districts of Spain it is currently employed in house lighting.

This strange oil is exported in barrels of 450 liters and its average price is about 40 francs per 100 kilograms. The export certainly amounts to 300,000 kilograms per year, but has perceptibly diminished since the abrogation of commercial treaties.—La Nature.
New Cotton Oil Rules.

Following are some of the new rules adopted by the Interstate Cotton Seed Crushers' Association:

COTTON SEED OIL MEASUREMENT.

1. A tank (tank cars) of cotton seed oil for contract purposes, shall be 125 barrels. A barrel of oil, if sold loose, is 50 gallons. A gallon of oil is \( \frac{4}{3} \) pounds avoirdupois.

2. Cotton seed oil may be sold either loose or in barrels, as agreed between the seller and buyer. If in barrels, they shall be good new iron bound barrels properly silicated, or thoroughly steamed and cleaned refined petroleum barrels. Packages must be in good shipping order, and contain not less than 48 gallons each, provided that the aggregate of delivery on any sale shall equal 30 gallons for each barrel sold. On delivery of other than above barrels, an allowance of 50 cents per barrel shall be made by seller.

Settlements of contracts for refined cotton oil shall be made on the basis of 53 gallons to the barrel. Packages for refined oil must be good, hardwood iron-bound barrels, new, or thoroughly cleaned refined oil barrels, painted or varnished. They must be delivered in good shipping order, and shall not be under 50 or over 58 gallons each in case of delivery. On delivery of packages other than as above, an allowance not exceeding 50 cents per barrel shall be made by seller.

Cotton seed oil shall be classed and graded as follows:

3. Prime summer yellow must be clear, sweet in flavor and odor, free from water and settlings, and of no deeper color than 35 yellow and 7.1 red, on the Lovibond's equivalent color sale.

The color examination shall be made as follows:

The oil is placed in a pure white 4-ounce sample bottle, the depth of the oil in the bottle shall be 5\( \frac{3}{4} \) inches. The bottle shall be placed in a tintometer, which is protected from any light except reflected white light, and the reading made a temperature of about 70 degrees Fahrenheit. If the oil is of a deeper color than the glass standard, 35 yellow, and 7.1 red, it shall not be prime.

4. Choice summer yellow must be sweet in flavor and odor, of light straw color, clear and brilliant in appearance, free from moisture, and must bleach to a choice white.

5. Good off summer yellow shall be free from water and settlings, and prime in color and off in taste.

Off summer yellow shall be free from water and settlings, off in taste and color, and should be sold by sample.

7. Prime Crude—Crude cottonseed oil to pass as prime must be made from sound decorticated seed, must be sweet in flavor and odor, free from water and settlings, and must produce prime summer yellow grade by the usual refining methods with a loss in weight of not exceeding 9 per cent. Provided, that any oil that refines with a greater loss than 9 per cent., but still makes prime summer yellow grade, shall not be rejected, but shall be reduced in price by a corresponding per cent. of the contract price of the oil.

8. Choice crude must be made from sound decorticated seed; must be sweet in flavor and odor, light in color, free from water and settlings, and test not over 1 per cent. F. F. A.; shall produce, when properly refined, choice summer yellow oil at a loss in weight of not exceeding 6 per cent. for Texas oil, and at a normal loss for oil from all other parts of the country.

11. All sales, unless otherwise agreed upon by buyer and seller, are sold on a basis of 50 per cent. fatty acid, not to fall below 40 per cent. If containing less than 40 per cent. of fatty acid, soap stock shall not be considered merchantable. Delivery to be made in iron-bound hardwood packages or tank cars.

A contract tank car of soap stock shall be 50,000 pounds.

12. All offers, sales or purchases of cottonseed oil (or other cotton seed products) shall be understood, unless specified to the contrary, to be f. o. b. cars at the mill, and on the basis of prime quality. Unless specially stated, oil shall be considered as sold loose, and buyer shall furnish tank cars.

25. All sales of cotton seed products, unless otherwise specified, shall be for cash, payments to be made by resident buyers, on presentation of invoice with railroad ticket signed, or bill of lading attached showing delivery of goods to the carrier in good order.

Any tender of a grade of oil, meal or cake better than the grade sold shall be deemed a good delivery.

26. Payment of non-resident buyers shall be by sight or demand draft, with \( \frac{3}{4} \) of 1 per cent. exchange, with bill of lading attached, showing delivery of goods to the carrier in good order, unless otherwise agreed.

27. When goods are delivered to the carrier as agreed, whether in whole or partial completion of trade, payment for same shall become due, if presented during banking hours, and all risks belong to the buyer.

28. On all sales of cotton seed products to or through regular brokers, the seller shall pay the brokerage, unless otherwise specially agreed.

29. When a trade is closed with or through a broker, it shall be understood that his fee has been earned, whether the goods are finally delivered or not.
provided the failure to deliver arrives from the fault of
the seller.

30. On all trades by telegraph, day messages re-
quiring day answers shall be open until 12 midnight of
the day on which sent. Night messages shall be open
until noon following the night on which sent. The time
when telegrams are filed in telegraph office sending same
to govern, and this rule to apply only when no specific
time is stated in the original offer.

31. Rules governing trades in cotton seed products
are only applicable in the absence of a specific written
contract stating special conditions, but either party to
a trade may demand a formal written or printed con-
tract as soon as the trade is completed. Such contracts
(unless specially excepted) being subject to all the rules
of this association.

32. All trades in cotton seed products shall be
either immediate, prompt or specified dates of delivery.
(1) Immediate shall be within five working days.
(2) Prompt shall be within ten working days.
(3) Specified dates according to contract.
In all cases bill of lading shall be evidence of date of
shipment.

BUYERS' TANKS.

33. In case the buyer furnishes tank cars, ship-
ments of same by buyers shall be as follows:
(1) Immediate shipment, within two days.
(2) Prompt shipment, within five days.
(3) Specified Shipment—Tank cars shall be for-
warded by buyer in such time that, under the ordinary
course of transportation, the tank cars shall reach the
seller in time to allow him to make delivery as per con-
tract. In case the buyer does not furnish tank cars as
specified above, he shall pay the seller $2 per day for
each tank car for every day's delay beyond the expira-
tion of the contract time of shipment. The railroad
records to govern as to time of shipments and time of
deliveries of tank cars, provided that this $2 per day is
a demurrage charge only, and that nothing in this rule
may be taken to limit or interfere with the rights of
cancellation, or limit the measure of damage, under the
contract.

34. If more than one tank car is to be furnished
for the same delivery under one transaction, the first
car only shall be shipped as above, and the balance shall
follow as rapidly as the seller can, with certainty, load
the same.

Seller shall in all cases load cars within forty-eight
hours of arrival at destination.

Seller shall in all cases inspect tank cars and clean
them if necessary, at the expense of the buyer, charging
only actual cost for same.

In case the seller does not load tank cars within
forty-eight hours after their arrival at the mill, he shall
pay the buyer $2 per day for each tank car for every
day's delay beyond the forty-eight hours.

Stove Polish.

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<th>Parts.</th>
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<tr>
<td>Ceresin</td>
<td>............. 12</td>
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<tr>
<td>Japan wax</td>
<td>............. 10</td>
</tr>
<tr>
<td>Turpentine oil</td>
<td>............. 100</td>
</tr>
<tr>
<td>Lampblack</td>
<td>............. 12</td>
</tr>
<tr>
<td>Levigated graphite</td>
<td>............. 10</td>
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Melt the cerasin and wax together, remove from the
fire, and when half cooled stir in the lampblack and
graphite, previously rubbed up with the oil of turpen-
tine. Stir until the mixture is cold.

Metal Polish.

I.

<table>
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<tr>
<th></th>
<th>Parts.</th>
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<tbody>
<tr>
<td>Dried sodium carbonate</td>
<td>............. 5</td>
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<tr>
<td>Soap</td>
<td>............. 20</td>
</tr>
<tr>
<td>Levigated emery</td>
<td>............. 100</td>
</tr>
<tr>
<td>Water</td>
<td>............. 100</td>
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Mix, put on a water bath and heat, under constant
agitation, until a smooth homogenous paste has been
obtained.

II.

Jewellers' rouge.
Petrolatum, equal parts.

III.

<table>
<thead>
<tr>
<th></th>
<th>Parts.</th>
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<tbody>
<tr>
<td>Emery flour</td>
<td>............. 50</td>
</tr>
<tr>
<td>Jewellers' rouge</td>
<td>............. 50</td>
</tr>
<tr>
<td>Mutton suet</td>
<td>............. 40</td>
</tr>
<tr>
<td>Oleic acid</td>
<td>............. 40</td>
</tr>
<tr>
<td>Petrolatum</td>
<td>............. 1</td>
</tr>
</tbody>
</table>

Melt the suet and oleic acid together over a water
bath, and when thoroughly mixed remove from the fire.
When cooled, but still soft, add the powders, and rub
until they are evenly distributed throughout the mass.

Control of Soap Trade.

Consul Skinner, writing from Marseilles, says:
"With the acquisition of the Philippines, the United
States has within itself the elements necessary to con-
control the soap trade of the world—a trade in which Mar-
seilles has been supreme for many years. Experience
has proved that the best soap is the product of either
cocoanut and cotton or peanut oil in about equal quan-
tities. We are now exporting cotton oil to the European
soap trade, and at Marseilles the cocoanut crushing in-
dustry is at present centralized.

"Over 1,250,000 pounds of copra were received
here from foreign countries during the first half of
1900, most of which was from the Philippines. There
is no apparent reason why American capital should not
 crush these nuts in the Philippines and ship the oil to
the United States, thus effecting a great saving of
freight and enabling our manufacturers, who already
have cotton oil at their command, to dominate the
business."
Latest Additions to Our Brand List.

Nugget Aiden Speare's Sons Co., Boston.
Sudsman 289
Lapwing A. Geiselser, Phila.
Listerol Alma F. Wooster, Norwalk, Ohio.
Mission W. J. Harvey, Los Angeles, Cal.
Monad II
King Cole's 321
Major Dome 16
Bocabelli Enos F. Jones Chem. Co., N. Y.
Evangeline 16
King Dodo 130

If you have a second-hand machine for which you have no use, or expect to buy a new one if you can dispose of a smaller one now in use, or any similar need, remember that an advertisement in our "For Sale" column will convey that information to one or more looking for just such opportunity—if there is any use for such apparatus at all.

An Australian subscriber to the Soap Journal, and purchaser of the work "American Soaps," writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file, in black and white.

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A MONTHLY JOURNAL OF THE MANUFACTURING CHEMICAL INDUSTRIES.

DR. HENRY GATHMANN, Publisher.

MILWAUKEE, WIS., August 1, 1901.

Vol. XI. No. 12.

The American Soap Manufacturers’ Association has now been organized for a little over three months and a beginning may, at least, be said to have been made in the direction of its active work. During the time which passed since the original meeting in Chicago in April last, its membership has increased in number well into the sixties, and several meetings have been held.

At these meetings committee reports have been received which augur well for energetic activity in further work for the common interest, and the meetings themselves have been characterized by the greatest harmony among the attending members, so that the association has been fairly and safely launched upon the rather troubled waters of a great industry.

And whatever may happen to it, it does not intend to be becalmed. But the directors believe in making haste slowly, and if it is not yet possible to place the finger upon a given spot to point out an abuse that has been done away with, an evil that has been corrected, it is not from lack of application to the problems involved.

But the existing abuses are numerous; they affect different firms in different degrees and ways; not all members have the same opinions on either the relative badness of the several evils or on the goodness of the remedies proposed; and, perhaps worst of all, there are more firms still outside of the association than there are in it, and their position toward any attempted reform must needs be taken into consideration in formulating decisive and exact plans.

It is evident enough that the discontinuance of useless sacrifices, as will be advocated by the association, would operate to the advantage of non-members as well as of members, to the small as well as the larger factories; if the non-members and small factories adhered to the same business rules to which the association members may pledge themselves. It is equally plain that while, united, the soap manufacturers can benefit themselves and the entire industry very materially, refractory “outsiders” could upset the best plans almost as effectually as could a member of the association who would break his agreements.

The association preceding the present one adopted certain rules which were entirely reasonable and contemplated none of the restrictions that make associations...
unpopular; yet it was only a few months until these rules were broken by certain members of the association themselves. To be more successful in the present instance will require an amount of acumen, foresight and diplomacy which precludes any idea of haste. Where one member desires premiums abolished, another (who perhaps uses them extensively) believes that newspaper and magazine advertising should be retrenched; the large advertiser would like to do away with the “5 boxes with one free box” plan of attracting orders; another would like to see a number of salesmen called off; still another believes in dividing territory, and all these (and other) differences of opinion will require bridging over, adjusting, harmonizing, or whatever the diplomatic word for the process may be. Whatever plans are eventually adopted, they will need to be such as to command themselves sufficiently to all members to secure the strictest adherence to them on the part of each of them. —In addition, in order to make these plans effective, some means must be devised for dealing with those who, seeking to profit from continuing an abuse which the association is endeavoring to overcome, remain outside of the association and, for example, perhaps offer premiums or long credit or whatever the association may seek to correct.

In the meantime the meetings in themselves, through promoting friendly intercourse among competitors, have a decidedly beneficial effect, and are much appreciated for that alone. So let us possess our souls in peace and hope for effective rather than rapid results.

Geo. A. Schmidt of Chicago has just returned from a European trip.

We regret to learn that Mr. Sellmer of the Crystal Soap Co., Milwaukee, is quite ill.

Difficulties in Selling Soap.

As if the soap salesman’s lot were not already scantily strewn with roses, the druggists have united to force some ideas of their own, out of which have grown difficulties that have at last found their way into print. The Eureka Soap Co. has taken up the subject in the Pharmaceutical Era and published several letters on their standpoint, of which the following is the latest:

Cincinnati, U. S. A., July 6, 1901.

To the Editor:—Will you kindly publish the enclosed letter in answer to the letter from Mr. I. N. Heims, which appeared in yours of June 20th. As we feel that Mr. Heims dodged the issue in his letter of June 10th, which was published by you on June 20th, we would like you to publish the statement made below.

We are surprised that Mr. Heims should accuse us of any lack of courtesy and consideration, simply because we did not notify him that we had written a letter for publication in your valued publication. We did not think it necessary to notify Mr. Heims, as we thought that all of the up-to-date retail druggists read The Pharmaceutical Era, and we thought that either Mr. Heims or some of his associates would certainly see this letter of ours, which appeared in your issue of February 7th.

Mr. Heims devotes most of his time to explaining why the Eureka Soap Company should sell Craddock’s Medicated Blue Soap only to the drug trade, but does not give any reason why he declined to give our salesman a card, when this salesman was selling nothing but the Andre Dunois Line of toilet soaps, which line of toilet soaps is sold exclusively to the drug trade. When Mr. Heims refused to give our salesman, selling the Andre Dunois Toilet Soap, a card, he simply forced all of the members of his association to purchase toilet soaps from factories which sell their entire out-put to the general trade and absolutely ignore the drug trade. We would like to know how Mr. Heims expects to benefit the members of his association if he is going to prevent them from purchasing goods which are sold only to the drug trade, when it is impossible for them to buy this same class of goods from any other manufacturers except those selling to all classes of trade.

We do not think it is a question for Mr. Heims or the retail druggists of the United States to decide whether or not the Eureka Soap Company have made a mistake in selling Craddock’s Medicated Blue Soap to the general trade, but we do think it is highly important for the druggists to make up their minds whether they wish to buy a line of toilet soaps which are sold only to the drug trade, or whether they wish to buy the same goods which are sold to all classes of trade.

In conclusion, we will say that we are very anxious to sell the Andre Dunois line to every retail druggist of the United States, but if they prefer buying soaps which are sold to all classes of trade, then we will take our chances with the other manufacturers on our general line of soaps, but we are glad to say that the druggists all over the United States are giving us a liberal share of their patronage, and we believe that sooner or later all of the better class of retail druggists will handle the Andre Dunois Line of toilet soaps exclusively, with the exception of some advertised brands which they will always be forced to carry.

Thanking you for giving this article space, we remain,

Yours very truly,

THE EUREKA SOAP COMPANY.
QUESTION—I want to use an emblem as a trademark which is used by another party in a different line of business. Can I do it without being liable?

MERCHANT.

Reply—The object of a trade-mark is to show who is the manufacturer or producer of the merchandise in connection with which it is used and to prevent others from finding a market for their goods under a mistaken impression on the part of the buyers that they are getting a merchandise produced by the owner of the original trade-mark, and no other person is allowed to sell goods of a similar kind under the same mark. But where the goods are of a totally different character the reason of the rule does not apply. If one dealer sells plows under a certain trade-mark it cannot damage him that another sells cotton cloth under the same trade-mark, and the action of the latter cannot be prevented. It is to be noted, however, that the goods sold by the newcomer not only must not be of the same kind as those originally sold under the same trade-mark, but they must not be goods which might be made by using the others as a raw material. Thus in a case in which the plaintiff had adopted the words “Lone Jack” to designate smoking tobacco made by him, and the defendants had afterwards applied the words to cigarettes, the latter was enjoined from continuing the use upon the ground that it might be taken as a representation that his cigarettes were made of this particular tobacco. If the form, marks, contents, words, or the special arrangement of the same, or the general appearance of the alleged infringer’s device, is such as would be likely to mislead one in the ordinary course of purchasing the goods, and induce him to suppose that he was purchasing the genuine article, then the similarity is such as entitles the injured party to equitable protection. * * But a court of equity will not interfere when ordinary attention by the purchaser of the article would enable him at once to discriminate the one from the other.

In another case the court said: “Two trade-marks are substantially the same in legal contemplation, if the resemblance is such as to deceive an ordinary purchaser giving such attention to the same as such a purchaser usually gives, and to cause him to purchase the one supposing it to be the other.” See 96 U. S., 243, and 14 Wall, 511.—New York Journal of Commerce.

What Are Lubricants?

In your article in April 1 issue on “What are Lubricants?” you say the question has not been very adequately or correctly answered. One word, in our opinion, answers it. A lubricant is a “cooler.” The explanation is not at all involved; on the contrary, quite simple.

First, let us understand that heat tendency is toward radiation; that diffusion of heat is aided by evaporation, humidity, like water, being a good conductor and absorbent of heat. For instance, dip a heated iron in water, and note the evaporation and the rapid diminution of heat. Put a drop of ether upon your hand, and feel it vaporise; feel the cold place, due to the sudden loss of heat by vapourisation. How chilly you are on a warm day in wet clothing, owing to evaporation of the water from your body, and how much warmer the bather is in water than out of it, though the actual temperature of water is lower than the temperature of air. The blacksmith immerses and withdraws the hot iron rapidly, to expedite the cooling.

Let us apply this to the shaft and journal. Friction is antithetical to evaporation. Friction increases in a direct ratio of resistance. Two pieces of iron or steel, running against each other, produce heat rapidly; a piece of steel running against a piece of soft metal, less rapidly; if run in a plastic substance, still less rapidly, and a piece of steel would have to run very rapidly indeed to produce sensible heat in fluid.

The point of evolution of heat is the point or line of metal contact between the shaft and journal. A magnifying glass will reveal this. No matter how fine particled the lubricant—which inert matter or fluid—the point of contact is still there, and will not be cushioned off; hence, the usually-accepted idea of lubrication or cushioning by interposing mobile particles is not wholly true. The points of contact and resultant heat generation are met with their “reagent,” evaporation, and this accounts for the loss of heat, and, at the same time, the loss of oil or other lubricant.

Right here comes the study of lubricants. To be successful as a lubricant, the substance must have the proper density, cohesion, or viscosity, so that its atoms may not be too easily separated, but will constantly surround the point of friction and heat generation, and alloy the heat constantly by evaporation, and the proper fire test or vaporising point, so that it will not evaporate either too rapidly, so as to exhaust itself before its work is done, or too slowly, so as to form a residuum or resisting substance, and so increase the frictional energy, instead of allaying it.

The condition of the bearings; the different metals of which they are composed; the different metal contacts, as steel to brass, or iron to babbit; the weight of the revolving body; the length and diameter of bearing; the rapidity of motion; the direction of motion, whether revolving or traveling to and fro, and many other conditions, call for different constituencies in lubricants; hence, the valve oils, journal oils, dynamo oils, cup greases, car oils, etc., etc., each combining the necessary qualities of varying density, cohesion, volatility, adhesion, and mobility. Oils that have been distilled are
usually the best lubricants where heat is generated rapidly, and residual oils where contact is made under heat other than that induced by friction.

This may not answer the question fully or technically, but it should lead to the proper direction of investigation on the question of lubrication.

The Globe Oil Company, in Oil and Colorman's Journal.

Transparent Glycerine Soap Without Spirits.

The soapboiler is greatly hampered in the use of spirits by excise matters, and any means of avoiding its use is therefore always welcome. Methylated spirits cannot be used, and therefore the soapboiler has to pay the full duty. The following remarks on the manufacture of transparent glycerine soap without spirit will be found to show marked differences from the text books, but they are the outcome of an extensive experience in making it on a large scale. The product can be exposed to 18 deg. of frost without suffering in condition or appearance, provided the change to warm again does not take place too suddenly. In this case, the soap will effloresce. The following is the process:

300 lbs. of white neutral tallow and 370 of good coconut oil are fused together with steam in a clean iron pan. The heating is then stopped, and 380 lbs. of pale castor oil are added. The whole is then treated to 130 deg. F. In the meantime, 540 lbs. of 38 deg. B. caustic soda lye and 50 of warm water have been mixed, and this lye is gradually stirred into the fats as soon as the temperature of 130 deg. has been reached. When all is in, and the mass has set, the pan is heated to boiling. In half-an-hour a clear honey-colored grain lies in the pan and crutching can be resumed. Ninety pounds of crystal soda are now added, and the pan is covered up for a quarter of an hour, after which add a solution of 300 lbs. of refined sugar in 320 of water, and stir well at about 170 deg. F., and then add any cuttings. When all is well cruchted, allow the soap to stand and clear. Then add 750 to 800 lbs. of a sugar-filling composed of:

- Glucose .................................. 89 lbs.
- 90 per cent. carbonate of potash .... 42 lbs.
- Common salt ................................ 38 lbs.
- Water ..................................... 30 gals.

The finished soap must look dark and clear under a very light white froth. If the latter is thick and feltly, water is needed, and will soon put things right. The soap is moulded at about 125 deg. F., and can, of course, be scented and colored at will. Fennel oil, and better, aniseed oil, are to be recommended.—"Seifenfabrikant."

Soap in The Transvaal.

The soap factory at Quelimane, which, we believe, is the only industry of its kind in the Transvaal, is about to be closed. The factory was erected some little time ago for the purpose of supplying the Transvaal with soap. Under the mutual commercial agreement between the Transvaal and the Portuguese colonies, it was possible to undersell other foreign importers, and the factory prospered and helped Quelimane considerably. The outbreak of the war and the depopulation of the Transvaal of its soap-using element, struck the first blow at the industry, and now the introduction of British Custom Tariffs has finished any possibility of the concern being continued in Portuguese territories, on account of the heavy duties placed on all materials used in the manufacture.

Nicaragua and the Soap Trade.—It would seem that there is a growing appreciation of the advantages of soap among the Nicaraguans. In his report to the foreign office the British consul for the republic says at present the most saleable variety is blue mottled, in boxes of 12 or 24 bars, weighing 3 lbs. each, and costing about 15s. 6d. per cwt. Strong boxes are advised for shipment, so that they can stand the rough handling of transhipment. The consul says, "Too much care cannot be taken in carrying out shipping instructions, and consular invoices and bills of lading in duplicate must be sent with all goods shipped in Nicaragua; should there be any doubt or omission of instruction from client as to declaration of a certain article, it would be best to consult with the resident Nicaraguan consul to avoid mistakes which may cause the importer ten times as much trouble and expense as the article is worth."

Supperfatted Soap.

For the manufacture of superfatted medicinal soaps, de Groot (Pharm. Weekblad) recommends the addition to olive oil of a little less potash lye than is actually required for its saponification and to shake the mixture in the cold until a stiff soap is formed, which is allowed to stand at rest for several days, when it will be found perfectly neutral, so that a solution of 1.5 of cold strong alcohol is not colored red by phenol-phthalein. De Groot used of 65 parts of olive oil and 25 parts of a 42 per cent. potash lye. The cold-prepared watery solution of the soap thus produced is opalescent, but becomes clear on the addition of some strong alcohol or of a few drops of potash lye. On the addition of some lard or fat and of the required quantity of soap medicaments, solid superfatted soaps result, to which the customary druge can be easily added.
Foreign Soap in Italy.

The British Consul says that soap is chiefly imported from France, Germany, Belgium, and the United Kingdom. The quantity imported from the three first countries mentioned above has been regularly increasing. British soap is considered here as quite an article of luxury both on account of its excellent quality and high price,rendered still higher by a duty of about £2 sterling per quintal (220 lbs.). The majority of consumers are compelled to have recourse to the cheaper brands, and hence the decrease in so far as the British article is concerned.

Manufacture of Fatty Acids and Glycerine.

Following is the process carried out in a French factory, which produces 24 cwt. of glycerine per day from about 15 tons of fat. Most of the apparatus is constructed of copper, as iron is rapidly destroyed by the fatty acids, and the work goes on night and day. The capital employed is about $15,000. The whole process may be divided into six stages, as follows:

1. Melting of the fat.
2. Decomposition of the fat.
3. Separation of the glycerine water from the fatty acids.
4. Saponification and precipitation of fatty acid, retained by the glycerine.
5. Purification of the glycerine from acid and other impurities.
6. Concentration of the glycerine to 28 deg. B.

The fat is heated by means of steam and pumped into digesters, where it is saponified with lime or magnesia by the aid of high pressure steam. The saponification takes eight to ten hours. When it is finished, the mass is run into settling tanks where the soap is decomposed by sulphuric acid and left to stand for about six hours. In that time the fatty acids have risen to the top, and a clear solution of glycerine and other things support them. If lime has been used, there is, of course, a precipitate of sulphate of lime on the bottom of the vat. The glycerine solution is then run off and purified from the fatty acid it contains by saponifying with lime. It is then neutralised and left to stand for 12-14 hours for the lime soap to settle to the bottom, together with any dirt that may be present. The resulting glycerine is then evaporated, that operation being controlled by observations of the increasing specific gravity. This regulation must be most carefully done, as the heating must be suspended the moment the correct gravity of 1.2 is reached, to prevent undue loss of glycerine. The glycerine is then tested for purity by incinerating a small quantity of it in a platinum crucible, when it should leave practically no ash whatever, and is then transferred to the drums.

The fatty acids are used for soap-making, and in doing so it is essential that the whole of the lye necessary for the saponification should be put into the pan first. The use of fatty acids instead of fats is increasing, as soap manufacturers are finding out that immense economy in time and fuel are thereby secured.

Halphen's Test For Cottonseed Oil.

Twenty-five samples of olive oil, bought in open market, were examined by E. M. Mason, for the presence of cottonseed oil. The tests applied were Halphen's Becchi's and the nitric acid test. In the main, the three tests gave concordant results, but Halphen's is by far the most satisfactory. By it cottonseed oil can easily be detected when it is difficult or impossible to detect it by either of the other tests.

Halphen's test was carried out as follows: Equal volumes (about 2 cc.) each of the oil to be tested, amyl alcohol and a one or two per cent. solution of sulphur in carbon disulphide were placed in a small Erlenmeyer flask, which was connected with an upright condenser, and heated on a water bath. The length of time of heating required depends upon the quantity of cottonseed oil present. An oil containing 1 per cent. of cottonseed oil gave a faint red color after heating one hour, and on standing several weeks the color deepened. Usually 15 to 20 minutes is sufficient. If much cottonseed oil be present a bright red color will then appear.

It is not probable that this test could be made quantitative by comparing the different shades of color produced by oils of known per cent. of cottonseed oil, for the reason that oils containing a considerable amount of cottonseed oil give about the same depth of color as cottonseed oil itself.

Halphen's test is said to be of no value if the cottonseed oil to be tested has been previously heated to 245° C., but the same is true of Becchi's test.

Halphen claims that no other fixed oil will respond to the test; we have applied it to several oils, and have not obtained the red color with any but cottonseed oil. We hope this will be made an official test for the detection of cottonseed oil in any fixed oil, with perhaps one exception; i. e., lard oil. We except this because of the claim that the test is so delicate that lard and lard oil and tallow obtained from animals which have been fed upon cottonseed meal will respond to the test.

Of the twenty-five samples examined, fifteen responded to Halphen's test, but did not all respond to the other tests. Three gave with this test about as much color as pure cottonseed oil itself. Most of the fifteen gave a decided red color after heating 15 to 20 minutes.
Two gave a decided red color after heating 45 minutes, one after heating one hour, and one after heating an hour and a half.

Other oils examined were, one sample each of peanut oil, rape seed oil and poppy seed oil, all three samples from a wholesale house. The first two gave a decidedly red color and undoubtedly contained large quantities of cotton-seed oil.—Pharmaceutical Era Laboratory Notes.

**Determination of Melting Points.**

BY THOMAS TYER, F. L. C., AND ALBERT LEVY.

The melting points of menthol and thymol were compared with the P. B. requirements by—

(1) Mills’ method, the chief feature of which is a glass funnel inverted in the bath, having openings at its edge causing very regular convection in the liquid and a very steady rise in the thermometer.

(2) Method of Kuharraz and Chikiaskige, in which instead of a capillary-tube, halved microscopical cover glasses are used, between which the substance is introduced in fine powder. A very thin layer is then obtained, and the surface is large compared to the amount of substance taken.

(3) Vanderver’s method, in which the reflection in a mirror of the stain produced on absorbent paper by the melting substance is observed.

(4) The acoustical method: This method obviates a fault found in the ordinary electric bell method, viz., the fact that high results are obtained, as, although apparent electrical contact is made, the bell does not ring, owing to incipient electrolysis of the substance under examination. The apparatus consists of a small battery, a Ruhmkorff coil and a telephone, and a Chrystomanus melting beaker.

The sketches describing the various details of the apparatus will appear in the Year-book.

We found that only dried and purified menthol agrees with the requirements of the P. B. The requirements of the German Pharmacopoeia are more stringent, and can only be met by a pure article having brittle crystals, and a melting point of 43°. The wide limits of P. B. for thymol makes the melting point of the commercial, dried and purified, product agree.

Before answering the question as to which of all known methods of taking melting points is the best and most practicable, it must first be decided as to which of the following four temperatures should be regarded as the true melting point:—

(1) The temperature at which liquefaction commences, which is usually considered as the melting point on the continent.

(2) The temperature when the whole of the substance is in a liquid state.

(3) The temperature which is adopted by the B. P., namely, that temperature when the resolidified substance becomes liquid again.

(4) The temperature of resolidification.

Some of the apparatus, of which at least 20 are published, are employed for one or other of these temperatures. Some of these methods are very ingenious, and we trust to continue this investigation on pharmaceutical melting points in a future paper, repeating our previous methods in comparison with a number of fresh methods, some of which have points which recommend their consideration. It is obvious that no single method is applicable to all pharmaceutical substances; it will, therefore, be our aim to determine which methods are most applicable to various substances.

**Ozokerite, or Mineral Wax, in Austria.**

Ozokerite, or mineral wax, is a resinsous substance in many respects resembling beeswax. It is found in Austria-Hungary, Russia, Roumania, Egypt, Algeria, Canada, and Mexico, usually in connection with rock salt and coal; but, so far, it has not been discovered anywhere in sufficient quantities to pay for the mining except in the district of Boryslaw, in the Austrian province of Galicia, and to a limited extent at Tchelekan, an island on the west coast of the Caspian Sea.

**Mines at Boryslaw.**

The existence of mineral wax in the petroleum district of Boryslaw was known about a century ago, but for more than fifty years it was turned to no account. In 1856, one R. Dons, a merchant of Lemberg, opened a mine with a view to utilizing ozokerite for illuminating purposes. He also invented a lamp adapted to the employment of this combustible and had it patented. The successful working of his mine attracted the attention of a large number of speculators, who proceeded to buy from the poor peasants small tracts of land known to contain deposits of the coveted material, and to sink shafts upon their holdings, until in 1865 there were around Boryslaw, on an area of only 63 square miles, no less than 11,000 ozokerite pits, varying in depth from 25 to 170 feet. Want of working surface and bad management in time compelled by far the larger number of mine owners to discontinue operations, and those who have not been weeded out under the operation of the inexorable law of the survival of the fittest now seem to do a moderately lucrative business. An attempt has recently been made to form an ozokerite trust, uniting under one ownership or management all the existing mines and mineral leases of lands known or supposed to contain deposits of fossil wax; but owing to the obstinacy of the owners of some smaller tracts, the promoters of the would-be trust are still kept busy trying to reconcile conflicting interests.
HOW OZOKERITE IS MINED.

Mining operations are commenced by sinking a shaft and connecting it by galleries with the beds or “nests” containing the wax.

Sometimes it happens when a nest is being opened that the enormous pressure of the gases shut up in the same causes the soft mass of wax to be forced out with great vehemence. Such occurrences greatly imperil the lives of the miners, who are compelled to flee to some higher part of the shaft for safety. In some cases the pressure is so powerful that even the deepest shafts are filled with wax up to the surface. Previous to 1884 the average yearly deaths from such accidents were 9 per 1,000. In recent years, however, measures have been taken by the government to protect the miners’ lives.

An official investigation made in 1893 showed that during the previous year the ozokerite beds of Galicia covered an area of 956,885 square meters (1,142,898 square yards), and that there were 42 different mining concerns, employing 3,133 operatives. The output in that year was 77,586 quintals (17,068,920 lbs.).

THE CLEANING PROCESS.

Mineral wax is never found in a pure state, and such of the crude material as is intended for export is usually freed from foreign matter (earth, small stones, etc.) near the mines. It is for this purpose put into tanks which are heated either by a direct fire or by steam. In the former case the furnace must be so arranged that the flames strike the sides as well as the bottom of the tank, for otherwise the wax would overheat, and this would cause partial distillation to take place.

At all the larger works steam is now used for this process. In the beginning the steam must have the degree of heat necessary to melt the wax. Subsequently only sufficient heat need be maintained to keep the mass in a liquid state. This is continued until all earthy and other foreign matter has settled to the bottom. The wax is then decanted into iron congealing vessels, having the form of a truncated cone. These vessels are whitewashed on the inside to prevent the adhesion of the congealed blocks of wax. The blocks obtained are generally from 15 to 25 inches high, have a diameter of from 30 to 36 inches, and weigh from 650 to 850 pounds.

THE MELTING POINT OF OZOKERITE.

The melting point of ozokerite is from 136° up to 212° F. Blocks of the latter high degree of fusibility, however, are seldom found. The average melting point of the better qualities is from 140° to 168°. If the wax is fusible at a lower temperature than 136°, one may take it for granted that it has been adulterated with other substances.

ANALYSIS OF OZOKERITE.

The following is the analysis of one of the better qualities of unadulterated Borysław ozokerite:—

<table>
<thead>
<tr>
<th>Substance</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>0.33</td>
</tr>
<tr>
<td>Naphtha</td>
<td>5.67</td>
</tr>
<tr>
<td>Petroleum</td>
<td>3.67</td>
</tr>
<tr>
<td>Crystallizable paraffin</td>
<td>82.33</td>
</tr>
<tr>
<td>Other substances, residue, and loss</td>
<td>8</td>
</tr>
</tbody>
</table>

Total ................................ 100

THE MANUFACTURE OF CERESIN.

By far the larger portion of the raw ozokerite consumed in Austria is manufactured into ceresin. There are in this country about twenty refineries, and it is doubtful if the processes employed by any two of them are identical. In most of the refining works, the wax is mixed with from 6 to 10 per cent. of sulphuric acid, heated and filtered through bone, charcoal or spodium. This gives it a light-yellow color. It is then again treated with sulphuric acid, and finally with caustic soda, until every per cent. of the acid is eliminated. Fairly successful experiments have also been made to avoid the use of sulphuric acid and substitute benzole, in which case the solvent must be eliminated by distillation.

In the filtering process referred to, coal of the size of small grain is placed between two sieves, which are inserted in each filter. A number of filters are placed together in a frame and sufficiently heated by direct steam to keep the wax in a liquid state. Whenever the coal has lost its efficacy as a blanching agent, it can, by proper treatment, be resusitated, or rendered again fit for use.

After the mass has been sufficiently blanched, it is decanted into funnels provided with papers filters, and having also a contrivance for being heated during the filtering process.

SHOEMAKERS’ WAX AND PARAFFIN.

I understand that a not inconsiderable quantity of ozokerite is also consumed in Austria in the manufacture of shoemakers’ wax and paraffin, one being the by-product of the other. This industry, however, appears to be entirely confined to Vienna.

USES OF CERESIN.

It is almost impossible to enumerate the many and constantly increasing uses of ceresin. It is mixed with beeswax in the manufacture of wax candles, for it not only increases the fusibility of the beeswax, but also renders the candles much whiter. It is also employed in the manufacture of phonographic cylinders, in modeling, in galvano-plastic printing, and in other arts. The residues are worked up in the manufacture of telegraphic cable wax, shoe polish, and the like.

EXPORTS OF CRUDE OZOKERITE.

In the year 1899—no later figures are available—there were exported from Austria 54,413 quintals (11,970,860 lbs.) of ozokerite, valued at 2,149,000 florins.
($872,494), of which 68 2-3 per cent., or 37,367 quintals (8,290,740 lbs.), went to Germany.

The remainder was sent to France, Great Britain and other countries. The quantity exported to the United States was 23,368 lbs. in 1898 and 22,320 lbs. in 1899.

The following table gives the quantities and values of crude ozokerite exported during the five years preceding 1899:

<table>
<thead>
<tr>
<th>Year</th>
<th>Quintals</th>
<th>Pounds</th>
<th>Florins</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1894</td>
<td>51,684</td>
<td>11,357,830</td>
<td>1,433,678</td>
<td>$582,073</td>
</tr>
<tr>
<td>1895</td>
<td>50,539</td>
<td>11,441,828</td>
<td>1,493,942</td>
<td>606,540</td>
</tr>
<tr>
<td>1896</td>
<td>57,215</td>
<td>12,616,619</td>
<td>1,916,703</td>
<td>778,172</td>
</tr>
<tr>
<td>1897</td>
<td>51,525</td>
<td>11,359,291</td>
<td>1,906,425</td>
<td>774,008</td>
</tr>
<tr>
<td>1898</td>
<td>41,621</td>
<td>9,816,620</td>
<td>1,740,219</td>
<td>706,429</td>
</tr>
</tbody>
</table>

*1 florin = 40.06 cents.

**Exports of Refined Ozokerite.**

There were exported from Austria in 1899 11,210 quintals (2,466,200 lbs.) of refined ozokerite, valued at 588,500 florins ($238,931). For several years the exports of the refined product have been decreasing, so the following table will show:

<table>
<thead>
<tr>
<th>Year</th>
<th>Quintals</th>
<th>Pounds</th>
<th>Florins</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1894</td>
<td>36,130</td>
<td>7,949,720</td>
<td>1,586,086</td>
<td>$643,951</td>
</tr>
<tr>
<td>1895</td>
<td>23,822</td>
<td>5,249,840</td>
<td>1,026,091</td>
<td>416,829</td>
</tr>
<tr>
<td>1896</td>
<td>23,552</td>
<td>5,181,440</td>
<td>1,059,540</td>
<td>430,295</td>
</tr>
<tr>
<td>1897</td>
<td>13,565</td>
<td>2,927,100</td>
<td>545,505</td>
<td>231,475</td>
</tr>
<tr>
<td>1898</td>
<td>14,224</td>
<td>3,129,280</td>
<td>611,632</td>
<td>248,322</td>
</tr>
<tr>
<td>1899</td>
<td>11,310</td>
<td>2,466,200</td>
<td>588,500</td>
<td>238,931</td>
</tr>
</tbody>
</table>

While, as has already been indicated, statistical data are not available for 1900, I gather from the statements of local dealers and refiners that last year's total exports did not materially differ in quantity from those of 1899.

The shipments to the United States are insignificant, never having exceeded in value $5,000 in any one year.

---Report by U. S. Consul E. W. Hossfeld.

**Glove Cleaning Paste.**

There are a number of these soap mixtures now upon the market, which is some evidence that the things sell. Through all of them purport to be made from quillalai bark, we have not yet found any that consisted of anything other than white soap, with a scent-swell of quillalai in some of them. There is a recipe for this article that has been copied and reprinted into nearly every book of recipes published during the past fifteen years that is utterly useless. It looks very good on paper, but it will not work in practice. We (oils, colors and dry-salteries) have made several tries, but it has always caused the soap to granulate, and no doubt other makers have found this happen as well. On one occasion we used pure curd soap, and when it went this way again, put this down to the soap being adulterated with paraffin wax, which is unsaponifiable, as many people know, though it will emulsify when mixed with borax or soap.

We quote this worthless formula that others may keep clear of attempting to make the impossible:

- 25 parts soap in shavings.
- 18 " water.
- 17 " chloride of soda.
- 1 " solution of ammonia.

**Method.**—Make into a paste by boiling the soap and soda in the water, then add ammonia. The founder of a well-known firm of packers and manufacturers of sundries—London Pure Drug Company—employed this following formula successfully:

- 7 gall. water.
- 22 lbs. cocoanut fat.
- 4 ½ " caustic soda.
- 3 ¼ fl. oz. oil of lavender.

**Method.**—Dissolve caustic soda in the water in a pan, then add the fat, boiling until saponified, and continue steadily, heating until pasty. Add the scent on cooling, stirring in thoroughly. Then fill into tins. Apply with a sponge or flannel. We here present a new line for the above purpose, a—

**Diy Glove Cleaner.**

- 30 lbs. powdered cream of tartar.
- 10 " " quillalai bark.
- 6 " " whiting.
- 3 ¼ fl. oz. Russian leather scent.

**Method.**—Mix 1/2 w. 7. To use, apply with a damp flannel or sponge, we ring the dirty glove upon the hand, or put it upon a wooden glove hand, and leave to dry.

**Splendid Mode of Advertising.**

In order to obtain the necessary funds to carry out his project, Mr. Bennier, the leader of the Canadian Polar Expedition, announced that every subscriber of $100 towards the expenses of the expedition will be entitled to have a flag mounted at the farthest point north reached by the expedition. What a splendid opportunity this will afford enterprising soap firms for advertising their particular specialties! It is not yet known for certain whether the articles usually stocked by the oil and colourmen are used by ice-bound inhabitants of the North Pole. If not, their manufacturers may have an opportunity through Mr. Bennier of opening up connections. These manufacturers should not all speak at once, as Mr. Bennier is already besieged with offers of $100 by people in comfortable circumstances of no particular fame in the world, who are anxious to see their name for once in cold print. Some energetic advertisers may consider it cheap at $100 to have an advertising flag proclaiming the superior virtues of their soaps, or it may be paints, planted as near the North Pole as the weather—and the natives—will permit.---Exchange.
Soapsuds Dessert.

The tribes on the coast of British Columbia hold a festival in the autumn, the crowning item of which is the partaking of a few spoonfuls of a bowl of soapsuds.

They gather in the dingy hats, which are hung with the staple food—dried salmon. For light they stick into the ground, head downward, a silvery fish about five inches long, set fire to the tail, and they have a torch, for the fish burns steadily.

After eating of various unsavory foods there comes the great treat. This is a bowl of a frothy, soapy mixture, obtained by crushing in a not overclean manner the sapoliti, or soap berries, and squeezing out the juice. This is as much like soapsuds as it is possible to conceive. The natives sip it from spoons of black wood, neatly carved, of which they think a great deal.

Yellow Beeswax.

There is probably not another article of commerce that needs to be so carefully watched as beeswax. Not so much from the druggist’s point of view as from the fact that this article is used in a number of processes, common in the arts, where the presence of a little foreign matter, such as tallow, would entirely vitiate the results.

It is very common to find beeswax containing a small percentage of stearic acid, undoubtedly coming from tallow or similar products which had accidentally found their way into the beeswax.

The process generally employed for the purpose of rendering beeswax of a more attractive color, is to treat the crude wax with dilute sulphuric acid. As is well known, sulphuric acid, even of considerable dilution, has a saponifying action upon such products as tallow, converting or decomposing them into their respective acids and glycerine. Stearic acid, being insoluble in water, of course forms part and parcel of the beeswax, while the glycerine which has been formed is washed out in the aqueous acid solution.

Beeswax containing free stearic acid always gives an abnormally high acid number, while the ether number may or may not be below the normal. If, however, the sulphuric acid does not perceptibly act upon an impurity like tallow, saponifying it, the acid number will be low while the saponification number will be increased.

The method usually employed for the purpose of detecting stearic acid, is to boil one gram of the beeswax under consideration, with 10 cc. of 80 per cent. alcohol, for five minutes, cool to about 18 or 20 degrees C., filter and dilute the filtrate liberally with water. If stearic acid is present, there will be a copious flocculent precipitate formed, while in the absence of this impurity no more than a slight opalescence is the result.

The specific gravity also is seldom up to what is considered normal; that is, 0.96 at 15 degrees C. It almost invariably falls slightly below this figure.

The above remarks are applicable in the main to yellow beeswax. When white beeswax comes up for consideration, we have to make liberal allowances for the possible disturbance of the usually normal data of yellow beeswax, due to the action of the various bleaching agents employed to destroy the coloring matter.—Lyman F. Kehler in Pharm. Era.

Antiseptic Soap.

The asepsis of the hands is a prime condition of success in surgical operations. Hence, at the beginning, the operator cleanses his hands thoroughly and uses soapy friction, brushing the nails and applying concentrated solutions of permanganate sublimate, or other substances.

Each has his preferences, but all subject themselves to minute precautions to assure perfect disinfection. Some push their caution so far as to operate only with the hand enclosed in a rubber glove, perfectly disinfected.

In ordinary life such scrupulous care is not necessary. In surgery it must be strict; the success of the operation is involved. Inoculation of germs may give rise to serious complications, and the cleanliness of the hands should be secured by everyone, whenever putrescible matter has been touched, or the sick, affected with contagious diseases, have been approached. In such cases we must act somewhat like surgeons, and remove every trace of microbial existence.

For this purpose so-called antiseptic soaps have been prepared, some of which contain sublimate, others carbolic acid, lye, or similar products. Washing the hands with these is considered a guarantee of disinfection. There is no ground for this belief, or, at least, the addition of these microbicidal substances does not add much to the antiseptic value of the soap itself.

The soap is a salt of fatty acids, and of itself has an antiseptic value.

The soluble part has this property. This fact may be demonstrated by using a solution of soap before or after filtration. Now the antiseptic agents, at least a large number of them, diminish this solubility, and thus lessen the antiseptic value of the soap.

To ascertain the truth of these assertions completely, M. Coremus, physician at Andulecht, has made some experiments which appear conclusive. He experimented on soaps with sublimate of 2 per cent., and with formal of 10 per cent. By heating in soapy solutions of ordinary and antiseptic soap, cultures of the staphylococcus, the coli-bacillus, and the bacillus of anthrax, he ascertained, under trial from fifteen to twenty min-
utes, that there was not the slightest difference in mic- 
robicidal value between the ordinary and the antisepti- 
soaps.

Another experiment disposed of the hypothesis that 
the disinfecting action was weakened by solution. M. 
Coremus infected the shaved skin of a rabbit with 
microbian cultures, and then he washed the parts with 
the different soaps. The results were the same.

Thus the antiseptic soaps are of little or no value, 
and should not be used if there is serious need of dis-
fection. A good, hard, white soap in concentrated solu-
tion in warm water (30° or 40° C.) will furnish much 
greater security. This would not be sufficient for a 
surgeon, but it would suffice for ordinary purposes.—"La 
Nature."

Annual Trade Dinner.

On Saturday the 22nd ulto. Messrs. Edward Cook & Co. Ltd., the well known soap specialists, entertained 
their staff, agents and travelers (about 100 strong) at 
The Holborn Restaurant, where dinner was served in 
the "Throne" room (which is, by the way, a most ap-
propriate name for the room in which to dine the 
gentlemen engaged in the manufacture and sale of 
the dainty and fashionable "Throne" toilet soap).

William Cook, Esq., presided and was supported by 
S. Hall, Esq., T. Alex. Cook, Esq., E. Miall Cook, Esq., 
S. Godfrey Hall, Esq., W. Martyn Cook, Esq., and E. 
Leonard Cook, Esq.

After the dinner—which was served in the most 
creditable manner—had been discussed, and the loyal 
toasts had been duly and musically honored, the chair-
man proposed "The Offices and Works," and in the 
course of his felicitous and cheerful remarks spoke of 
the happy manner in which the year’s work had been 
carried out both in the offices and in the factory. Great 
alterations had been made in the works; part, which had 
unfortunately been burnt down, had been rebuilt in 
the most up-to-date style and fitted with the latest and most 
scientific machinery, and new offices, laboratory and 
stock rooms were in course of construction. "There 
was" he said, "a bond of union and good comradeship 
in the offices and works which was most pleasant to see. 
The directors had ever striven to encourage this feeling 
and it was a source of great pleasure to them to see the 
"different departments working together with one aim 
"and one object—the success of the company."—He 
welcomed them all!—heartily welcomed them to the 
meeting and trusted that at their next annual dinner 
they would have to chronicle a record year of unquali-
ified success. (Cheers).

After the toast had been responded to by Mr. H. Att-
well (office) and S. Godfrey Hall, Esq. (works), Mr. T. 
Alex. Cook proposed "The Travellers and Agents," and 
thanked them heartily for the push, the ability and the 
thoroughness they had shown in the last year’s work. 
The directors had confidence in their representatives 
and they felt—they knew—that their representatives 
had confidence in the company, and knew that when 
they were selling "Cook’s Soap" they were selling a good 
article, and one that would gain them the respect and 
confidence of their customers. Mr. Cook then spoke of 
the way Cook’s “Lightening Cleanser” soap was growing 
in popularity. The large sales lately had made it neces-
sary to make new and extensive arrangements to cope 
with the trade. This was a matter for congratulation, 
and he did heartily congratulate all concerned in its su-
cess. (Great cheering) The great increase in the sale 
of toilet soaps was also a matter for congratulation. The 
"Riviera" and the "Throne" toilet soaps with many oth-
ers of Cook’s specialties had become household words 
(cheers), and a bright and splendid future was before 
them.

Mr. W. Waller and Mr. R. Somerville responded, and 
Mr. Edward Hughes then proposed "The Company," 
which toast was responded to by Samuel Hall, Esq.

Other toasts were "The Luncheon and Cricket Clubs" 
proposed by W. Martyn Cook, Esq., and responded to by 
Mr. F. E. Blair and Mr. H. Tinkham, and "The Visi-
tors" by E. Miall Cook, Esq., and responded to by E. 
Harvey Cook, Esq.

During the evening a very pleasant program of mu-
sic, both instrumental and vocal was provided by Messrs. 
G. A. Briance, H. Attwell, B. Theobald, D. E. Challen, 
Tom Burgess, W. E. Booth, F. E. Blair and E. J. Austin, 
and the hearty singing of "God Save the King" brought 
a most delightful meeting to a close.

A New Indicator in Acidimetry.

J. Wolff (Chem. Ztg.) brings forward, as a new 
indicator in acidimetry, and as especially valuable 
in boric acid determinations, a solution of iron salicylate 
in sodium salicylate. The product of this mixture ap-
pears to be a double salicylate of iron and sodium, but 
has not yet been obtained in crystalline form. It is 
very sensitive toward the alkalis, sulphur, nitric acid, 
hydrobromic, hydroiodic and hydrochloric acids, and, in 
general, yield a violet reaction in acid and an orange-
red in alkaline media. In boric titrations the borax 
is dissolved in water, and to each aliquot portion is added 
an excess or decinormal sulphuric acid, and also to the 
indicator. Normal soda solution is then added to neu-
tralization, or until an orange-red precipitate is thrown 
down. Glycerin is then added, as usual, and titred with 
phenolphthalein, the boric acid and normal soda 
solution. The greatest possible error is not quite one-
half of 1 per cent.
Making Fine Toilet Soap.

The preparation of “milled” soaps is probably a very old art, if one simply looks at the fact that they are soaps which are mechanically treated after making, but there is a great difference between the simple primitive methods that were formerly in use, and those used in the present day, which by aid of suitable machinery have been improved and perfected to an extraordinary extent. An excellent quality of these soaps has long been made, and this high standard must in the future be maintained. The elegant, fine appearance, good color and odor, which are so very important in all toilet soaps, and still more so in the milled soaps, are due to the high degree of perfection attained in this branch of the soap manufacture. The uniformity and brilliancy which we admire in the milled soap of the best makers cannot be obtained without the aid of machinery.

Why toilet soaps are made by the tedious milling process, instead of using the old English method of re-melting and perfuming curd soap, or by the modern cold process, is probably not definitely known. A neutral re-melted and perfumed soap, such as can be made by the English process, is just as emollient to the most delicate skins as a milled soap. There is one thing to note, the fine delicate odor of flowers for which these soaps are so much esteemed is always lost when the perfume is added to a re-melted soap which is still warm, and so far the milled soap has the advantage. It is difficult in re-melted soaps to obtain the delicate odors possible and characteristic of the milled soap; only strong perfumes which are not altered by heat can be used; those which are partially changed or even totally destroyed are not available. But there is this difference, e.g., oil of caraway, oil of lavender, oil of rosemary, oil of thyme, oil of cassia, oil of citronella, etc., can bear a much higher temperature, and on account of their low price can be used in much larger quantity than otto of roses, ylang, neroli, and others which are expensive.

For this reason it would be a very costly undertaking to perfume re-melted toilet soap with one of the last named perfumes, or any other fine and expensive perfume, because the value of the finished soap would be in no relation to the quantity of perfume required. The so-called cold process soaps have one other defect which is no less important, they are caustic alkaline, a feature always observable in these soaps. For no matter how carefully such a soap is made, whether it is made from cocoanut oil or from tallow, it will contain traces of uncombined alkali, even if no excess of caustic alkali was used in the first instance. This is disagreeably felt by those persons who have a delicate skin, on account of the burning sensation and eruptions which it produces.

Some people, of course, are provided by nature with a skin which does not allow them to detect any difference between a neutral and an alkaline soap; they might wash with soft soap without feeling any effects. But not every skin will bear such ill-treatment.

The preparation of milled soaps, as it was originally practiced, and is still conducted by some small makers, is very simple. The first requirement is a fine white neutral curd soap, which is probably best made with some cocoanut oil and tallow specially refined for this purpose. This stock soap, after being properly dried, is cut by means of a large plane into strips, which fall into a box placed beneath the plane.

Then, if the color permits, a few strips of a nice well-boiled, clear, rosin soap are added. This is not done for the sake of reducing the cost of the soap, for that is of no importance in this case, but for the following reasons: First, the whole mass combines better when the rosin soap strips are added, because it becomes more supple and can be more easily kneaded with the hands. Secondly, and this is an important factor in milled soaps, it becomes more durable, for, as everyone knows, a rosin curd soap will keep for an unlimited time without becoming rancid. In this case it imparts its keeping property to the whole soap. Of course, the addition of rosin soap has to be kept within certain limits, chiefly in order to fully develop the odor of the perfumes, and not allow that of rosin to predominate. After the stock soap has been prepared in this way, the strips are mixed with the necessary coloring matter and perfume.

In the old days of hand working, the soap mass which was thus produced was next pounded with a wooden pestle in a porcelain mortar. In case of necessity, a small, clean, iron or tinned kettle was used. This, of course, was hard work, not to be compared with the easy and convenient labor on a milling machine of the present day. While thus working the soap, a sample was taken out from time to time, to see whether it could be worked between the fingers. If this was not the case, the mass was moistened with a little water, and well worked until it reached the state of homogeneity required for moulding. After the whole mass had been sufficiently wrought, so as to thoroughly incorporate all color and perfume, it was formed into balls by the hands. These were made of a given weight, and were shaped as near as possible like the die, by striking on a marble slab. The pieces were then placed on frames for several days to dry; and when completely dry they were finally pressed or stamped.

The soaps prepared in this way keep for years, but the method is not adapted for the manufacture of large quantities.

The first machines used in this trade were made in France, from whence they came to England. Without entering upon a description of the machinery, we may now consider the production of the stock soap and the operation of milling. They can be hardly any doubt
but that the whole success of milling depends upon the quality of the stock soap. The stock soap may be said to be the basis of the whole matter. If the stock soap is not well made, fine soaps cannot be prepared, because improvements are out of the question when the principal constituent does not fully answer to the requirements. The soap should not be short and brittle, neither should it be spongy or foamy. It must be of a pure white color, or at most only a faint cream color, and supple but still tough, to make a good material for milling.

Further, and this is most important, it must be durable, that is to say it must not turn rancid, even if kept for years.

What soap could be better adapted for this purpose than a clear boiled tallow curd soap, to which some coconuoil has been added, to produce a better lather?

It is impossible to use old rancid and dirty tallow for this purpose, only the best and finest material that can be produced should be employed. A fine, white, freshly rendered tallow will give a fine soap stock if carefully and cleanly treated in the boiling operations.

According to the following method there may always be obtained a beautiful white and durable stock soap. In the first place add 20 pounds of Cochin coconuoil to reach 212 pounds of pure tallow, place the mixture into a kettle and start a slow current of steam through it. At the same time add some caustic lye, 10 deg. Tw., and allow the whole to combine.

After combination has taken place, continue with the addition of lye of 29 deg. Tw. until the soap boils to a clear paste, forming but little froth. When testing with the paddle it should remain clear until it solidifies, and on running off it should form threads. It is then allowed to boil a little longer and be well salted out, so that the soap changes in dark large plates. The kettle is then covered and allowed to rest for several hours, or over night. In the meantime place sufficient lye of 10 deg. Tw. into another kettle and enough salt is added to keep the soap open and prevent the formation of paste. The steam is turned on until the lye is heated to boiling. Then the salted soap is added to the hot lye and left to boil quietly with a little steam, the kettle being kept half covered. The soap now begins to throw up a froth, which is quite thick at first. By continued quiet boiling it becomes lighter, forming large bubbles, while the grain becomes more compact.

Finally the froth disappears, and the soap forms a larger grain. The soap is again left at rest, while into the first kettle, which has been emptied and cleaned in the meantime, is placed caustic lye of 5 to 8 deg. Tw., to which is added a quantity of salt. After the lye in the second kettle has completely separated, the soap is added to the hot weak lye in the third kettle. The grain soap is then allowed to melt until the large grains have all disappeared, and the lye begins to form a paste. As soon as the soap is liquid, the copper is tightly covered and left to rest for one or two days.

The upper cold layer is then removed and pure, clear grain carefully removed from the paste, and crutched in small frames until cool, in order to obtain a uniform supple soap. After cooling in the frames, the soap is cut into bars of a proper size for the stripping machine and dried.

It is very essential that the soap should be thoroughly dried, for a dry soap is less liable to become rancid than one which has been packed in a fresh condition. The whole process is very much like the old method of making eurp soap, and anyone that has boiled eurp soaps in this way will be familiar with the course of the operation. The only difference is that greater care is to be taken, and this care is well repaid by a fine product.

The milling itself is very simple. The principal thing being that the strips of soap always contain the proper amount of moisture. They must be neither too damp nor too dry. With too wet soap the milled product will always be smeary and striped; with too dry soap the milled soap will be crumpled, cracked, and without consistency. It is impossible to give any definite formula, everyone must determine the proper amount of moisture for himself. After having milled soap several times, noting the condition of the soap before and after milling, the knowledge is easily gained. The strips of soap should always be thoroughly dry before beginning to mill. They may be so dry that they will crumble to powder between the hands. The dryer the better, it is easy and best to moisten them again while milling if that be necessary. Do not economise in milling. The soap should pass the rolls six or seven times. In the case of the finest soaps it is best to pass it through two or three times more. The oftener it passes through the more thorough will be the mixture of the soap with the color and perfume, and the finer the product.

The perfumes have already been mentioned, and all are available for use in the production of the finest toilet soaps by milling. As regards colors, the soapmaker has a great range in the coal-tar colors, of which, however, all are not available; some are more or less affected by the alkali of the soap. It is best to use those which are soluble in spirit, and to prepare spirituous solutions of a strength of one part of color to 25 of spirit, and pour this solution over the strips of soap as it is passing through the rolls. Generally 1 lb. of dye will color from 1 to 4 cwt. of soap, according to the depth of tint required, indeed some pale tints may be got with as little as 4 ozs. of dye. The older soapmakers used such pigment colors as vermilion, ultramarine, Gignet's green, Cadmium yellow, etc., and they may still be used if thought necessary, but they do not give such fine tints or as transparent-looking soaps as the coal-tar colors.
Tests, Etc., For Vanillin.

FROM THE PHARMACEUTICAL ERA.

Pure vanillin should appear in white, needle-like crystals, free from color and traces of adhering oily bodies. Its melting point is from 79° to 81° Cent.; the boiling point from 284° to 285° Cent. It should be free from cresol and phenol like bodies and from synthetic by-products or decomposition products. A “powdered” vanillin, it must be remembered, is more likely to be administered than a crystalline one.

IDENTITY TESTS.—Dissolve 0.1 gm. in 5 Cc. concentrated sulphuric acid, it should not give a solution deeper in color than lemon-yellow. Acetylisoeugenol, its synthetic antecedent, gives a carmine-red color. (Keller.)

Shake 0.1 gm. with 5 Cc. dilute ammonia water, it should give a clear solution. Coumarin would be indicated by insolubility or a cloudy solution.

Heat 0.1 gm. with 10 Cc. liquor potassae, the solution should not give a reddish precipitate, after neutralization with HCl, with ferric chloride solution. Benzoic acid present would give a reddish precipitate.

Boil a solution of 0.2 gm. in liquor potassae with a few drops of chloroform, no color of isonitril should be given off. Acetanilid would be detected by this test.

Melting point =79°-81° Cent. (Coumarin=67° Cent.)

Boiling point=285° Cent. (Coumarin=290° Cent.)

Crystallizes in white needles (Coumarin in shining prisms).

The adulterations of vanillin so far recorded are acetanilid, benzoic acid, coumarin, acetyl-isoeugenol and powdered sugar.

Vanillin gives a yellow color with sulphuric acid, a blue color with ferric chloride and a solution of 0.1 gm. in 10 Cc. concentrated sulphuric acid gives characteristic color reactions with copaiba and other balsams.

ESTIMATION.—Triturate 5 gm. of sample with fine, clear sand, extract the mixture with ether, shake the ether solution with a strong solution of sodium bisulphite, and separate bisulphite solution. Set free the vanillin taken up by the bisulphite with an acid, shake out with ether, in successive portions, combine, evaporate and dry to constant weight on water-bath. This gives amount of vanillin in sample. The ether solution of original substance, if free from benzoic acid or acetanilid, can be evaporated to constant weight and taken as coumarin.

Dissolve 5 gm. of sample in ether, examining and weighing residue. Shake out vanillin with dilute ammonia water.(10 per cent.) using to Cc. each time until the washings are no longer colored yellow; reserve the ether solution for estimation of coumarin. Neutralize the ammonia solution with HCl, shake out the vanillin with ether, evaporate in a flask to dryness and take up the residue repeatedly with ligroin until a drop gives no residue on evaporation. Evaporate the ligroin solution to a constant weight in a tared beaker and weigh as coumarin. Acetanilid, if present, will be left in the residue from the ammonia extraction of the ether solution of vanillin; benzoic acid can be separated from the ammonia solution by suitable precipitant and estimated thus. Acetyl-isoeugenol can be estimated by taking advantage of the solubility of aldehydes in solution of sodium bisulphite and dissolving out the vanillin in a mixture of the two by a strong solution of sodium bisulphite and proceeding as in the first method given. The separation of vanillin from acetanilid can also be effected by the same method, i. e.: dissolving the sample in ether, shaking out vanillin with sodium bisulphite, evaporating the washed ether solution and weighing as acetanilid. In fact, the sodium bisulphite solution will separate the vanillin in a sample from practically all the adulterants mentioned, solution of the sample in ether, of course, being the first step. Sugar may cause a difficulty from being soluble in the water of the bisulphite solution; it must therefore be estimated in the residue left from ether extraction.

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Vegetable Oil Market.

Robert P. Skinner, the United States Consul General at Marseilles, in a report to the State Department refers at length to the oil and seed trade of Marseilles. He says:

"Marseilles is without doubt the greatest manufacturing and consuming point for vegetable oils in the world. Every important oleaginous seed known to commerce is required by the crushing trade, and the equally important soap trade absorbs a large part of the product, and in recent years has purchased from 112,000 to 287,000 barrels of American cotton-seed oil as well. The statistical situation is clearly set forth in the accompanying table, from which it will be seen that the imports in 1900 of all oil seeds, other than copra and palm kernels, were about 10,000 tons in excess of the previous year, while the imports of copra and palm kernels alone showed an increase of 12,000 tons over the previous year. Local mills crushed practically all of the 350,000 tons imported, while, in addition, to the 41,990 tons of oil imported gave in round numbers about 180,000 tons of oil for soapmaking and edible purposes. Of this total production, the local soap industry consumed about 85,000 tons."
"The soap trade requires about 50 per cent. of coconut oil and 50 per cent. of peanut or American cottonseed oil. Two-thirds of the copra from which the cocoa oil is produced is received here from Manila, and both the sun-dried and kiln-dried qualities are handled, preferably the latter. There is a growing disposition on the part of shippers in the east, other than those in the Philippine islands, to send kiln-dried copra, and the greater care they take in the collection of the merchandise makes it profitable to them. An increasing quantity of copra is required in this market, and other markets are being developed in the commercial center of Europe. Buyers are somewhat at a loss to know what turn prices will take during the next twelve months, because of conflicting statements with regard to Philippine islands. During the insurrection, shipments from Manila were very much curtailed, and at one time almost ceased. Immediately after the opening of the blockaded ports, the copra collected during the preceding years was forwarded to the European market, and, in the absence of any official crop reports, European buyers are unable to determine to their own satisfaction whether there is still a large quantity of unsold copra in the interior of the country which will gradually seek a market, or whether the accumulated stock has been entirely disposed of.

"The failure of the peanut crops in India and to a lesser extent elsewhere, some years ago, gave the first impetus to the cotton-seed oil trade in this port, but recently the Indian farmers, who had followed the practice of replanting their land with seed from the previous year's crop, have adopted more scientific methods, and the result is shown in the increased arrivals of their product. They are now cultivating their land carefully and using the best quality of African nuts for seed, and a recurrence of the former trouble is not anticipated. Last year, 18,750 tons of Indian peanuts were received at Marseilles, the total being a very considerable increase over the year before, and it is expected that this year's arrivals for the same source will amount to 45,500 tons. These receipts, together with those from African sources, will naturally affect American cotton-seed oil sales in Marseilles to just that extent, as the latter is always marketable at a good price, and buyers in the soap trade seek it only when they are unable to secure cheaper vegetable oils of domestic manufacture.

The great demand for low-grade coconut oil for soap manufacturing purposes has a tendency to keep the Marseilles mills out of the manufacture of other cocoa products. The only firm in this city manufacturing cocoa butter is that of Rocca, Tassy & De Roux. This firm manufactures not only the ordinary soap oils, but a highly refined product known as "vegetaline," which is fusible at a temperature of 26 degrees centigrade, and cocoa butter properly speaking, known here as "cacooline," fusible at a temperature of 31 degrees centigrade. Vegetaline is an edible copra oil. It sold throughout last year at $45.44 per 220 pounds f. o. b., and the cacao-line, which has the consistency of butter, brought 828.95 per 220 pounds. The producing capacity of this concern is about fifty tons of cocoa butter per month. Cocoanuts in their natural state are imported here to a very insignificant extent, and the only other product of the coconut sold in this market is the shredded meat of the nut, used to some extent by manufacturing confectioners.

"Vegetable lard finds a ready sale here. The most important buyer is the L. Felix Fournier Company. This corporation corresponds fairly well with the American idea of a trust, controlling works in Marseilles and Paris. The requirements in Marseilles amount to eighty tons daily of tallow and palm-kernel oil. The Paris branch is less important. The concern is probably the largest candle-manufacturing company in the world, and buys quantities of both animal and vegetable tallow. Accurate statistics with regard to vegetable tallow are almost impossible to obtain, as the article is grouped with other merchandise. The vegetable tallow of foreign manufacture is received mainly from China, and the annual imports are estimated at 500 tons. There is also manufactured in this city about 600 tons annually from Luipie nuts. These are received and crushed almost exclusively by H. Beaum & Cie, 26 rue Montgrand. The product contains 55 per cent. of fatty acid, and completes on even terms with tallow containing 43 per cent of fatty acids.

"Coconut oil is growing stronger from month to month, prices having risen from $9.60 per 220 pounds in January to $9.80 in May, with every prospect of retaining the present level, and probably of going a little higher."

A drug paper criticises a drug firm in Philadelphia for using the sides of a delivery wagon in advertising a "kidney remedy" and says that such method "savored almost too much of the soap advertisements we meet staring from every little one horse to hire wagon to be in good taste."

Now "wouldn't that jar you"? If soap is good enough to be sold by druggists, it is in the first place very much in bad taste to select soap advertisements as specimens of something undignified. But, more than that, a soap advertisement is certainly immeasurably superior to the nasty patent medicine advertisements, and in all seriousness it is to be considered an insult to any decent soap to compare its advertising with a "kidney remedy" announcement. Bad taste, indeed!
Floating Soaps.

Floating soaps can be prepared according to various methods, of which two are worth special mention—the preparation from fresh materials and the preparation from trimmings from cocoanut-oil soap. This latter method will probably be welcome to many manufacturers as advantageously disposing of any heaps of trimmings left over from other kinds of soap.

To prepare a white floating soap from fresh materials the following formula may be followed. The color of the soap will depend largely on the quality of the oil used. There is required:

- **Lbs.**
  - Coconut oil .......................... 88
  - Soda lye, 70° Tw ........................ 46.2
  - Potash lye, 50° Tw ........................ 2.2

Melt the coconut oil in the usual manner; strain, if necessary, into a capacious jacketed kettle, and heat to about 122° Fahr. Then add the lye, stir well for about ten minutes, and then cover up the kettle. Allow to saponify, and then thoroughly stir again. The soap will now have the appearance of fine woolly grains.

In the foregoing process but little fire or steam is necessary. Twenty-two pounds of warm potassium chloride solution of 60° Tw. and 88 lbs. of hot water are now gradually added, with constant stirring, to the curd in the kettle. The soap is worked up thoroughly to complete solution, but very little heat being required, as it is not necessary that the soap should boil.

When complete solution is attained, take a lye cylinder full of the soap solution from the kettle, allow it to cool to 77° Fahr., and sink a lye hydrometer in the liquid, when this will indicate a density of 90° Tw. This particular degree will yield a floating soap having a medium weight.

The soap solution is then allowed to cool to 77° Fahr., and a crutcher is filled about one-third full with the cooled soap. The fluid mass is then stirred vigorously until transformed to a stiff foam, and is then put into the frames at once.

The prescribed temperature of 77° Fahr. must be carefully adhered to, for if one heats to a higher temperature, say, 100° Fahr., or over, much more time will be required to work up the liquid into a permanent foam; and then, through the long stirring, the foam would be so puffed out that the resulting soap would be far too light and spongy. On the contrary, if allowed to cool too much, the soap obtained will be too heavy, because the formation of the foam does not take place properly, and the soap does not swell in the kettle.

Occasionally other methods are used for obtaining a permanent foam besides stirring in an open kettle. One apparatus consists of a wooden or tinned-iron drum, with a winged stirrer turned by a winch or handle.

This, however, is very tedious, and increases the difficulty of obtaining the desired result rapidly. If it is desired to make the soap more compact, a cover should be laid on the soap in the frame, and weighted down with stones or weights. By this means the volume of the soap is, of course, reduced; it contains fewer air bubbles, it becomes more compact, and can with more advantage be cut into bars and cakes.

Floating soap should not be dried in a warm room or in a drying oven, as if this is done the soap will shrink a great deal, and become fissured. It is better to allow the entire block, as it comes out of the frame, to stand for several weeks in an airy, light place; then cut into slabs, allow them to dry for several days, and then cut up into bars or cakes.

Another process, that of making floating soap from trimmings, is quite simple. For instance, place 220 lbs. of the trimmings or scraps from cocoanut-oil soap in a jacketed kettle. To dissolve this, add about 35 lbs. of potassium chloride solution of 4° Tw., and about 132 to 154 lbs. of water should be added to the scraps in the kettle, the quantity of solution and water required being, of course, dependent on the degree to which the scraps have dried out.

Considerable heat is applied at first, and the scraps well broken up, to facilitate their solution. Bars and cubes of soap should have previously been passed through a cutting-machine. When very old, dry scraps are used it will frequently prove very difficult to effect their solution. In this case solution can be accelerated by stirring over the above quantity of soap from 2 to 4½ lbs. of salt.

The trimmings of cocoanut-oil soap mentioned in the above process should be from pure soap, not from a "filled" soap, such as one filled with silicate of soda and soda crystals, as these are not suitable for making floating soap. The material used for filling renders the soap brittle and coarse, and, when cut and planed, the surfaces of the bars and cakes do not become smooth. When used in too large quantities salt causes the same result in floating soaps. These "fillings" solutions have also an influence when measuring the degree of density of the soap solution.

If it is desirable to work in scraps of floating soap they should be added to the already dissolved soap mass in the kettle, together with the necessary amount of water. They will then dissolve very easily.

When putting the soap solution into the kettle for stirring, it is advisable to allow it to pass through a fine sieve, to get rid of any bits of wood, paper, or dirt which may be present.

As to the color of floating soaps, it may be said that white is by far the favorite color. It can be colored pink or red, with vermillion, rose pink, cardinal red, etc., as desired. It is colored orange by dissolving soap yel-
low, or soap orange, etc., in the water used. The colored soaps should be protected from the sunlight, and no Cochin cocoanut oil should be used. Ceylon or coprah oil answers quite well in this case.

By using small quantities of tallow or lard in making floating soaps, they are rendered finer and more solid in the stirring kettle before the soap begins to form a thick foam. The most used perfumes are lavender, caraway, white thyme, and fennel oils for white soaps; lavender, clove, and palma rosa oils for pink and red soaps; and lavender and cassia oils for yellow soaps.

Scraps of floating soaps can again be made into this variety. The scraps should be placed in a jacketed kettle, heated gently, and small quantities of boiling water added gradually, the whole being well worked up all the while, until complete solution is effected and the lye measure indicates the proper degree, as mentioned above.

This soap can be cut with a fine steel wire; for cutting the bars a very fine, sharp plane is required.—Oil and Colormans Journal.

Determination of Alcohol in Perfumes and Toilet Water.

Fifty grams of the perfume are thoroughly shaken up with water, 50 grams, and petroleum ether, 50 grams (sq. gr. 0.69—0.71), in a separator. After at least 12 hours’ rest the weight of the lower layer is taken, and also gravity, at 15° C., with the Westphal balance. From this the amount of alcohol may be calculated. Should the perfume contain resins or other extractive bodies, 50 grams are fixed with water, 50 grams, and at least 90 grams distilled off. The distillate is made up to 100 grams with water and treated as above. When acid is present it should be first neutralized with soda, then distilled and treated as before. If a large quantity of glycerin be present the substance should be diluted with twice its weight of water, then from 150 grams of this nearly 100 grams are distilled off and made up to 100 grams with water, and then treated with petroleum ether as described.—(Pharm. Central.)

Liquid Nicotine Soap For Gardeners.

50 gall. water.
2½ " methylated spirit.
2 " amylie alcohol.
4 lbs. tobacco waste, or duty free snuff.
4 " soft soap.

Method.—Boil tobacco in half-gallon of the water for thirty minutes, and strain, adding water to make up for that evaporated, next boil the soft soap in the whole of the water, and add the tobacco juice, then cool and add the alcohols. The mixture is to be diluted with an equal amount of water, and well stirred before being used by the horticulturist, and is syringed over the parts.

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.

676,865. Float for cakes of soap. Washington Berry, Chicago, Ill.
678,163. Laundering-iron heater. Hermann Cruger, assignor of one-half to M. X. Moorman, Jr., and E. Purcell, Jr., Roanoke, Va.
678,117. Washing-machine. Harvey Hevenor, Salamanca, N. Y.

TRADE-MARKS.


Keep At It.

One step won’t take you very far—
You’ve got to keep on walking;
One word won’t tell folks who you are—
You’ve got to keep on talking.
One inch won’t make you very tall—
You’ve got to keep on growing;
One little ad won’t do it all—
You’ve got to keep them going.

—Joliet (Ill.) Republican.
Soap.

The love of soap, says the "Globe," is acquired. First instincts do not point to its use as a necessity, but rather the reverse. Children, in whom they are admitted at their best, detest soap. No original traveler has yet come across a bar of soap in any native hut. It comes later, with the missionary. Again, when washing, from extreme cold, or lack of water, is not practicable, travellers do not find any ill-effects from a protracted suspension of its use. Nansen and his men crossed Greenland without washing. At a later date he and Johansen passed a winter under distinctly insanitary conditions without using soap. They were all in first-rate order at the end of their experiences. Still, in the main, it must be admitted that there is much truth in the statement, that the extent of a nation's civilization can be gauged by its consumption of soap. No one under ordinary conditions nowadays could go for a week without using soap, and retain his self-respect. Yet many generations of good men have gone through life without doing so, and fully retained their self-respect. Thoroughly civilized generations, too. The Greek and Roman civilizations were quite as high as any existing to-day. They owed nothing to soap. It is hard to conceive of Athenian and Roman philosophers, senators, painters, poets, and warriors, as having lived and died without knowing what a tablet of soap was! That does not say they were not clean. The evident importance in which the bath was held is a proof to the contrary. They also had a feeble substitute for soap in fuller's earth. Beyond personal cleanliness, was that of attire and house. The prevalence of white robes proves that there must have been an effective way of washing clothes, possibly after the Chinese method of beating with a wooden mallet in a running stream. In the case of house-cleaning, something of the holystoning process in use on board ships may have been in vogue. But the absence of soap must have told heavily against cleanliness, especially in colder northern countries, where the feel of water would not be so agreeable as on the Mediterranean.

Whether soap was invented, or discovered by accident, we have no means of knowing. Looking at its chemical definition as "the union of a fatty acid with a base," it looks rather too complicated for deliberate invention in a simpler bygone age. Had the march of progress been from West to East, instead of the reverse, its discovery as a natural product might be reasonably entertained. Mono Lake, in Nevada, for instance, is highly charged with borax and soda. Spite of this, its waters are full of a peculiar stringy worm. Flies innumerable feed on these worms. Whether killed by the food, or drink, or both, or dying in the ordinary course of fly nature, ridges of dead flies are thrown up along the margin of the water. Supplying the "fatty acid" side, they are acted upon by the strong alkaline water, as "the base," to form soap. Strange though it read, it is thus nevertheless true, that bars of soap are to be found in a natural state. Still more remarkable is the following fact. Ducks come to feed on the worms and the flies. They get so fat on the rich diet that they sometimes fail to fly away, and die. The alkali in the water, soon eating away the skin and feathers, next converts the fat duck into a lump of white soap.

We may seek for the origin of soap eastward, in another orthodox fashion, philologically. The name is derived from the Celtic word "sebon." If they had the name, the Celts must certainly have had the article it stood for. It seems strange that such early wanderers should have been familiar with soap. But it must have been so. Further proof is afforded by the fact that the earliest notice of soap which we have is a reference by Pliny to its existence among the Gauls, a well-known division of the Celtic race. Arguing on natural probabilities, it is very conceivable that a tribe of wanderers using wood fires could accidentally discover soap. All woods have a certain amount of mineral salts, chiefly those of potash, in their fibres and juices. These are left after burning in the form of carbonate. A heavy shower of rain would readily dissolve this to form a liquid eye, wanting only the grease from an overturned cauldron of broth to form soap. A dash of natural curiosity on the part of the woman who had to clear up the mess would reveal the detergent quality of the new body. It would also lead probably to the further importance consequence of the tribe taking a stride forward towards civilization, by stepping out of the ranks of the truly "great unwashed." This method of soap-making was the usual one of American settlers, with plenty of trees needful burning to clear the land, and is, in all essentials, the method for the manufacture of "soft soap" to-day.

Whatever the origin of soap, there can be no doubt that its advent marked the beginning of a new era of higher comfort. It was so easy and cheap to make that it must immediately have found its way everywhere. It has retained its universal range, being as indispensable an adjunct to the Royal bath as to the workhouse bowl. This wide use and high estimation are not due solely to its chief qualification as a cleanser. Like widely-popular men, it has about it a natural elastic adaptability. Had it not, something else would long since have been evolved for the distinctive marking out of the social grades of its users. Soap possesses in an eminent degree the faculty of accommodation. It has an unctuous Pecksnifian quality that admits of the incorporation with it of almost any ingredient, from honey to arsenic. It will assume any color, carry any scent or smell, from otto of roses to carboilic acid, and consequently sells at any price. It is also in the pecul-
position of being about the only thing that doctors, however characteristically they may differ in their opinions about all other matters, agree about, and advocate the fullest use of. Not only has soap been thus a powerful factor making for physical well-being, but also for moral good. A tin pail half-full of water, with a block of yellow soap by its side, lying on a bench in a cottage yard, immediately elevates the cottage and its dwellers in the estimation of the unconscious critic. We cannot conceive of ‘honest poverty,’ however poor, as short of soap, and unwashed. District visitors know this well—so do many of the “honest poor,” even better. Soap in short—or what comes to the same thing, cleanliness—has even been elevated to the supreme position of “next to godliness.” Surely no higher honor is possible!

The Profession of an Industrial Chemist.

(Continued.)

Most of you commence the study of chemistry incapable of deciding upon which special branch of chemical industry you will devote your life work. Nor is this desirable; nay, I should consider it even detrimental to the future industrial chemist. One would be like the American student who is said to come to the college professor with the question: Professor, how long will it take me to become an iron chemist? No, it should be the glory of the student that he devotes himself to his studies with an ideal love, forgetting during his student days that he will have to turn his knowledge into £ s. d. You will have had the praises of the continental student sung to you, until his very virtues become hateful to you. Yet he does not work as hard as is usually represented to you, for as I knew him, and I was one of them, he does not work very hard except when the time for examination comes round. But his strength lies in the enthusiasm for his science, kindled in his heart to a holy fire by the eloquence of his professor.

You should therefore be pervaded with the idea of becoming scientific chemists in the best sense of the word. Hence the acquirement of a theoretical knowledge of your subject should form an important feature of your studies. The word theory has a bad sound in this country with so-called practical men—we hear even of a policeman’s theory—but you should go back to its original meaning as Aristotle gave it, to the raising yourselves, by the process of thinking and reasoning, above the variety of a series of facts and to the deriving of, or mentally looking down upon, the general law underlying them. In this sense, theory will become your guide and friend; facts may slip your memory—you have books of reference for them—but the general law from which you deduce the facts should be deeply impressed upon your mind. You will thus early learn to apply abstract thinking and logical reasoning to the set or sets of facts that will confront you in your industrial career, and try to subordinate them to what appears to be the general law or the theory of that subject. And just as you are taught that a theory must not become a dogma, that it must be abandoned or remodeled as soon as it grows too narrow for a new fact, so, in your special branch, you will throw overboard your own little theory if it be capable of explaining some stubborn fact, or of predicting a fact that should be the logical outcome thereof.

I considered it useful to put a word in here for the cultivation of theoretical study, as one hears but too frequently young men, who wish to enter works, sneer at theory, as opposed to facts with which they are expected to deal. Believe me, these chemists will not rise much above the level of an intelligent foreman! They will be artisans, but not chemists! Can you imagine a modern tar color chemist without theory? And are not our modern chemical industries,—the electrolytic preparation of elements, the manufacture of carbides, etc., the direct outcome of what once appeared to be theoretical knowledge? Even the older chemical manufacturers experience the beneficent influence of the theoretical chemist when once they have shaken themselves free from the baneful influence of crude empiricism.

The elementary laboratory work to which you have to devote the first year or two will then not appear to you the dry routine work to which it is sometimes degraded, when you slavishly follow your analytical tables, which seem almost to be designed to prevent thinking. When you know the properties of two elements and of their salts, say copper and lead, you will be able to devise for yourselves methods of separating them, qualitatively at least, and you will only require to be told which methods are the best, because the most accurate, for quantitative work. Try, therefore, to evolve methods of qualitative analysis yourselves. I would recommend you the study of Menschutkin’s book on Analytical Chemistry, which introduces you, if I may say so, into the philosophy of analytical chemistry. It has been translated into English, and I am sure what may have appeared to you as dry and wearisome will be clothed with an unexpected interest. You will then be able to turn the smallest piece of chemical work you have in hand into a kind of research, if I may use this mysterious word. And as I have mentioned it, I may say that nothing will be better adapted to prepare you for your future career than to devote some time, as the crowning of your chemical studies, to original investigation. Your future work, if you wish to carry it out successfully, will be nothing else but research work, and the methods of thinking and reasoning will be the same whether you wish to prepare a substance which theory predicts, or whether you are trying to work up some
waste product in the works, or lower the cost of a chemical by increasing its yield.

Besides chemistry you will, of course, devote a good deal of your time to physics. Both sciences are so much interwoven, especially during the last decade or two, that Bunsen's saying holds good more than ever, "A chemist who is not also a physicist is nothing at all."

Applied physics next to applied chemistry will be your daily work; hence you will, concurrently with your studies of chemistry and physics, acquire the principles of engineering and practice the elements, at least, of mechanical drawing.

And in order to grasp the laws of chemistry and physics fully you should not neglect an earnest study of mathematics including, if possible, the acquisition of same facility in applying the calculus to physico-chemical problems.

During the last years of your studentship, lectures on technological chemistry should be attended, and if there exist at your college a technological laboratory supervised by a teacher who has been an industrial chemist himself, you would certainly be well advised to take a course therein. Thus you would become familiar with the method of working in a technological laboratory such as your works will be.

Your course of studies is more or less guided by the regulations laid down by the authorities of your college, and it would seem that you have not so much latitude allowed to your own bent of mind as you should have if you become at an early stage the thinking and reasoning student, the future industrial chemist should be. Hence I advise, however revolutionary this may sound in this country, that you should not spend all your student days at one and the same college, but divide the years you can devote to your studies, if possible, between two or even three colleges.

This should obviate the danger of a student becoming too much attached to the particular views and theories of his teacher, and imbibing them so fully that it is very difficult, if not in many cases impossible, to shake himself free from them. During the time I studied, the fight between old and new formulae had not been settled completely, the benzene formula of Kekule was daily attacked and even ridiculed, and the principles of the then rising stereo-chemistry were scathingly caricatured at the outcome of an airy flight on a Pegasus, taken from the stable of the veterinary school of which the originator happened to be a professor. Fancy a student who, without the capability of thinking for himself, so thoroughly assimilated the theories of his professor, that he became incapable of contemplating the views of others, and could only meet arguments by referring to his master as the disciples of Pythagoras are said to have met opponents by the autos epha.

But imagine now the same student continuing his studies under the very opponent of his former teacher. He would have his eyes opened, and if he happened to migrate to a third college whose chemical professor scorned the views of either of his former teachers, he would begin to think and to examine for himself, and probe and reason and adopt what appears to him the theory best suited to embrace all the facts. He would, as Kekule proudly remarked of himself, belong to no one's school.

When you have finished your studies, and perhaps gained a degree, the time has come to find the field on which you can exercise your faculties, or, to put it in plain language, you are looking round for a situation. Very few students, I imagine, are at once berthed in their father's works. Most have to resort to the anxious process of knocking at many doors before they gained admittance. -Of course, you must start at the bottom of the ladder; but unfortunately we have not yet in this country, like many continental chemical works, those magnificent laboratories, forming, as it were, continuation schools to the colleges, and receiving the fresh material from them to be trained and so educated to the profession of an industrial chemist.

You will, no doubt, meet with many disappointments before you succeed in finding a suitable sphere of action, and I would, therefore, advise you not to look at first too exclusively in the direction of chemical work. The laboratory of an analytical and consulting chemist forms, as a rule, an excellent stepping-stone from college to work. You can there show your usefulness at once, and what is far more important, you become acquainted with rapid methods of analysis and a variety of commercial products such as you cannot possibly be shown in your college. Moreover, when you at last enter a chemical works, it will be in the laboratory where you become first acquainted with the material produced on a large scale.

Now, a works' laboratory and its methods differ somewhat from that of a college, much in the same way that their objects differ.

Accuracy of the highest degree, that is of a scientific character, will chiefly be required in the analysis of the raw material and of the finished product, such as the amount of sulphur in a pyrites, or the proportion of real anthracene in a commercial anthracene. And here you will have the advantage of being pitted against an outside analytical chemist, whose finding buyer and seller agree to consider as final. But your analytical aptitude will be required for the rapid determination of intermediate products, where highest accuracy is not of so great importance as quickness of execution, without, of course, thereby implying that scamping or guessing should take the place of accuracy.

(To be continued.)
A soap maker recently wrote us: “Do you suppose it possible to form a National Soap Makers’ Association, with perhaps a branch in each state, with a standard of examination by a committee to issue a certificate or diploma to good men and thus weed out fake and incompetent and perhaps have an insurance feature incidental to the business? The object to be to promote the interests of the soap makers, to raise the standard of ability or proficiency, to interchange ideas, to encourage efforts to improve the work and the general welfare of the members.”

The writer of the foregoing is a soap maker and further expressed his desire to aid such a project as well as his belief that such an association is bound to come sometime anyway.

In reply to him we promised our full co-operation with any plan tending to improve the condition of the practical soap makers and suggested some peculiarities of the business that present certain, perhaps not insurmountable, difficulties in the accomplishment of such an association. We hope to hear further from him on this subject and in the meantime make mention of it here so that all who feel like our correspondent may express their thoughts. Write us, preferably with your signature for publication, but if you do not care to be quoted, write us anyway. This subject has never been brought up and deserves to be thoroughly ventilated.

**Around the Soap Factories.**

*News items sent us by our readers will find prompt attention in this column*


Armour & Co. are reported as preparing to erect a large fertilizer plant in Georgia, where Swift & Co. already have a similar factory in operation.

The meeting of the American Chemical Society will be held in Denver, Colo., Aug. 26 and 27.

The courts have decided that the name “Lanoline” as identifying a certain article is not a trade-mark in the proper sense, and that with the lapse of the patents formerly held by Jaffe & Darmstaedter, the name became public property.

Rich finds of borax reported from Ventura County, Cal.

The Lease Soap Co. has been incorporated in Cincinnati, with a capital of $100,000. Incorporators: Herman J. Lease, Wm. H. Lease, M. Reilly, Wm. Boswell, H. A. Stewart, Louis Schultz.

Incorporated: The Phoenix Chemical Co. of New York City, to manufacture washing compounds. Capital $100,000. Directors: Chas. B. Mendel, Wm. M. Coleman, C. E. Mendel.

Lockhart, Texas, has a new soap factory.

Thomas D. Kingan of Indianapolis, died in Belfast, Ireland, on July 8, aged 71.

The U. S. Circuit Court decision has been affirmed by the Court of Appeals, to the effect that the Heller & Merz Co. of New York are the rightful owners of the brands “American Wash Blue” and “American Ball Blue.”

Two Englishmen have patented a soap cake consisting of a piece of wood, cork, glass, a piece of loafah, or similar body, coated more or less thickly with soap and subsequently pressed if desired. The object is to provide a small separate quantity of soap to each guest of baths, hotels, etc., in handy form.

Merchandise invoiced as Oxford Laundry Soap was imported at Savannah, Ga., by Lippman Bros. The soap was assessed as castle soap at the rate of 1½ cents per pound, under paragraph 72, Act of July 24, 1897, and was claimed to be dutiable at 20 per cent. ad valorem, as “all other soap not specially provided for” under said paragraph. A sample showed the soap to be similar to that passed upon by the board in G. A. 1,832 and the protest was accordingly overruled, and the decision of the collector affirmed.

The Michigan Soap Works, Detroit, has increased its capital stock by $25,000.

The Stewart Soap Co. of Cincinnati has certified to an increase in its capital stock from $1,000 to $50,000.

The Virginia-Carolina Chemical Co. has acquired a number of cotton seed mills and in one of these, at Columbia, Ga., intends to manufacture soap.

The Merchants & Planters’ Oil Co. of Houston, Tex., are beginning to rebuild their large plant that was destroyed by fire nearly a year ago.
John Hart of the New York Petroleum Soap Co., is reported ill, we regret to learn.

The soap factory of W. J. Storen, Charleston, is reported destroyed by fire.

In a recent election in the Globe Refining Co. of Louisville, Ky., H. F. Donigan was elected president and John Chambers vice-president of the firm.

They Say.

that, as the olive oil which makes white soap is too expensive, we have made a virtue of necessity and demand our olive oil green, even if we have to color it to make it so.

that for milled soaps filled with tale, brown colors are best adapted to obtain the best looking product.

that up to 50 per cent. of cold made scraps can be advantageously used up in a milled soap, provided there is no filling in them that will make the soap sweat.

that the synthetic odors have greatly facilitated the perfuming of soap.

that, just as soap manufacturers fill their soaps because they are obliged to do so by the demand for cheapness, so they are in turn adulterated essential oils because they also demand cheapness.

that small dealers in essential oils are “unprincipled” in selling adulterated oils, but that large dealers are innocent in doing the same, because the distillers of the oils are so bad as to buy large quantities of mineral oils, alcohol, turpentine, esters, aldehydes, etc., and to make these into oils.

that some oils contain nothing that should not be in them, and in fact do not even contain what is expected to be in them, as peppermint oil freed from menthol, clove oil deprived of eugenol, and other “refinements.”

that you can’t tell how much filling there is in a soap from the price it sells at.

that the salt interests are being more effectively combined all along and that the smaller consumers will get the worst of it.

that essential oils of American distillation are all tending to higher prices.

that this hot weather makes even good tallow look like three cents.

that when the Navy department the other day opened bids for 25,000 cakes of laundry soap, the different bids except one varied so little that they gave evidence of very close figuring, being respectively $721.25, $747.50, $750, $750, and $855.

that in fact bids for 5,000 lbs. tallow varied much more, being respectively $253.70, $275, $330 and $350.

that there are now 450 cotton oil mills in the country, crushing 2½ million tons of seed per annum; of this number 59 mills were established in 1901.

that Her Majesty Queen Alexandria has been graciously pleased to appoint John Cosnell & Co., Ltd. perfumers to Her Majesty, and that Day & Martin of London have been appointed blacking manufacturers to His Majesty the King.

that from the sublime to the ridiculous is but one step.

that it is hot.

Above cut is meant to remind you that our latest improvements are sold in four forms, Liquid, Semi-solid or Paste, Cake or Hard, and Granulated or Powdered Form. We make special or private brands as desired. Write for particulars to

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Listerol A. F. Wooster, Norwalk, Ohio.
Major Dome 16
Monad 11

Mission, W. J. Harvey, Los Angeles, Cal.
Nugget Aiden Speare's Sons Co., Boston.
Subsmaker 230
Tartan Tar 53
Vestal 16
Vestal Heliotrope 16
Vestal Iris 16
Vestal Rose 16
Vestal Violet 16

If you have a second-hand machine for which you have no use, or expect to buy a new one if you can dispose of a smaller one now in use, or any similar need, remember that an advertisement in our "For Sale" column will convey that information to one or more looking for just such opportunity—if there is any use for such apparatus at all.

An Australian subscriber to the Soap Journal and purchaser of the work "American Soaps," writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file, in black and white.

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The Scientific American, a paper known broadly to every one of our subscribers, in a recent issue, says:

"The first edition of 'American Soaps' appeared in print seven years ago and was well received, and since that time the author has continually added and improved the new information in making a later edition of the book more complete, and the author has had the benefit of the experience of many of the original purchasers of the book.

There is an extensive literature upon soap making, but most of them are adapted from foreign practice or deal with antiquated methods.

The present book cannot be placed in this category. It is an excellent contribution to technical literature by a man who thoroughly understands modern American soap making and is in no sense a compilation. To those who are looking for a thoroughly practical book on soap making of all kinds, with special reference to modern and common methods, we can heartily recommend this book. It is freely illustrated, and the number of formulas for soaps of various kinds are large. The section devoted to the actual processes used in the manufacture of soaps of all kinds occupies three quarters of the volume. It is an admirable book."
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Position wanted by Soap Maker of long experience. I understand my business and can give good references to that effect. Qualified to take charge of any factory or to fit up new plant. No bad habits. Address: "B," care of American Soap Journal.

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The first edition of "AMERICAN SOAPS" having been so favorably received, that a copy of it may at present be found in almost every soap factory in any English-speaking country, care has been taken in the new edition to adhere largely to the original plan, simply adding such material as the changes of time or the collection of new information suggested.

In offering this new work to the trade we confidently bespeak for it the same favorable reception which was accorded the original edition in so large a measure.

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Say you saw the Ad. IN THIS PAPER
It will be recalled by our readers that some time ago a number of smaller manufacturers, during a period of scarcity in stocks, claimed that a combination of large manufacturers had bought up all the tallow available with the object of keeping supplies from competitors. That large consumers had bought the tallow they needed was true, but that they had the object claimed in doing so was not substantiated.

There can be no doubt, however, that with the first purchase made for joint account of members of the Soap Makers' Association, the claim that non-members are to be kept out of supplies will be heard once more. Indeed, we have even now a letter from a soap manufacturer before us, saying that the writer of it has no doubt that sooner or later the attempt will be made to force out smaller manufacturers. Another letter says that the association recently started will very likely endeavor, by combined efforts, to monopolize the manufacture of soaps. One subscriber remarked: It is not what is said that counts, but what is done.—In short, while the association is hopeful of benefiting its members, and while we have reported such progress as has been made and have paid such attention to the association as any trade paper will give to an association formed in the interests of the trade, it must not be forgotten that there are soap manufacturers who have views not so hopeful. The remark has been made very recently, among the tallow and grease men, that the joint buying of stocks by the association would mean a new factor in the market and that by its means it was hoped to bring better conditions in the business of soap manufacture which— it was stated quite incidentally—had been "made very unsatisfactory by the reckless competition of the small-

Reports are current that Western members of the Soap Manufacturers' Association have conceived the play of buying their supplies of tallow, rosin and other raw materials on a large scale and then supplying the members from these purchases at uniform prices. This method would not only, it is argued, tend to effect a saving in the purchase price, but place members on an equal footing in the cost of raw materials. As stated, this is reported on the strength of a rumor and we have no authentic confirmation of the report.
or manufacturers.” This remark, coming from the source it does, has an ominous look, whether it be really the feeling in tallow circles or was inspired by outside influences.

Under such circumstances it is readily understood that there should be soap manufacturers who do not fall in with our previous remarks on the benefits of an organization in the trade. What we do not understand after all, however, is the reluctance of these manufacturers to join the association. When a large number of firms engaged in the same business come together and adopt means for bettering the conditions of their calling, they are engaged in a laudable and—in these times—necessary undertaking and they are entitled to the cooperation and good words of the trade press. If, then, another large number of firms in the business keeps aloof and only from a distance watches the doings of the former, then these firms are the direct cause that the trade has no real organization; instead there results a coterie of firms who are left to fight the battles of the trade by themselves, if they choose. Who can then blame them if it should appear in the end that they looked after the interests of their members rather than that of the trade at large?

No firm has been barred from membership that we know of, and in our way of thinking the remedy for the evils apprehended lies in joining the association and making your influence and vote count.

Our sympathies are with an association that shall represent the trade, and our good offices are at the command of such an association. If any good is to come to the trade, it must be and can be only thought such an association. If, however, a majority of the trade fail to join in an active, energetic way, to work for the common welfare, then it is but human nature that those who do join should look after their own interests.

This is simple as it appears to us. We shall be glad to receive further expressions on the subject.

Have you joined the association?

A correspondent writes: “Don’t you think it will interest the readers of the American Soap Journal should you publish the weights of the leading oils, showing how many pounds of oil will be found in a gallon of olive, kerosene, peanut, corn, cottonseed, coconut, linseed, etc.”

In giving the desired figures below it must be understood that they are, and can be, only relative; for in the first place natural products of this kind, artificially obtained, vary in weight according to method of extraction; thus in the case of kerosene oil especially we find that what is sold under the name ranges in specific gravity all the way from 0.783 to 0.805 and the weight of a gallon of course fluctuates in the same proportion. In the next place oils vary in weight with their temperature much more than does water; it is estimated that an increase in temperature of 2 degrees Fahrenheit will expand the volume of the oil (as to kind) nearly or quite 1 per 1,000; in other words a gallon measure filled with oil at a certain temperature will weigh more than when filled with oil a degree warmer; this difference, it is true, is not very marked in the case of a single gallon, but as the oils among each other do not vary so very much, it becomes a question of close figuring when comparing them.

With these preliminary remarks we submit the following figures, calculated from the specific gravity of the various oils as given in standard text books, and referring to the U. S. gallon, the oils being taken at ordinary temperature:

<table>
<thead>
<tr>
<th>Oil</th>
<th>Specific Gravity</th>
<th>Gallon Weights 8.339 lbs. Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerosene</td>
<td>0.790</td>
<td>6.588</td>
</tr>
<tr>
<td>Whole Oil</td>
<td>0.924</td>
<td>7.705</td>
</tr>
<tr>
<td>Tallow Oil</td>
<td>0.900</td>
<td>7.505</td>
</tr>
<tr>
<td>Castor Oil</td>
<td>0.970</td>
<td>8.089</td>
</tr>
<tr>
<td>Olive Oil</td>
<td>0.910</td>
<td>7.588</td>
</tr>
<tr>
<td>Corn Oil</td>
<td>0.922</td>
<td>7.689</td>
</tr>
<tr>
<td>Cotton Seed</td>
<td>0.931</td>
<td>7.764</td>
</tr>
<tr>
<td>Coccoanut</td>
<td>0.952</td>
<td>7.938</td>
</tr>
<tr>
<td>Linseed Oil</td>
<td>0.935</td>
<td>7.797</td>
</tr>
<tr>
<td>Palm Oil</td>
<td>0.945</td>
<td>7.880</td>
</tr>
</tbody>
</table>

A soap maker and subscriber to this Journal has this to say in reference to the association of soap makers proposed by another correspondent in our last issue:

“A Soapmakers’ Association would be a good thing; while I have not given the matter much consideration there are features about it that would be desirable. One, for instance, would be the encouragement of legitimate income for adequate services rendered. A showing up of fake concerns that want to profit on a soapmakers’ influence with the Soap Manufacturers’ Association against concerns who demoralize the trade through cutting prices by paying wages not in accordance with a standard. In closing I cannot help but think of the Pilots’ Association in Mark Twain’s ‘Down on the Mississippi,’ and the power it exerted. Hoping to be one of the first to acquire the ‘Soapmakers’ Grip,’ I am ——.”

Let’s hear from some more soapmakers. While not every idea advanced may be practical, some useful points may undoubtedly be worked out. From the number of complaints we have heard of irresponsible would-be manufacturers making misleading statements to allure
soap makers whom they cannot or will not pay for services rendered, it would seem that some means of comparing notes would be handy.

As one means of bringing about a degree of useful co-operation among soap manufacturers it has been suggested in our correspondence columns that manufacturers carry the goods of others in the case of soaps which they do not make themselves. Thus a subscriber writes us: “We have an order before us for ordinary cocoanut soap, offering a price for which many a manufacturer who has special facilities for making just those goods would be glad to fill the order. If the proper spirit existed we would get this soap from one of the manufacturers who make it and ship it along with our goods, thus simplifying matters.”

There can be no question that such a system, which will improve the services to the public and decrease the distributing expenses of soaps, is practical in many instances and will therefore prevail in the end. In a measures this is being attempted by a few soap manufacturers having certain of their brands made in other factories than their own, but neither is this method feasible in all cases nor as extensively practiced as the plan suggested above deserves to be.

In this connection it is proper and appropriate to call attention to the advertisement of the Geo. A. Schmidt Co. on the last page of our cover.

We have received, from the Patent Office of the German government, a list of patent attorneys registered for the transaction of business connected with that office. We shall keep it on file for reference in cases of inquiries.

Washing powders have reached a degree of importance where the Treasury Department has decided hereafter to keep separate track of export and import figures relating to this class of goods instead of, as formerly, placing them among “all other chemicals” where they could not be separated from a large number of other chemical products.

A monthly market report, we are aware, has no very great attraction for centrally located buyers who can watch the changes from day to day in their own markets. Adding the difference in various markets, the irregularity with which correspondents furnish reports as a rule, and occasional disputes arising from prices quoted, we thought best some time ago to discontinue our Market Report. It appears, however, that soap manufacturers not located near the great market have missed these reports, and so we resume their publication at the request of a number of subscribers. Having profited by experience, we submit these reports for the use of those who find them useful, and request those who have better facilities for studying the markets to supply disregard our reports or to use them merely by way of a record for occasional reference when required.

Our Brand List in Court Again.

We are in receipt of the following letter:

BURLINGTON, IOWA, Aug. 20, 1901.

Dr. Henry Gathmann, Milwaukee, Wis.

Dear Sir,—At the request of the Iowa Soap Company we hand you a memorandum of the result of the litigation between the Allen B. Wrisley Company and the Iowa Soap Company, as far as it has reached. We take it that you should have an extra interest in this case for the reason that the complainants made quite an attack upon you and upon your book giving list of brands of soap as being inaccurate and not worthy of credit in the soap trade.

The matters in controversy between the Allen B. Wrisley Company and the Iowa Soap Company were three questions: First, Allen B. Wrisley Company claimed that it had a trade-mark and trade-mark rights in the brand and name “Old Country” used on laundry soap. It claimed second, that the defendant, the Iowa Soap Company, had infringed on said trade-mark and trade-name by its brand “Our Country’s” used on laundry soap, and it claimed third, that the use by the Iowa Soap Company of the trade-name “Our Country’s” upon its laundry soap was in equity unfair trade against Allen B. Wrisley’s brand “Old Country” upon its laundry soap.

The case was brought in the Federal Court for the Southern District of Iowa, Eastern Division, and was heard first on an effect of complaint to obtain a preliminary injunction. This was denied. See the opinion 104 Fed. Rep. 548.

The case was then set down for hearing upon the evidence, a very large number of witnesses testified and several volumes of evidence taken, and the whole matter was referred to the Honorable William C. Howell, Master in Chancery of said court, who on August 17th filed a very thorough and elaborate opinion holding:

First, That Allen B. Wrisley Company have no trademark rights in the brand “Old Country”, and

Second, That even if the complainant had such trademark rights yet the term “Our Country’s” as used by defendant is no infringement thereon, and

Third, That no grounds exist whatever for equitable relief on the allegations of unfair trade.

Yours etc.

BLAKER BLAKE.

[This is not the first time our list of soap brands has
played its part in a litigation and probably it is not the last time. That, under the circumstances, it should come in for a share of criticism at the hands of the lawyers of either one side or the other is to be expected and quite natural—though, we admit, it is not exactly pleasant. We are assured however, by the complainants in the above mentioned case that "they most heartily endorse our claim that our list is compiled with the greatest care and therefore, while not perhaps absolutely correct, is certainly worthy of credit in the soap trade." More than that we do not wish to claim ourselves; we have never been known to miss a chance of asking manufacturers to send in their brands for registration; for eleven years we have collected brands in every way at our disposal, have never knowingly failed to register a single one that came to our knowledge, have written hundreds and hundreds of letters with a view to perfecting this list, and have used the columns of the Journal freely to further the interests of this list; yet we have never charged a single cent in all this connection, in order that no money consideration should interfere with the completeness of the list. Dun's and Bradstreet's reports do not contain every firm in business; city directories have their fault and errors the world over, and every other compilation of that character has its shortcomings. But our list contains twenty times as many soap brands as do the records of the U. S. Patent Office! and it is a list which has no equal anywhere. A copy of it exists in almost every soap factory and if the owners of these have any fault to find, let them consider whether they have done even a thousandth part of the work we have done, to make it better or more complete. And, as usual, we take this opportunity to ask you to send in for registration any new brand not as yet on our list.)

What They Do Elsewhere.

The island of Mitylene, Turkey, had a flourishing business a year ago in the manufacture of soap—especially the filled kind. Then the government prohibited the shipment of adulterated soap from the island, although the manufacture itself is prohibited neither on the island nor in the rest of the country. As a result manufacturers on the mainland can supply their customers with all the cheap soap wanted, while manufacturers on the island are prohibited from supplying the same customers with the same grades and are facing ruin of their business.

Leghorn, Italy, enjoys quite an export business in soap to South America, the United States and even Canada.

The British Co-operative Wholesale Society has a considerable soap factory at Irlam.

The crop of Bulgarian rose oil this year is reported as up to the average in amount and quality, though a third less than the unprecedented output of the year before. Unfavorable weather during the budding season and dropping off of immature buds during the subsequent hot and dry weather were reported from many districts.

French toilet soap is being actively pushed in India, a certain new brand being reported as meeting with marked success and a good price, owing, it is claimed, to suitable packing and general get-up more than to superior merit.

A statue of Eugene Chevrel, has been erected in the Court of Honor of the Museum of Natural History, Paris. The inscription takes note, among other achievements of his, of the work done by him in connection with the constitution of fats, stearic acid, etc.

L. Weil, Strassburg, Alsace, Germany, has obtained an English patent for a process of obtaining saponine from horse chestnuts (Jour. Soc. Chem. Ind.). Ripe horse-chestnuts, after peeling are ground and dried at 40-50° C. The oil and resin are removed by extraction with benzine or petroleum spirit, and a subsequent extraction with 93 to 96 per cent. alcohol dissolves the saponine, which separates on concentration and cooling. The crude product is dissolved in alcohol, treated with freshly precipitated hydroxide of lead (from lead nitrate and ammonia), and finally precipitated by pouring the alcohol solution into ether. If necessary this process is repeated. After drying, the saponine forms a white powder, readily soluble in water, giving a strongly frothing solution. The yield of saponine is about 10 per cent. of the weight of the nuts.

They Say.

that experiments are being made, and in part successfully, with newer and more economical methods of obtaining turpentine and rosin. In view of the terrible waste of the Southern pine forests by present methods, it is to be hoped that these experiments will be highly successful, as they have in view not only improved manufacturing methods but also the preservation of the trees.

that this country imported during the twelve months ending June 29, 1901, perfumery and cosmetics to the value of $605,336 (as compared with $533,111 the year previous).

that during the same period the importation of fancy and toilet soaps amounted to 973,669 lbs. (as against
Upon that geyser piece to that nation.

that our export figures also are not an unmixed encouragement, for though in toilet soaps our exports increase from $494,406 to $562,514, there was a decrease in respect to "all other" soap from 36,239,193 lbs. to 28,376,592 lbs.

that it is a perfect mystery how tallow could remain firm during the heated spell.

that this year’s pepermint crop will be light and prices of oil correspondingly high.

that alcohol can be made into solid form is something of the same fashion after which soapmakers know to "make water stand upright;" in fact the product might pass as an attenuated transparent soap. The result is reached by heating a quart of alcohol in a vessel of double capacity over a water bath at a temperature of 60 deg. C. Four hundred and fifty grains of Venetian soap, very dry and cut fine are added, as well as 30 grains of gum lac. After a complete solution has been obtained, and while it is still warm, it is poured into metallic receptacles which are closed immediately and left to cool. The presence of the gum lac assures the preservation. The soap incorporated in the alcohol is left as a residue after burning.

that there is a geyser at Rotorna, New Zealand, which performs a feat of spouting most wonderfully from time to time, but can be made to display its natural forces on short notice by simply dropping into its pool a small piece of soap. Thus on the occasion of the Duke and Duchess of Cornwall and York visiting the vicinity recently, the geyser was given a preliminary rest for six weeks by restraining the people from putting in soap, and when the Duchess on her arrival deposited a piece of soap in the proper place a mighty outburst of the geyser promptly rewarded the spectators. How long before this combination of hot water, soap and gigantic motive power will do duty for a laundry?

that for determining the purity of essential oils the specific gravity is the most useful single means; solubility determination more reliable than any other single examination; freezing point of great value for amine oils; and optical rotation frequently the only really reliable method in a given case.

that a reasonable degree of success has been achieved by a German experimenter in making soap with salt instead of caustic soda, by treating fatty acids with ammonia, thus forming ammonia soap and then treating the latter with salt (or running the fatty acids directly into an ammoniacal salt solution). The ammonia is recovered at the end of the process. For 100 parts fatty acid are used 200 parts of a solution containing 64 parts ammonia and 25 parts salt; the process is carried out without heating but with much crutching. The soap obtained is washed repeatedly with hot concentrated salt solutions.

that castor oil soap is particularly sensitive to salts and to excess of strength and that the oil is not desirable in any but small quantities in soap other than transparent soap.

Household Duties in the Light of Modern Science

HOW DOMESTIC TROUBLES MAY BE LIGHTENED.

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[As we have endeavored to show by selected specimens from month to month, there are more ways than one to impress upon the public the importance of the soap manufacturer’s art. The following was written and published in a “Ladies” periodical, from which we reprint it, with permission.—Editor A. S. J.]

“Home, sweet home” is a song which quickens the beat of every true American heart; yet, strange to say, no other branch of science has been so badly neglected as “Home Making” “Home Economics,” etc. It is only quite recently that several of our more progressive institutions of learning have taken up the study of household duties, at least such of them as appeal most to the public at large.

One of the most important branches of housekeeping, the art, the science of housecleaning, is usually, as altogether too prosaic, as “the mearest of toil,” left entirely in the hands of our domestic help, who, being giving to following the example of their employers, usually slight that work which is so essential to make home a sweet home. Let our intelligent women realize the vital importance of thorough sanitary cleanliness, let them become aware how they hold in their hands the welfare of nations! Upon the proper performance of the duties of our housewives hinges the possibility of a continued endurance of an ever increasing strain upon the faculties of mankind. The more energy we are compelled to spend in “making a living,” the less remains for combating our smallest enemies, which abound in improperly kept dwellings. Unless our homes are managed in a manner which furnishes better, more sanitary, con-
ditions for recuperation along the lines outlined below, the rate of progress of late years cannot be kept up—our energies would give out. Surely, there is no more worthy object of women's closest attention and investigation. If she wants to learn how to properly direct her help, let her read very carefully all we say further on.

If we desire to get satisfactory assistants for housework, these must be made aware that employers know exactly what they want them to do; if pointers can be given, if it can be demonstrated how the work should be done, our help are more apt to follow instructions than is the case where the lady of the house shows that she, herself, is utterly ignorant of the importance of proper housecleaning and knows nothing of modern methods.

It is most charitable to assume that satisfactory domestic help is so difficult to procure because they find nothing interesting in their daily work; it is said that intelligent people never are satisfied unless their minds work harmoniously with their hands. If the housewife will adopt some of the ways of the shrewd business man, if she supplies her assistants with the best appliances, tools and supplies and instructs her help in their proper use, she will be astonished at results. All too frequently the housekeeper of the day is guided in her purchases by external and superficial indications; low prices, large size, pleasing appearance, broad claims for excellence etc., influence her judgment and the poor domestic, who should profit by the use of the purchased article, usually finds such goods to be veritable duds of their class, all their showy attractions disappear as soon as they are put to practical work.

In order to get at the bottom of the trouble and to make the housewife of the future understand one of the reasons why some houses are so restful and comfortable, it will be necessary to handle the delicate subject rather roughly; it won't do to "put on kid gloves" while doing so. Better bear in mind that the conscientious physician is sometimes obliged to hurt in order to cure; as his labors are not always of a cheerful nature, so will our subject appear unpleasant at first, but we promise you that you will learn lessons which will enable you to enjoy purer and cleaner surroundings. Experience teaches us many things, but, unaided, it is an extremely slow and expensive teacher; if assisted by close observation and a little more real knowledge, people will get along much better in the world.

In order to comprehend better the real object of housecleaning, the housekeeper ought to take a few peeps through a good microscope and look at matter gathered from various nooks and corners in her house and, while doing so, bear in mind that nobody can find rest and recreation in a house occupied by rats, mice, flies, mosquitoes or similar vermin. The magnifying glass reveals the fact that similar, much smaller pests abound everywhere, where "dirt," even if invisible to the naked eye, is to be found. Persuing our investigations in household science a little further we will find why it is so extremely foolish to consider housecleaning an uninteresting, simple, unimportant occupation; only the lack of proper knowledge caused people to think thus and it is high time that the truth becomes known, that not only is the providing of the necessities of life and of the beautiful worthy of the best efforts of the most refined lady, but the solution of the problems of the proper removal of waste matter is also fit to be the subject of her thoughts.

Some of the most learned engineers give their best energies towards devising plans for the removal and rendering inoffensive of waste matter, to the building of water works, to the construction of sewerage, etc., yet their work is comparatively worthless if it is not supplemented by the proper knowledge and zeal of the progressive housekeeper, if the housewife does not understand that the sewers are the only safe and handy place where germ life in its smallest and most dangerous form is destroyed, that fresh water is brought into her house for the purpose of loosening, dissolving and enveloping whatever dirt can be removed therewith.

As long as old fashioned soaps, soda, soap powder, ammonia, etc., etc., were used as solvents, the work of cleaning and purifying could be done only imperfectly; the most dangerous "dirt," because it is of a slimy, adhesive nature and clings to surfaces as beeches, mussels, snails, etc., do, could not be removed heretofore, and, as shown further on, was, and is, the cause of much injury to health and comfort.

Progressive American manufacturers have of late years so improved means for the promotion of hygienic cleanliness and for rational skin culture that, with the aid of their products, it is now possible to remove completely all germ life together with the "soil" which makes its existence possible, and this can be done at less than by old methods.

We will illustrate by a familiar example how the supply of fresh water and the sewerage system are like the arteries and the veins in our bodies; the former carry the supply of pure fresh blood, which absorbs, takes up part of the waste, used up matter, the impurities of our bodies; these are carried by the veins to the lungs to be oxidized or purified. (Nature is our greatest teacher and we prefer to illustrate our principles by natural history items.)

The following example will at the same time illustrate the folly of old fashioned methods and the advantages of new ideas. We select for the purpose the treatment of carpets. Owing to the fact that dust and dirt get into the meshes of the fabric they cannot properly be cleaned by the old fashioned method of sweeping,
“damp tea leaves” take up only a small fraction of the dust and dirt; even modern carpet sweepers are not much better; taking up and beating the carpets is a difficult and tiresome operation, besides, it scatters the germs and microbes (which invariably accompany all waste matter) and so spread the evil which ought to be destroyed. The new and easy way of renovating carpets on the floor is as follows: Dissolve a bar of one of the best makes of modern Carpet Soaps according to directions accompanying the products of experienced, conscientious makers, this will make a stiff jelly which is spread on the carpet and vigorously brushed. This will loosen everything which does not belong on the carpet, the latter forms envelopes and catches everything, like fish when caught in a net; a scraper provided for the purpose is used to take up the dark, thick mass (if you should view this under a powerful microscope, you would know why doctors insist upon a frequent and thorough cleaning of carpets with modern preparations) going over the soaped portion with a damp sponge, frequently washed out in clean warm water, will make your carpet like new. Certain essential oils and antiseptic, deodorizing and disinfectant ingredients, contained in good Carpet Soap and absorbed by the fibre, serve to make carpets an undesirable dwelling place for moths and insects, germs and microbes. Old fashioned, common soaps, as well as other cleaning compounds, would not do at all for this purpose, they would make thin solutions which would penetrate through the carpet and would carry the dirt down to the floor instead of picking it up, as is the case with properly prepared, modern Germ Eradicators or Carpet Cleaning Soaps.

Queer as it may sound, yet it is true that people have given more careful thought and attention to the erection and fitting up of modern storage houses for the proper preservation of goods and chattels than to make our homes more suitable for the preservation of our energies, our vitality and good humor. Storage houses are so constructed that, where furniture is stored, moths and other injurious insects are kept out; for the preservation of perishable articles cold air is supplied, as experience and science have shown this to be the most desirable and least objectionable agent to preserve eatables. In our homes we have only progressed far enough to provide ways and means to keep out or destroy such of our smaller enemies as can be seen; rats, mice, flies, mosquitoes and similar vermine are successfully combatted by various means, but our smallest, most formidable foes, the germs, microbes and bacilli have not yet received that attention from the housewife which they so well deserve.

We repeat, experience taught us that “cleanliness is next to Godliness,” and the celebrated chemist, Justus von Liebig, claimed that “from the amount of soap a nation uses one may judge the state of its civilization.” If old fashioned soaps, whose principal virtue consists in making things slippery and in dissolving a few kinds of dirt, play so important a role in life, how much more good can be done by means of modern aids for the household, if progressive women learn their proper selection and use? The world will be thankful if some of the time and energy, now given to the pursuit of useless fads, will in future be devoted to the subject treated here.

The study of every brand of science aids us in determining the importance of better, more thorough and sanitary house cleaning. Natural History teaches us that wherever dead organic matter is present, “living things” of the animal or vegetable kingdom thrive and multiply. No piece of land will, without proper cultivation, remain free from weeds. Kind nature has provided ways and means to render inoffensive dead animal matter and decaying vegetation by creating those lower forms of life, which live upon the remains of other species. She has also bestowed upon human beings intelligence to be used for limiting the activity of germs and micro-organisms. A failure to make use of common sense is sure to be followed by exceedingly unpleasant results; it is dangerous to reason “people have lived so far without this kind of knowledge, why should I bother my head about this now?” People thinking thus forget that the world progresses, that the demands upon our energies increase with progressing civilization. The savage in his native forest got along without the use of any soap or similar cleaning or disinfecting agents, his mode of life did not so urgently demand the expenditure of much energy, he had enough to spare for combating the minutest enemies of the human race (besides, these are much less in number and variety in thinly settled portions of the country than in overpopulated cities), but experience teaches us that savage tribes, which do not adopt civilized manners, habits and customs, disappear.

A reference to modern methods of curing disease may best explain why real sanitary cleanliness is so essential to human happiness. Ever since Lister, the celebrated English surgeon, demonstrated that the main danger in operations lies in the germs, present everywhere, getting into open wounds, the many cases of blood poisoning and other diseases, owing their origin to germ life, ought to cause every intelligent person to use every precaution to get rid of such dangerous neighbors and avoid accumulations of waste matter wherein they multiply.

One of the first and easiest observable signs of an impaired vitality is a coated tongue, can you guess what the coating consists of? If not, let your physician explain it or show you some of it under a good microscope;
it will form a further lesson of what we are trying to make people understand. The mouth, owing to its moisture and warmth, offers special inducements to the multiplication of micro-organisms.

All truthful physicians will acknowledge that the real secret of their art consists in the proper destruction and removal of undesirable growths and matter out of place. So it is with housekeepers, one of their most important duties lies in the same direction; let her learn to recognize what ought to be removed from her house and if she practices what we are trying to teach, the world, through her efforts, will become cleaner, purer and more enjoyable in every way.

It is not at all necessary that everybody should keep track of the progress made in the science of house-cleaning, only enough should be known to every intelligent woman to cause her to quit the foolish practice of dealing with quacks when she is in need of those aids or means wherewith her home is to be rendered pure, sweet, healthy and comfortable. It is not so very difficult to choose and co-operate with responsible, reputable and experienced persons, who have made above problems their life study; such people will keep her posted and supply the useful. A little real knowledge and discrimination will save her much money, time, energies and annoyances, because she will never again use such preparations and methods as will only poison, and cover up germs; nothing else but complete removal and a delivery into the sewerage system will satisfy her in future.

Many more interesting details are to be said, we have, as yet, shown but a few examples, how the various kinds of "dirt" necessitate different means and aids in their removal. Much remains to be said about the surfaces from which germ life is to be removed, thus, wall papers are cleaned with fresh bread or gluten, etc., then there is the human skin, the most delicate, the most complicated, most important of all coverings or surfaces. This article, however, would get too lengthy were we to continue, if our readers desire to know more about the subject, let them express their wishes to the editor of this paper and we will cheerfully furnish further hints and suggestions on these all important problems.

A New Scheme of Trade Mark Blackmail.

An extraordinary and unusual form of enterprise has recently developed in Cuba owing to the fact that the old Spanish practice as regards Trade Mark registration still exists in that island, says the Scientific American. In Cuba, as in most of the Spanish-speaking countries, the first registrant of a trade mark becomes the legitimate owner in the eyes of the law, even though he may have appropriated the name or mark from some other source. In the United States it is well known that the rightful owner of a trade mark must be the first originator of the mark, while in most foreign countries the ownership of said mark depends upon the formal act of registration alone and the question as to who is the first originator of the mark is not inquired into. It is possible, however, for merchants who have registered their trade marks in the United States to extend their rights over the foreign possessions of the United States, including Cuba, by simply registering in those countries certified copies of the United States certificate and complying with other formalities, and this may be done for a trifling fee. It is astonishing, however, how very lax our manufacturers and merchants are in regard to this matter and what penalties they have to pay for their ignorance or neglect. It appears that there is in Cuba a small gang of clever "gentlemen" who have determined to profit by the carelessness of American merchants and who make it a practice to register such marks as they think are likely to be extensively used in trade in that country. Several instances have recently come to our notice in which an ounce of prevention would have saved a world of trouble and annoyance. The American merchant has no redress, and when he places his goods on the Cuban market he is politely informed that he is infringing Mr. John Doe's trade mark and is notified to discontinue. He is naturally half amused and nonplussed at Mr. Doe's temerity, but when the Cuban Certificate of Registration is produced showing a facsimile of his mark, the serious nature of his position begins to dawn upon him. What is to be done? He has been guilty of laches and must pay the penalty.

A firm of wholesale drug merchants registered in this country several years ago a trade mark on a particular drug, which has since attained an enormous popularity. No registration was made, however, in the colonial possessions, and one of these "gentlemen" in Cuba, above referred to, foreseeing that this drug would have a large sale in that country, applied for registration of the trade mark under his own name. Before his application was granted, however, the firm in question had applied for registration of its mark, but the application was refused on the ground of anticipation and the registration was granted to the first applicant. As a sequel to this, the firm has been obliged to buy out the successful applicant, paying something between eight hundred and one thousand dollars for the certificate thus fraudulently obtained.

We have repeatedly pointed out in these columns the necessity of attending to these formal details which are so important in protecting trade rights in most foreign countries, and the foreign commerce of the United States is becoming so extensive that these matters should
not be neglected or forgotten. We are happy to say that many of the great commercial houses are fully awake to the importance of protecting their interests in this matter, and the danger of neglect is being happily more and more understood.

**Tar Burners of the South.**

Peat tar is made in northern Europe, where the chemical influences of ages have been absolutely essential to the formation of peat by means of heat and pressure acting conjointly upon a vanished vegetation. Bone tar and coal tar are by-products in the bone-black and illuminating gas and coke industries. An astonishing number of commercial fluids and solids emanate from coal tar distillations, but the manufacture of wood tar is an industry by itself.

A Southern tarheel "burns" tar for $2.50 a barrel or thereabouts. A full barrel means about fifty-seven gallons or 400 pounds. That he wastes by his simple process illuminating gas, wood naphtha or alcohol, and pyroligneous or acetic acid does not trouble the improvident burner, although he does try to save and sell, incidently, a little charcoal at five or seven cents a bushel. The tarheel of the South cannot construct expensive retorts and could not run them were they among his possessions. The burning question with him is: "Shall I build a round or flat kiln?" A flat kiln is more easily made and managed; a round or conical kiln is susceptible of better air draught, however, and burn out faster, but requires closer watching night and day.

Wood tar is made out of dead pine. Live pine yields turpentine and rosin, and it is, only the long leaf pine that is "fat" enough to produce tar, turpentine and rosin in paying quantities. The manufacture of tar is an entirely separate process from that of making turpentine and rosin. White or yellow pine is too dry to profitably manufacture tar, turpentine or rosin from, but it does furnish much timber for building purposes.

When a tarheel decides to burn a few barrels of tar he selects a site upon the gentle slope of a hill-side where there is a clayey subsoil, not too much exposure to wind, but near running water, and if possible, near to or in the midst of an area containing considerable dead or fallen pine. Down to the clayey subsoil he scrapes the size his kiln is to be. In the centre he drives a stake to pile to, and from that he digs a trench exteriorly to a scoop-ped-out hole to receive a barrel or empty tub. Resinous pine roots, knots and long and short strips are then piled in a circle in layers downward toward the stake at an angle of ten of fifteen degrees. When the pile becomes five or six feet high he builds a square log inclosure around it, and fills this in with dirt. Over all is laid straw or green leafy boughs. This covering is dressed over with dirt and clay, in which are left a few vent-holes. All is now ready for "firing." His trough, dipper and tub, also barrels, are near by. He has erected quite near, too, a rough shack to which he may retreat in bad weather, and to shelter his salt, flour, cornmeal, tin coffee-pot, sweet potatoes, and "fat-back" from the once lean and roaming "razor-back." A piney woods country of fallen timber is bleak enough at best, but without "razorback" it would be cheerless indeed.

The tar-burner must be constantly on guard. He occasionally gets an hour or two of sleep when all is running smoothly and no high winds threaten immediate conflagration. He has lighted at the top, in the vents, the ends of splintered pine. They smoke and flame alternately, but a little dirt thrown here and there keeps the flames under subjection. Sometimes the tar-burner's wife comes over to the kiln to watch while he snatches a few hours of sleep. The native women of the South, black and white, actually work harder than the "stronger sex." Oftentimes they are laboring hard in the fields while the "ole man" is over at the "sto" chewing "niggerhead" plug or swallowing quantities of "ole co'n" liknor. As he plants himself on a box or barrel head and becomes loquacious he enlightens the storekeeper as to the proper method of managing the Filipinos. Possibly he cannot read or write, has never been out of his country, and cannot run his plantation except into debt (most plantations are mortgaged,) yet he can always tell how Uncle Sam should run the government.

Wood tar is the only residuum sweated from the rich wood of the long-leaf pine. The intense heat encrowed by the dirt-covered inclosure forces forward and downward the dark molasses-colored substance. It oozes slowly down through the hole left by the withdrawn stack, and flows out from the clayched channel into the barrel or tub receptacle. As the pile burns down, the dirt and log enclosure is gradually removed. Kilns run from six to eight, occasionally as high as thirty, barrels of tar. The burner carts it to the storekeeper, usually to liquidate some bill. In fact, the motive for "burning tar" at all generally originates with the storekeeper, whose books show many purchases of snuff, tobacco, coffee, calico, flour, corn meal, boots, fathack, and patent medicines. So he has to spur up the burner.

The tarheel may often be "plumb" out of coffee and cornmeal, but he is seldom caught without snuff, tobacco, and patent medicines. If he should happen to have a "risin" on his leg, "misery in his foot," or his wife the "weak troubles," there is nothing like medicine as a "cure-all." Doctors are few, and seldom get paid, anyway, so faith and patent medicine are given full swing. Wood, water, and shelter cost the tarheel nothing but his labor, yet the sheltering feature is but a wretched farce. Cracks in the chimney walls, between
the logs, and in the roof let in copious supplies of air and rain. Wood is cut up a few sticks at a time. Often you will hear axe-blows late upon a comparatively cold night—and you know that the tarheel is out-doors replenishing the fire-place by the aid of a flaming splinter of torch pine. No known argument could induce him to prepare a good sized pile in the day. But he is an energetic axe-man when it comes to felling a tree or shaving at a hollow trunk containing a squirrel or rabbit. Yet he is always hospitable. You cannot pass his open door without an invitation to “come in to the fire,” or “sit up and have what we’ve got.” He generally tells you that “he is poor, but he means no harm by it.”

The first question asked a stranger is: “Whar are you from?” Then follows, “What are you follelin’?” meaning your business. After that he hears his politics and about his “crop.” In the Mountainer’s cabin there is seldom but one room. This is kitchen, dining and sitting room, and bedchamber for men, women and children in large and small numbers, including the stranger within the gates.—Harper’s Weekly.

Analysis of Beeswax.

The treatise of Benedikt and Ulzer on the Analysis of Fats and Waxes, which appeared in 1897, described tests then known. Since that time various papers on waxes have appeared. K. Dieterich has studied the method of the cold saponification of Henriques, and, contrary to the experience of Herbig, has obtained good results. S. Weinwurm has made some interesting communications on the determination of paraffins, cerasins and resins, in wax. I will speak latter of his experiments. Kremel, Morpurgo, and the author of this paper, have made a study of the refractive powers. The first two hold that the refractometer can only aid in detecting large adulterations. Dieterich also rejects the use of this instrument, but from other considerations than Kremel and Morpurgo. In reality the elevated temperature at which the measures must be effected made in determining the refraction of butyric acid is one cause of the rapid decline of this instrument. The present writer has also recognized this objection; still he thinks the tests, when made with a strong instrument, have some preliminary value. Funoro confirms this view. He has ascertained that the refractive power of pure wax (40 deg.) varies from 42 to 45 degrees, which therefore offers only slight variations.

Dieterich has also made new observations on the importance of the iodine index in the analysis of waxes; he has shown that in the determination of adulterations it should be used cautiously.

Ahrens and Hett have drawn attention to an excellent method, too little appreciated, in their opinion, of ascertaining the hydrocarbies in beeswax and in particular recognizing the paraffins and cerasins. The basis of the quantitative determination of these substances is the method of Buisine. According to their data, the proportion of hydrocarbies varies between 12.7 and 17.3 per cent. This process requires special heating apparatus and fusion tubes. It is somewhat difficult, and will hardly enter into general practice.

Ginsburg recommends the saponification of wax by means of alcoholic potash; the hydrocarbies float on the surface, forming an oly layer. Buchner has also made the same observation. He distinguishes paraffin from the cerasins by the fusion point of the substance thus obtained; the first melts above 70 deg., the second between 60 deg. and 65 deg.; evidently nothing can be expected from this method.

The processes for the determination of ethers and for the index of saponification are widely divergent, especially those which relate to the nature and duration of the heating. It is extraordinary that a uniform method of operating has not yet been introduced. HübI, who first presented a method, recommends to heat 45 minutes on the waterbath; Becker, 30 minutes, but under five centimeters of pressure. According to Buchner, the heating must be for one hour over wire gauze.

Woy is in favor of joining the balloon, when the operation is performed with a Müller extractor so as to keep constant the volume of the liquid. Glodt-Guyer is of the opinion that the heating should be for two hours. The quantity of material employed by these different investigators varies between 2 and 10 grams.

According to my experience 45 minutes on the waterbath is not sufficient to saponify all kinds of wax, when 5 grams of the materials are use. The following fact will prove it. Four wax candles, prepared from the wax of bees unknown locality have given the following results by the Müller method:—

<table>
<thead>
<tr>
<th>Index of Saponification</th>
<th>Etheration Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candle white, No. 1...</td>
<td>12.84</td>
</tr>
<tr>
<td>Candle white, No. 2...</td>
<td>22.40</td>
</tr>
<tr>
<td>Candle, yellow, No. 1..</td>
<td>20.16</td>
</tr>
<tr>
<td>Candle yellow, No. 2...</td>
<td>19.88</td>
</tr>
</tbody>
</table>

These results seem surprising, the more so because, with the exception of acidity, the physical properties were absolutely normal.

The analyses were repeated by heating one hour and a quarter over wire gauze. The results mentioned below were obtained, results which demonstrate that the Buchner process ought to be generally introduced. Only there is danger that the balloon will burst. I always employ an Erlenmeyer balloon, if a Bunsen burner of
the form of a mushroom is used. I have not ascertained whether, as Weinwurm asserts, this method is more laborious than that which consists in heating for half an hour in a covered balloon over a water bath, and disposing of the alcohol by evaporation.

| Index of of
| Acidity. ether. amidation. Ratio. |
|----------|-------------------|
| White candle, No. 1. 21.84 76.16 98.90 3.49 |
| White candle, No. 2. 22.40 79.52 10.192 3.55 |
| Yellow candle, No. 1. 30.14 72.24 92.68 3.53 |
| Yellow candle, No. 2. 19.88 74.76 94.64 3.71 |

On turning boiling water into the balloon which contains the alcoholic mixture of saponified wax, a perfectly limpid solution is obtained, which, even strongly diluted, and after cooling, is not cloudy. On the other hand, the waxes containing paraffin and ceresin which I have examined as a check on experiments, give, in the same conditions, a very cloudy solution. The cloudiness was the greater in equal solution, as the proportion of these impurities was the greater. Also when the wax was adulterated with these compounds, the contents of the balloon were not limped immediately after saponification. Weinwurm has already noticed this. He mentions the characteristic fact as a qualitative proof that the wax contains paraffins and ceresins. He employs, however, a somewhat different process. He eliminates by distillation the alcohol mixed with the saponified wax, and then adds glycerine, which only dissolves the saponified particles, but not the impurities. If the method mentioned above is employed for determining the indices of ether and of saponification, there is no necessity for removing the alcohol or adding glycerine.

An addition of paraffin or ceresin can be recognized qualitatively, even below 5 per cent. The contents of the balloon including 5 grams of wax, about 25 centimeters of alcoholic potassium, half normal, and 20 centimeters of 95 per cent. alcohol, do not in this ease become clear at the end of an hour of heating over the wire gauze.

If some warm water is added to the liquid while still warm, a solution distinctly cloudy is obtained.

I have instituted some experiments to ascertain whether it was possible in this manner to determine, at least approximately, the proportion of paraffin and ceresin in a wax, and thus to introduce a new test of its purity. The compounds which can be extracted with ether, and which are especially myrieye aloholic and the hydrocarbides have seemed to me suitable for this purpose. I do not know whether similar experiments have been made. If so, I would be very glad to have the results communicated.

The experiment was made as follows; 2 grams of wax with 5 centimeters of normal alcoholic potassium and 15 centimeters of alcohol were saponified by heating over wire gauze. The operation was made in a balloon of 70 cubic centimeters.

The liquid was then decanted into a capsule and evaporated to a volume of about 15 centimeters. The residue was mixed with ether, then extracted with ether exempt from fatty matters and water, in a Soxhlet apparatus. The residue of the etherized solution, a compact grease, was dried at 100 deg. The following results were obtained with 21 remarkable pure waxes:

<table>
<thead>
<tr>
<th>Variety.</th>
<th>Percentage.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etherized</td>
<td>Extract,</td>
</tr>
<tr>
<td>1. Wax, white</td>
<td>49.50</td>
</tr>
<tr>
<td>2. Wax, Moldavia, white</td>
<td>48.55</td>
</tr>
<tr>
<td>3. Wax, white</td>
<td>50.06</td>
</tr>
<tr>
<td>4. Wax, yellow, source unknown</td>
<td>49.21</td>
</tr>
<tr>
<td>5. Wax, Egyptian, white</td>
<td>51.89</td>
</tr>
<tr>
<td>6. Wax, Monte Cristo, brown</td>
<td>53.08</td>
</tr>
<tr>
<td>7. Wax, Italian, yellow</td>
<td>49.40</td>
</tr>
<tr>
<td>8. Wax, Alsatian</td>
<td>51.35</td>
</tr>
<tr>
<td>9. Wax, Egyptian</td>
<td>50.90</td>
</tr>
<tr>
<td>10. Wax, Hanover, yellow</td>
<td>50.00</td>
</tr>
<tr>
<td>11. Wax, Brazil, yellow</td>
<td>51.85</td>
</tr>
<tr>
<td>12. Wax, Turkey</td>
<td>50.24</td>
</tr>
<tr>
<td>13. Wax, Zanzibar, yellow</td>
<td>50.71</td>
</tr>
<tr>
<td>14. Wax, Sweden, yellow</td>
<td>50.23</td>
</tr>
<tr>
<td>15. Wax, Mexico, yellow</td>
<td>49.43</td>
</tr>
<tr>
<td>16. Wax, North Africa, yellow</td>
<td>52.09</td>
</tr>
<tr>
<td>17. Wax, white, in pots</td>
<td>50.50</td>
</tr>
<tr>
<td>18. Wax, Domingo, yellow brown</td>
<td>49.80</td>
</tr>
<tr>
<td>19. Wax, candle, white</td>
<td>51.88</td>
</tr>
<tr>
<td>20. Wax, candle, yellow</td>
<td>53.01</td>
</tr>
<tr>
<td>21. Wax, candle, yellow</td>
<td>52.90</td>
</tr>
</tbody>
</table>

The proportion of soluble compounds in the ether, after saponification, varies, therefore, from 48.55 to 53.01 per cent. Ahrens and Hetts have found the proportion of hydrocarbides in bees wax between 17.7 and 17.3 per cent. The fusion point of the etherized extract varies from 71 to 74 per cent.

The paraffins and ceresins ought, of course, to increase the quantity of etherized extract. By adding these to the pure waxes in small quantity, I have obtained the following results:

| 1. Wax, No. 3 of preceding table and 5 per cent. of paraffin—55.13 per cent. of extract. |
| 2. Wax, No. 5 of preceding table and 5 per cent. of ceresin—54.20 per cent. of extract. |
| 3. Wax, white, guaranteed pure by seller—57.05 per cent. of extract. |

This last sample, tried by the modified method of Hubl, gives the following results:
Index of acidity .......................... 29.16
Index of ether ............................ 71.56
Index of saponification .................. 91.72
Index of ratio ............................ 3.55

Qualitative test of the paraffin, positive.
Although the figures deduced from Hubl's method were not abnormal, this wax ought to contain about 5 per cent. of paraffin or of cerasin.

In one case the determination of the compounds soluble in ether did allow the detection of an addition of five per cent. of cerasin. A yellow wax, well purified, of Swiss origin, gave the following results:—
Index of acidity .......................... 29.12
Index of ether ............................ 70.82
Index of saponification .................. 90.94
Ratio ................................. 3.52

Qualitative test of paraffins: 0.
After saponification, this wax would only give 47.43 per cent. of etherized extract; after addition of 5 per cent. of cerasin, 51.84 per cent.; after 8 per cent. of cerasin, 54.15 per cent. That is to say, the mixture with 5 per cent. of cerasin would give no more extract than the pure wax. On the contrary, the qualitative test naturally gave a positive result.

By M. K. Dieterich.

Some days before the appearance of the interesting article of M. J. Werder in the Chemiker Zeitung I had sent to another journal a short extract of some experiments which led to results similar to those obtained by this investigator.

This was especially the case in relation to the duration of the saponification of five grams of wax. One wax, examined according to the method which I described in 1897, was found pure; but another chemist declared it adulterated. My method gave again normal figures. This wax had been examined by the purifier by saponifying five grams of wax with twenty centimeters of semi-normal alcoholic potassium and by heating and by heating for half an hour. When I repeated this analysis, I found that by employing three grams in place of five, the results were normal. This must be attributed to the fact that the quantity of potassium was not sufficient if five grams of wax instead of three grams was only heated for half an hour. I have found about double the amount of potassium necessary for five grams, and have boiled it, as Werder points out, for an hour and a quarter. Although twenty centimeters of potassium would be sufficient theoretically for saponifying five grams of wax, it appears that there must be a marked excess to render the reaction complete. For the sake of rapidity, I should therefore recommend the employment of three grams of wax and heating only half an hour.

M. Werder and myself have therefore arrived at the same time and by different processes at the same result. I am now making tests to determine the highest limit of saponification and the maximum and minimum quantities of potassium necessary.

The facts demonstrate how necessary it is that all analyses of wax should be made in identical conditions and by uniform method.—Chemiker Zeitung.

Does Soap Rot Clothes?

Editor American Soap Journal:
The good housekeeper claims there is nothing to show that soap ever rotted clothes; the poor housekeeper gets the idea that if she uses much soap it will rot her clothes; so she rubs and rubs on the ups and downs of a washtub and then claims the soap rotted them. She wears out the washtub and then has an idea the soap rotted that, too. If she had used more soap and less rubbing she would not have gone so often to the dry goods store. The doctors and surgeons use soap to keep sores from festering, and still soap gets only the credit of rotted clothes.

There is a problem in the American Soap Journal about a good soap that won't take out color and that will not rot clothes. Soap that won't take out colors won't take out dirt. Color is applied to clothes nowadays after the cloth is woven, and color is easier taken out than dirt.

A Good Housekeeper.

Who Can Tell?

Editor American Soap Journal:

Some time since I ran across what was a novel feature to me, though I have been long experienced in soap making, and I thought it might be of interest to your readers.

In setting up two kettles purchased from an oil refinery, to be used in making settled soap, I was informed by a gentleman, who, as I understand it, had had some practice in boiling soap, that the kettles would not work well on account of being dished too much, which caused the nigre, or, rather, forced the nigre up in the middle of the kettle while the soap was settling and raised so high that the clear soap and nigre got more or less mixed and in consequence less good soap could be taken off.

As the nigre is heavier than the good soap, just what causes it to rise is not clear to me, and I would be pleased to hear if any of your patrons have had experience with such kettles.

The kettles are 18 feet in diameter and 16 feet deep, and the bottom is an inverted cone about four feet from base to apex.

Yours inquiringly,

Pan-American.
His Start In Life.

"Doc." Hartman and his Wonderful Grease Eradicator.

"Talk about your self-made men," said an old timer among a party of horse-men gathered in one of the speedway inns, "I don't think any of 'em can equal the early experiences of Tim Hartman, who died in St. Louis many years ago, leaving nearly a million dollars to be fought over by his heirs. He made his first good sized pile on patent medicines, then he picked up a great deal more on real estate, and at last he rounded out with speculation in Montana copper, but he was known as 'Doc.' Hartman to the time of his death by his few intimate friends.

"But the story that I'm going to tell, and the one which he often told himself, concerns his very earliest experiences in the accumulation of money. Tim Hartman started life with $1. He kicked around as a bare-footed boy—and a pretty mean one, too—in a little town in Connecticut until he was 18 years old, and at that time he had become so fresh and so full of wind and general gussiness that his father one day told him he was no good, never had been and never would amount to a picayune. The old gentleman, just to carry out the bluff, told Tim that he had a good mind to cut him off with a dollar and make him earn his own living. Tim straightened up and called the bluff. He told the old man that he would take the dollar and get out then and there and hustle for himself. The old man handed him a crisp $1 bill and told him that he'd be glad to see him make a fortune with it.

The first thing that cuss did was to go about in a few back yards that he knew of and gather together a lot of empty bottles which were of no use to anybody. Then, for 10 cents, he bought a large cake of a kind of white soap that was then, and still is, on the market. He melted this soap and, after borrowing an ancient pair of candle molds from an old granny in the neighborhood, made two beautiful looking candles of soap. He next filled his bottles full of choice rainwater. Then he made for himself one of those little three legged tables like the chuck-aluck and shell game men use outside the circus, and stuck out on foot for a county fair that was being held about 40 miles away.

"When he got there, he put up his little table outside the grounds, where the crowd was pretty thick, lighted one of his soap candles and began to exot the virtues of 'Dr.' Hartman's Famous Grease Eradicator,' contained in the bottles set before him.

"'Now, ladies and gentlemen,' he would shout in a stentorian but plausible voice, 'this marvelous liquid, so harmless that it can be drunk with impunity by the smallest infant and yet so penetrating that it will seek out and destroy stains and discolorations from the most refactory substance, was discovered by accident by the famous scientist, Dr. Hartman, the eminent scholar, while he was wandering o'er the wilds of Patagonia. It is colorless, you see, as the waters from heaven, and yet observe the effects of its startling properties!"

At this point Tim would reach for his soap candle and, inverting it, would smear a lot of the grease over the sleeve of his coat.

"Now, every one of you knows, ladies and gentlemen,' he would continue, reaching over and uncorking a bottle of his rainwater, 'that there is nothing so penetrating and ineffaceable as the grease from a candle, and yet it is a stain that we are all likely to suffer almost every evening of our lives while toying with that common article of the household, the candle. You will observe that my sleeve is smeared with the annoying substance. Behold,—"

"Here that country bred fakir would spill a couple of drops of his rainwater on the soap and with a rub or two would produce a beautiful lather. Another swipe and the soap would have entirely disappeared from the sleeve, leaving not a trace."

"'Now, we make this famous eradicator in such enormous quantities,' Tim would continue, 'that in order to introduce it into every home in this broad land we will dispense with it at the absurdly low price of 5 cents, a nickel a bottle. Step right up! Step right up!"

"Then, when the public was surging forward to purchase the rainwater, Tim would pause occasionally to drink a bottle of it, just to show that it was absolutely harmless.

"Well, the stuff went like hot cakes. When Tim's bottles were all exhausted, he bought more, and when he had traveled all over the country. Then, in some way or other, I don't know how, he got hold of some old patent medicine, and, being a genius, of course he made a big go of it. So that's the way Tim Hartman almost became a millionaire."—New York Times.

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.

678,681. Washing-machine. Samuel A. Newcomer, St. Louis, Mo.


PRINTS.

What Interests You and Me.

The difficulty experienced by the average journalistic editor is how to select and write on subjects that will be of interest to his readers.

The number of topics he can select from is somewhat limited, and, if he writes fifty original articles each year, by the time ten years have elapsed, he has either developed as a genius or has devoted himself several times to obtain copy. It is a singular thing that from amongst the hundreds of readers who criticise mentally the evolutions from his brain that not more than five or six can be secured annually who will help him to fill space and edify his readers. The majority of these readers are well educated and are thoroughly capable of furnishing very interesting matter for reading if they would only do so. Every writer gets rusty who has much of it to do, and, even when he does exhibit a marked degree of versatility he recognizes the fact that the practical subjects upon which he should write to provide matter of value for his readers are so limited in number, and his thoughts upon them so contracted, that he is obliged to theorize in order to maintain variety.

It is an easy matter for you to read article after article and criticize each one as you hurriedly glance over it, but the next time your analytical faculties get in good lubricated condition would you kindly sit down and write to the writer giving him a piece of your mind? He is constantly hungry for a piece of somebody's mind, as his own is starved for new food, and anybody else's will do if they will only dish it up so he can use it.

—Canadian Druggist.

Distillation and Boiling Points.

As a result of a difference of opinion as to the distilling points of a sample of petroleum ether, the following experiment was made to ascertain what differences the position of thermometer made.

A ½-litre flask was made with three openings for thermometers, so arranged that No. 1 was ½ inch above the liquid, No. 2 1½ inch above the liquid, No. 3 in the neck of flask, No. 4 in neck of flask just opposite the exit, No. 5 about 1 inch in exit tube. The rate of distillation was as nearly as possible 25 drops per minute; when, however 1-10 was left the drops were eight per minute; when 1-20 was left very little came over, although the liquid was boiling violently. 250 ccm. were taken. The sample should have boiled "all under or at 60° C." The flask was placed on a water bath, fitted with a gas regulator.

The results showed that the position of the thermometer has a marked influence on the result of observations.

In the case of liquids fractionating at higher temperatures than the above, the difference is still more marked.

The readings were also effected by exposure of the neck of flask to air currents. The apparatus in which the thermometer was sealed in the neck, and which was protected by an air jacket, gave appreciable differences against a similar flask unprotected.

Whilst the reading of the protected apparatus were steady, those of the unprotected were fluctuating.

The author's observations lead them to the conclusions that where possible in taking fractionations with a flask and not using a column, a bath should be used where possible, the temperature of which should be about 10° C, and not more than 15° C above the highest distillation point of the liquid under examination. Where a bath is not used the upper part of the flask should be protected from hot air currents by an asbestos disc, the burner being carefully regulated, and the liquid not boiling violently. Where possible an apparatus should be used in which the thermometer is entirely emerged in the vapors. The bulb of the thermometer should be just in the neck of the exit tube, and not opposite it, as this latter is the point at which the vapour comes over.

Where a fractionating column is used, they have found good results from the apparatus devised by Mr. Wertheimer and one of them.

The foregoing experiments caused the authors to ascertain if variations in construction of apparatus influenced the determination of boiling points. All the various kinds of apparatus gave high and variable results unless the upper portions of the tubes or flasks were protected from hot air currents from the burner, which should be protected by an asbestos disc 12 inches diameter, with a hole in the center, so that only the base of the tube or flask was exposed to the direct heat of the flame. A number of experiments were performed with the apparatus shown at the meeting, and all protected with an asbestos disc, in pure air free distilled water. In each case the thermometer was placed 1 inch above the surface of the liquid which was kept boiling steadily. Seven thermometric readings were given of each experiment taken at intervals of 30 seconds. The outside thermometers were placed ⅓ inch away from the sides.

All the experiments were made without condensers attached. The results show comparatively small differences between the different methods. The authors are inclined to favour the use of a tube long enough to include the whole of the thermometer as in experiment No. 3, with asbestos disc protector. It has the additional advantage of being easily and cheaply made.

It has been stated that the use of various condensers would variously affect the boiling point determination. To test this the authors experimented with
the five condensers shown at the meeting. The condensed water flowed at the rate of one pint in two minutes.

The authors conclude that the effect of condensers upon the boiling point is almost a negligible quantity, and certainly would not affect pharmaceutical determinations, and in no way resemble the great differences obtained by using different melting point methods. They recommend that in any future edition of the Pharmacopoeia, definite instructions should be given as to apparatus used and conditions for fractionation and boiling point determinations.

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**A New Method of Preparing the Hydrates of the Peroxide of Sodium and their Properties.**

M. George F. Jaubert has lately made a series of experiments with the peroxide of sodium, and finds that the hydrates of this body may be easily prepared and may be used to produce hydroxyl in different degrees of concentration; this method will no doubt be of value in different chemical operations. In an account given to the Académie des Sciences, M. Jaubert describes his experiments as follows: it is well known that the peroxide of sodium, under the action of a small quantity of water, decomposes violently with disengagement of oxygen and leaves a residue of caustic soda. This reaction is accompanied with considerable heat, and the temperature may rise above the boiling point. The following equation shows that 18 parts of water suffice to decompose 78 parts of the peroxide:

\[ \text{Na}_2\text{O}_2 + \text{H}_2\text{O} = 2\text{NaOH} + \text{O}_2. \]

The experimenter has found that quite another reaction takes place if the peroxide is simply exposed to the action of dry air, free from carbon dioxide. In this case the quantity of water absorbed by the peroxide may greatly exceed the theoretical amount necessary for its decomposition. While 25 parts of water poured drop by drop upon 100 parts of peroxide seem to bring about an almost total decomposition, it is found that by using water vapor at the ordinary temperature the same quantity of peroxide may be made to absorb up to 200 or 225 parts of water, and this without decomposition—that is, without giving off oxygen. The experiment was carried out by placing the peroxide in a closed vessel provided with a pressure gage; the chamber contained also a vessel of water, whose vapor was constantly absorbed by the peroxide. At the end of 24 hours the pressure had not changed, but the weight of the peroxide had increased from 100 to 136; it had been transformed into a pure white and friable mass, resembling snow. It was then left for a number of days and its increase in weight per day was as follows: 100 (original), 136, 163, 223, 236, 275; at the end of 5 days more it weighed as much as 325. As the hydration may be stopped at any time, it is possible to obtain by this process, and in large quantities, the hydrates already known, \( \text{Na}_2\text{O}_2 + 2\text{H}_2\text{O} \) and \( \text{Na}_2\text{O}_2 + 3\text{H}_2\text{O} \), as well as a series of intermediate and unknown hydrates. M. Jaubert has studied especially the hydrate \( \text{Na}_2\text{O}_2 + 3\text{H}_2\text{O} \), which he has prepared in great quantities. It appears as a snowy white mass, in contrast to the yellow color of the peroxide. It dissolves easily in water without giving off oxygen, but is less soluble in ice water, and in this way may be precipitated. It is thus obtained in pearly scales resembling boric acid, and analysis gives the above formula. The hydrate of the peroxide of sodium dissolves in water with a great lowering of temperature; in concentrated acids it dissolves without appreciable change of temperature and gives solutions to hydroxyl of remarkable stability. This property makes it of great value in the preparation of hydroxyl. The hydrate is quite stable when cold, and has been kept for more than six months without appreciable change, but at 30 deg. to 10 deg. C, it partially decomposes and gives off oxygen; at 80 deg. to 100 deg. its decomposition is total. This body, which may be easily prepared in the laboratory, permits of obtaining solutions of hydroxyl chemically pure and in all degrees of concentration up to 85 per cent.

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**On the Elimination and Quantitative Estimation of Water in Oils, Fats and Waxes.**

**By Charles B. Davis.**

The difficulty experienced while drying oils, fats or waxes (namely, loss by foaming and ejection, due to the contained water becoming overheated, as in the drying of the mineral oil residue obtained after removal of the fatty oil by saponification, in the analysis of lubricants) can be very readily obviated by the following method:

Into a wide-mouthed, glass-stoppered weighing bottle is introduced sufficient thick filter paper (in coil form) to half fill the vessel. The bottle and paper are now dried in the air-oven at 110° C. to constant weight.

A portion of the sample is then added, in such quantity as will just saturate the filter-paper. The bottle being now closed and reweighted, the increase in weight gives the quantity of sample taken. The whole is now placed in air-oven at 110° C. and dried to constant weight. The decrease thus obtained gives the water evaporated, which may be calculated to percentage from the data obtained above. Samples prone to oxidation are dried in an atmosphere of CO2 or H2.

In treating oils containing water, or where the whole of the residue is to be dried and the oil only determined, or the water simply eliminated, the sample is completely transferred to the tared bottle containing the dry filter-
paper by means of ether, the ether removed by evaporation at slightly elevated temperature, after which it is dried in the air-oven as above described.

Solid fats and waxes are introduced into the weighing bottle prepared as above, in their natural state, which, upon being warmed to the temperature of the oven, are quickly absorbed by the filter-paper, and drying proceeded with as in the case of liquids.

By the above method all foaming and ejection of the sample is eliminated, due to the fact that the oil, fat or wax and the water are thoroughly distributed throughout the paper while the drying operation is carried on.

A typical example of the value of the above method may be readily seen and appreciated by referring to T. B. Stillman’s “Engineering Chemistry,” p. 368, in which he condemns the trying of oils containing water on account of this loss by foaming and ejection.—Jour. Am. Chem. Society

**Toilet Creams.**

A toilet cream in which grease is replaced by glycerin is made by the appended formula:

Flake tragacanth, selected... 1 dr.

Water ........................ 2 ozs.

Glycerin ........................ 2 ozs.

Place the tragacanth in the water, stir from time to time until a perfectly smooth mucilage results and then incorporate with it the glycerin.

As straining a mucilage of tragacanth is difficult if not impracticable without the use of a strong press, the operator should endeavor to avoid a necessity for it, by using only the best article of tragacanth, being careful to pick out pieces which are free from any specks of foreign material. If it be necessary, however, to use gum the mucilage from which will require straining, a large excess of water may be employed, and this excess subsequently driven off on a water bath.

The first procedure will presumably be the more satisfactory, at least for a small quantity.

The formula given above yields a preparation which is quite firm; it may of course be rendered more fluid by the addition of either or both liquids.

The jelly may be scented, if desired, by a few drops of oil of rose or other appropriate perfume, and a pink or red color given to it by cochineal coloring.

**Cold Cream.**

The well-known ointment of rose water commonly known as cold cream is a good emollient for toilet use. There is probably no better formula for this preparation than the official one, minus the borax added at the last revision of the Pharmacopoeia. It is questionable whether the frequent application of a salt of boracic acid is free from objection. The object of this addition is to partially saponify the oil, rendering the admixture of the rose water easier; but there is no necessity for this, as the preparation can be readily made without it.

The present official formula omitting the borax is:

- Spermaceti ............... 135 grams.
- White wax............... 100 grams.
- Expressed oil of almond 600 c.c.
- Stronger rose water...... 190 c.c.

The mode of procedure is to simply melt the solids reduced to thin ribbons, by a gentle heat, add the oil, still heating, and when solution is effected to withdraw the heat add the rose water and stir rapidly until the mixture becomes uniform and cool enough to remain homogeneous.

When a cheaper preparation is required, plain water may be used and a small proportion of oil of rose added just before the ointment is ready to set. The product will not be quite so fine in odor as when the distilled rose water is used.

As another measure of economy we would suggest a trial of benne oil in place of almond oil.

It is almost needless to add that the cold cream formula can be indefinitely varied as to perfume, different perfumed water being employed and the desired perfume added just before the “cream” is ready to set.

One form which has had some vogue is cucumber cream. It may be made substituting for the rose water in the foregoing formula an equal quantity of cucumber juice, obtained by expressing the fruit. If a thin preparation is required, lard may be used, or a mixture of oil with very little wax and the perfume obtained by digesting the fruit for some time in the grease and then straining. Such a mixture will not retain much water, and the excess may be allowed to separate by refraining from stirring as the mixture cools. If wax is present, remelting and subsequent stirring will then be required.

The operation should be conducted throughout at a gentle heat as can be made to answer; and it is important that the grease should be wholly free from rancidity.—Druggists’ Circular.

**National Physico-Technical Laboratories.**

BY H. PELLAT, PROFESSOR AT THE UNIVERSITY OF PARIS.

Industry is making an increasing demand on science, not only for its discoveries, but for the exactness of its measuring processes; it depends upon the precise data found in the laboratories. If the largest companies can support the expense of testing or research laboratories and have a personnel of engineers and scientists, the greater part of the manufacturers cannot go to this expense, especially for the tests relating to physical measures, which most often demand very costly apparatus. Even the scientists cannot have in their laboratories all the apparatus necessary for the verification of measuring
instruments, as many of these are cumbersome and of a very great cost. For this reason, some of the government have aided their manufacturers and scientists by establishing national physico-technical laboratories provided with the most improved measuring instruments where verifications of great precision and useful researches are carried on, these being of benefit to science and industry. Germany has commenced this movement, and possesses now in the Physikalisch-technische Reichsanstalt, founded about 1890, the most important of the national physico-technical laboratories. This establishment, situated at Charlottenburg, near Berlin, occupies an immense edifice which has been especially built for the purpose, in the middle of a park, which is an excellent position to guard the instruments from trepidations. The director has under his orders a corps of eighty persons. The Reichsanstalt is divided into two sections. The first has for its object the solution of problems of metrology proper; it is occupied with problems of a high interest and has especially rendered service to pure science. For instance, its researches have related to the normal thermometric scale, the rotative power of quartz for the light of sodium, the standard of resistance, etc.

It also makes determinations of the unknown or ill-defined physical constants of bodies presenting a scientific or industrial interest. It is thus that during 1898 this section took up the study relative to the density of water vapor between 1 and 20 atmospheres to the maximum pressure of water vapor at low temperatures, the comparison of thermometric bodies with the normal thermometer at high temperatures, the heat conductivity of several metals, the luminous radiations emitted by certain substances, etc.

The second section, the most important of the two as far as the personnel is concerned, is charged with verifying the instruments of precision and the measurement of certain physical properties which have a less scientific character than those of the first section. The section is subdivided into six sub-sections, whose names indicate their field of work. 1. Mechanics of precision. 2. Electric measurements. 3. Optical measurements. 4. Thermometric measurements. 5. Chemical work. 6. Workshop. An example may be given by a resume of the work done in the space of one year by the first and fourth sub-sections. The first, with three workers, has made about 200 researches relative to the determination of the errors of division of various scales, to the measurement of exterior dimensions of calibrated pieces, to the evaluation of the dilatation coefficient of metallic rods, the verification of tuning-forks, etc. The fourth sub-section, with seven workers, has verified 16,329 thermometers, including 14,910 medical, 81 apparatus for determining the inflammability of petroleum, 116 viscometers, 4 pressure gauges, 35 barometers, 116 thermoelements of the Lechatelier type and 400 feet of wire for the same, 50 fusible safety-plates for boilers, and has made besides a number of different tests. The verification of alcohol and density gages, etc., has remained in charge of an older institution known as the Normal Aichungs Kommission, and which verifies also the secondary standards for weights and measures.

England has already three standardizing establishments, two of these are under the direction of the Board of Trade. The first, the Standard Department, has had the keeping of the standards (length, weight, money, gas meters, petroleum inflammation apparatus, etc.), and makes comparisons with these standards. It is besides at the disposition of the Board of Trade for all the scientific researches which it may require. The second, the Electrical Standardizing Laboratory, founded according to the law of 1889, is devoted to standardizing and verifying all the electrical measuring instruments and the keeping of the standards for these. Besides these two official laboratories there is a semi-official laboratory, the Kew Observatory. Besides the meteorological service, this establishment has, in fact, a standardizing laboratory, where each year are verified about 30,000 instruments of different kinds, such as thermometers, barometers, theodolites, sextants, compasses, telescopes, watches and chronometers, photographic lenses, etc. Not content with these three establishments, the government is now founding a national physical laboratory upon the plan of the German institution. Parliament has voted the necessary funds for its construction and maintenance; it will be absorbed the Kew Observatory.

In Belgium, the founding of a Meteorological Bureau, distinct from the Bureau of Standard of Weights and Measures, and closely resembling the Reichsanstalt in character, was decided eight years ago; various circumstances have retarded up to the present the voting of the necessary funds, but it is expected that this vote will take place before the end of this year. In Russia, the Central Chamber of Weights and Measures possesses vast laboratories very well fitted up, and its extensive functions permit it to render in part the same services as a physico-technical laboratory. This chamber has, in fact, the following functions: 1. The keeping of the prototype of the Russian standards of weights and measures. 2. The making and verification of the copies of these standards made for the use of local standardizing bureaus or for the government bureau. 3. The verification of all special instruments serving to measure the temperature, light intensity, consumption of gas or electric energy, etc., and in general it verifies upon demand all the measuring instruments in use in commerce, industry, arts or sciences. 4. The fixing of the limits of error admissible for the weights and measures, in standardizing and in practical use. 5. The examination of all questions relating to weights and measures. 6. The directions of the local bureaus, etc. The chamber occupies
at St. Petersburg a solid building of three stories, situated in the middle of a large space; a pavilion for electrical measures is shortly to be added. The establishment is provided with a complete assortment of the best meteorological apparatus existing. An idea of its importance will be given when it is stated that its personnel consists of fourteen persons, not including laboratory assistants, etc., and that its annual budget is about $46,000. It is under the control of the Department of Commerce and Manufactures of the Minister of Finance. The chamber is not the only standardizing establishment which Russia possesses; the instruments which serve for determining the tax upon certain substances are verified by the Technical Committee, which has this in charge; it is also under the Minister of Finance. In consequence the Technical Committee is required to verify the alcohol and density instruments, thermometers, saccharimeters, etc. For the alcohol measures of special section is devoted, and it is provided with standards of length and weight verified at the International Bureau of Weights and Measures and the most improved apparatus. This section occupies a separate building at St. Petersburg. Again, the Central Physical Observatory of the Imperial Academy of Sciences also verifies metrological instruments.

In other European countries there are no national physico-technical laboratories and the functions of the service of weights and measures are in general much too limited to supply their absence. Nevertheless, in Austria the Normal Aichungs Kommission has about the same functions as in Germany, being devoted to verifying measures and weights, thermometers, etc. In the United States the principal cities possess, in their universities and colleges, splendidly organized laboratories where are carried out the tests and standardizing needed in the sciences and industry.

In concluding his address, M. Pellet points out the immense advantages of such institutions and the desirability of founding them in countries which, like France, do not yet possess them. As in the case of Germany and England, such a laboratory should be independent of the Bureau of Weights and Measures, as each responds to a different need. The buildings should be away from the centers of cities to avoid trepidations.

**Crushing Castor Seed.**

A correspondent of Indian Gardening and Planting gives the following particulars as to the method of crushing castor seeds in India: “There are two methods of crushing. One the so-called European method or hot process, I need only briefly allude to. The plant, which includes hydraulic presses, steam seed cooking mill and filtering or refining tanks, is very expensive, and though the process extracts a larger percentage of oil it is of lower quality, being tinged with a brown color, and fetches a lower price. In this process the seed is first crushed whole with its black skin on; after this first crushing, which under the hydraulic press reduces the seed to a bruised pulp and extracts a large proportion of oil, the cake is removed to the cooking and grinding mill, where it is ground up fine and macerated by heat at the same time. This process makes it ready for a second crushing in the hydraulic press which extracts nearly all the remaining oil. The presence of the black skin and the heating process, however, destroys the purity of the oil, which even after filtration preserves a marked brown tinge. The other process with which I am familiar, having worked both, is the cold drawn or so-called native process in which the ‘Dutch mill,’ so-called because, perhaps, introduced by the Dutch into this country, is used. The ‘Dutch mill’ is nothing more than two heavy iron uprights connected by two rods on which slides, by means of holes, thin sheet iron plates. One upright carries a screw thread into which a massive shaft, cut into screw form, works. This screw is actuated by long levers fitting into socket holes in a boss at its outer extremity after the manner of a windlass. The castor seed after being carefully shelled or diverted of its black skin, and winnowed so that no black particles remain, is bruised and made up into little packets with thin muslin cloth. These are placed between the plates of the machine, one between each division, to the number of 10 or 50. The screw is then tightened upon them, two men working the levers windlass fashion till the oil is expressed. There is a limit of course to the power of manual labor, and the process does not extract the whole oil, much of which remains in the resulting cake. The shelling and winnowing process demands care, as upon the freedom from the black skin depends the purity of the oil; besides which this skin is of a horny and elastic nature and very resistant to pressure. This matters little under the enormous pressure of the hydraulic, but when manual labor is used the incompressibility of the skin should

sin would result in a loss of oil, by reason of the resistance offered to the action of the press. Although this process is called a cold process, it must be remarked that unless a moderate heat is applied to the plates of the machines to heat the seeds, the oil will not flow freely. Heat is applied in practice by shallow troughs of lighted charcoal, placed one on each side beneath the row of plates, but not under the seed being crushed. The ‘Dutch mill,’ owing to its simplicity, is cheap to construct and easily worked by unskilled labor.”
The Markets.

TALLOW: Remains firm; city, in hogheads, quoted in New York at 8c; city in tincers 5½-5¾. Holders are looking forward to higher prices, owing to the large number of cattle recently shipped by force of circumstances. Country make 4½ to 5½. In the West prices are a little higher than East, sales being reported at 5¾ for prime packers; 5½ for No. 1 and 5½-5¾ for prime country.

GREASE: Chicago quotations are 5½ for A white, 4¾ for B white, 4¼ for house grease and 4¾ for yellow. New York quotations for yellow are 4¾ to 5¼, for A white 5¾, for B white 5½-5¾, bone and house 4½-4¾.

CORN OIL: Remains in demand at 6c for car lots; 6½-6¾c for jobbing quantities.

Cottonseed Oil: Last sales of prime yellow in New York were at 4½ and 4½ for September delivery.

Coconut Oil: Ceylon—5½c, with 5½ to 6c asked. Cochín 7½-8c.

Olive Foots: 5-5½c.

Palm Oil: 5½-5¾ for prime red. Lagos 5½-5¾c.

Red Oil: Unchanged at 4½-5c.

Around the Soap Factories.

News item as by our readers will find prompt attention in this column.

The Consumer's Soap Co., has been incorporated at Buffalo, by Chas. F. Denel, S. Van Vliet, and E. T. Boyd. Capital stock $2,000.

The Antiseptic Soap Cone Co. at Wilmington, Del., has been incorporated with a capital stock of $25,000.

Two Lawrence, Mass., men—Peter W. Hayden and Thomas M. Kelley—have organized and are at the head of the Union Co-Operative Soap Co. at Saco, Me., with a capital stock of $10,000.

Foote & Jenks, manufacturing perfumers of Jackson, Mich., have moved into a new building, 40 by 100 feet and two stories high.

St. Joseph, Mo., is figuring on a new soap factory.


The Berry Buoyant Soap Co. is in the market with a transparent floating soap got up by Washington Berry, of which we expect to bring further details in the near future.

The olive oil works of R. H. McEwen at North Pomona, Cal., has been sold to the Bloomington (Cal.) Land Co., who will move and enlarge the works.

The International Alkali Co. is being organized with the object of erecting a works for the manufacture of Alkali, caustic soda, etc., Warsaw, N. Y.

The suit of Benno, Jaffe & Darmstaedter (Germany) against the Lano Soap Co. and their American agents (Evans, Sons & Co.) has been decided in favor of the defendants, establishing their right to use the words, "British Lanolin" in the United States market.

Last year a suit was brought endeavoring to prevent the sale of "Ivory" soap in England, the complainant claiming it to be an infringement on the name "Ivy." The action at the time was dismissed. An appeal was brought against the decision, but has met the same fate, the court holding that the names did not conflict, in view of the fact that the two soaps did not otherwise resemble each other especially.

In the course of the trial some interesting data developed; for instance: Ivory soaps was the first floating soap made in England, being placed on the market in 1888; it is a fancy soap and sells to the extent of 250 to 300 tons a year. Ivory soap was pushed in England since 1898 when the Ivory Soap Trading Co. was started to take the agency for the American Soap; but previous to that—in 1892—a small sale of Ivory soap had been made in England, unknown to the American manufacturers themselves. One witness testified to having handled the American soap for twelve or fourteen years. There data, however, seems to have been considered as immaterial in view of the differences in name and appearance of the two products.

Percy Proctor, Jr., son of the Cincinnati soap manufacturer, was drowned by an accident near Ithaca, New York.

Incorporated: The Purity Soap Co. of Portland, Me. Capital $100,000. Incorporators: A. J. Selfridge (Boston) and S. E. Young (Brunswick Me.).

Lever Bros.' soap factory at Port Sunlight has received the addition of a restaurant for the exclusive use of the girls employed at the works. It has a seating capacity for 1,300 people.

The report that the McNally Oil Co. would leave Norfolk, seems to have been too "previous" as they have decided to stay and enlarge their plant.
Commercial Fats.

BY T. SEELIGMANN.

Neutral Fatty Bodies.

This generic name has been given to natural substances drawn from the vegetable or from the animal, but not from the mineral kingdom, and presenting certain common chemical and physical characteristics differentiating them clearly from other things with which they are associated in nature. The mineral kingdom only produces hydrocarbons having some physical resemblances to the neutral fats, which sometimes cause the one class of substance to be mistaken for the other.

In practice, the vegetable and animal fats of which we are speaking are classified under three heads. Those which are solid at ordinary temperatures are called greases, and those which are liquid are called oils, while those of intermediate consistency are known as butters. This classification, although sometimes adopted also in the literature of the subject, is of no scientific value, and for many reasons a division into only two classes is to be preferred, viz., animal and vegetable fats. Although these two classes have many points, physiological, physical, and chemical, of resemblance, they have marked differences, especially as regards the proportions which they contain of their constituent substances.

All neutral fats, of either origin, when quite pure, are either liquid or fusible at very low temperatures, and have neither color nor smell. They are not volatile at ordinary temperatures, and although they can be distilled, that process is invariably attended by partial decomposition. They are lighter than water and insoluble in it, but soluble in boiling alcohol, ether, petroleum, bisulphide of carbon, etc. They stain paper, and impart to the sense of touch a feeling somewhat like that experienced when talc powder is rubbed between the fingers. When spread in thin layers upon substances pervious to water, they have a tendency to sink in, and hence to water-proof the said substances.

The neutral fats are so universally distributed in the vegetable world that they are found in all parts of every plant, naturally, however, in varying portions. The wood, the roots, the tubercles, and leaves, all contain either fat or waxy matters, so closely allied to the fats that it is impossible not to study them with them. It is probable that science will finally succeed in converting the one into the other. Even the lowest types of plant contain the neutral fats, as can be easily proved by the example of the yeast plants which contain considerable quantities of fatty matter.

The largest contributors of fats for human use are nevertheless seeds and fruits. These often contain more than 50 per cent. of their weight of fat. The almond for example yields 54 per cent. of oil. In the earlier stages of their development grains and fruits are comparatively poor in fat, but the amount increases as they pass on to maturity. Science can as yet tell us little as to how the fats are formed in the living plant, but we think with Thalmann that it is not by the transformation of albumen as it is in animals, but probably from carbohydrates (starches and sugars), which are so abundant in plants, by loss of oxygen. Other chemists attribute the genesis of vegetable fats to special ferments. Fat plays a very important part in the germination of seeds, and is no doubt retransformed into carbohydrates as food for the young plant.

Fats are quite abundant in the animal as in the vegetable world. They occur in thick layers under the skin, as in the pig, in the abdomen of the ruminants such as the ox and sheep, and in the narrow in bones. The whole of the muscular tissue of animals is traversed by layers of fat and fat is an invariable constituent of nerve matter in every healthy animal. Some animals, such as bees, secrete large quantities of fatty matter, and it may be safely affirmed that its proposition is as universal among animals as it is among plants. Man procures fat not only from mammals, but from birds, amphibia, fish, and even insects. This universality of the presence of fat in animal bodies is no doubt due to the fact that their vital processes make it from all kinds of food. Stored up in the tissues, it itself can furnish a reserve in times of scarcity, and hibernating animals, such as bears, bats, and hedgehogs, owe their continued existence during their lethargy to the gradual consumption of the fat stored up in the summer in their tissues.

Whatever may be the origin of these bodies the chemical composition of their immediate constituents is almost always the same, the only variation being in the proportion between them in the different fats. Nevertheless there is one exception to this general rule, viz., spermaceti. It must be added that almost all vegetable and animal fats contain besides the principal constituents which they usually have in common other substances in smaller quantities which nature seems to have placed there as distinguishing marks of the various varieties of fat.

The essential constituents of fats in general are three definite chemical compounds, stearine, palmelitine, and oleine (elaline). These bodies are respectively in more exact language tristearate, tripalmitate, and trioleate of glycerine. Besides these three, which are always present and besides the secondary and accessory compounds just mentioned, fats often contain coloring matter, and also odoriferous bodies having almost always characteristics sufficiently marked to enable the fat to be identified by their means. We have no space to particularize the labors of Braconnet, Scheele, and above all Chevreal, which lead to the discovery of the true constituents.
of the neutral fats. All we can do is to give a resume of the results of the investigations of these men and of their successors. When a fat such as we have defined it to be is put with a strong alkali such as potash, soda, lime, or even oxide of lead aided by heat, the fat is decomposed, the alkali uniting with certain of its components to form new compounds, which are organic salts known by the generic name of soap. If the soap is acted on by a sufficient strong acid it will be decomposed in its turn, and a body will be set free which chemists call a fatty acid. When the neutral fat has been saponified with an insoluble salt with the fatty acid, it is easy to see that there is in the mother liquid from which the soluble soap has separated, a new substance which must have come from the fat. This substance is sweet in taste, and that property has procured for it the name of glycerine (Greek glykos, sweet).

If the fatty acids and glycerine obtained from a known quantity of fat are weighed it will be found that their total weight is always greater than that of the fat from which they are extracted. The reason of this seeming paradox is that both the fatty acids and the glycerine absorb water.

So far then we know that neutral fats are of the nature of true salts. The study of glycerine leads us to the conclusion that it is an alcohol. As in a chemical terminology in vogue until quite recently the compounds of acids with alcohols were called compound ethers, the neutral fats might be called ether, and there would be no heresy in calling stearine triglycerostearic ether.—Los Corps Gras.

**Three Uncommon Oils.**

Sanctuary oil.—A burning oil for use in churches and other places of worship is sold under this name at from four to six shillings per gallon, and must prove rather profitable to the sellers, considering that most brands consist of 100 per cent. mineral lubricating oil, pale in color, and with a specific gravity of .885/7.

A compounded article for the same purpose is this:

- 10 galls. mineral colza.
- 5 galls. kerosene.
- 18 ozs. naphthalene.
- 6 ozs. camphor.
- 6 ozs. amyl acetate.

*Method.*—Crush the naphthalene and camphor; dissolve these in the kerosene, then mix with colza and amyl acetate. Do not simply pour the latter in and leave it, but stir energetically, as it is used to hide the smell of the mineral oils, replacing it with one sweet and ethereal.

**SLAB OIL.**

Sugar boilers need this for oiling the slabs upon which boiled sugar is poured previous to pulling it on a hook into rock, or passing it through rollers for drops, etc. There are many oils suitable without any preparation, as pea-nut and earth-nut oils, though something quite pure and tasteless that will prevent sticking is made thus:—

- 70 galls. arachide oil.
- 30 galls. vaseline oil.
- 3 ozs. phospnme.

*Method.*—Warm a gallon or so of the nut oil, and stir the phospnme in this; then add to the whole, and stir well about, to get the phospnme dissolved, as it is liable to float in tiny balls. Another mixture is made by reversing these quantities, and is cheaper.

**INSULATING OIL.**

Electrical contract firms use this oil somewhat largely for street "traps," as they call them, and the article required must be cheap; therefore, crude resin oil is transformed into "insulating oil" by merely changing the name.—Oil & Colorman's Journal.

**Would He Like It?**

ARThUR J. BURDICK, IN LOS ANGELES HERALD.

When, at the store, we try to buy
The brands of goods we wish,
Whether it be soap, soda, tea,
Socks, calico or fish,
The clerk, with many smiles and smirks
(He'd smirk more if he could),
Will shove out something else and say;
"This brand is just as good."

Now, when with earthly toil he's done,
He strikes the other shore,
And seeks to pass the golden gate
To rest for evermore,
How shocked and grieved this chap would be
If good St. Peter should
Point down below and say: "For you,
That place is just as good."

The attention of our readers is called to the column of

**"WANTED" AND "FOR SALE"**

advertisements on another page. Manufacturing firms looking for intelligent up-to-date help, or who have second-hand machinery they wish to dispose of, and practical men experienced in any branch of manufacturing chemistry looking for employment, can mutually profit by using this column.
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Nip 235
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Sudsmaker 329
Tartan Tar 32
Tuck 320
Vegetol 329
Vesta 10
Vestal Heliotrope 16
Vestal Iris 16
Vestal Rose 16
Vestal Violet 16

If you have a second-hand machine for which you have no use, or expect to buy a new one if you can dispose of a smaller one now in use, or any similar need, remember that an advertisement in our "For Sale" column will convey that information to one or more looking for just such opportunity—if there is any use for such apparatus at all.

An Australian subscriber to the Soap Journal, and purchaser of the work "American Soaps," writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file, in black and white.

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Their Preparation.

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By G. W. ASKINSON, Perfumer.

Price, $3.00

Containing directions for making Handkerchief Perfumes, Sachets, Fumigating Pastils; Preparations for the care of the skin, the mouth, the hair; Hair Dyes, and other Toilet Articles. With a detailed description of Aromatic Substances; their nature, tests of purity, and wholesale manufacture.

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**SITUATION WANTED.**

Situation wanted by an up-to-date, first-class soap maker, with over 35 years experience in all kinds of soaps; laundry, family, mill, castile, chips, powders, floating, and potash soaps, by any process and from any stock that soap can be made of. Address: D. Printer, 23 Sixth Ave., New York City.

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As Soap Maker and Superintendent of factory where a perfectly reliable man, capable and intelligent in every way, will be appreciated. Have built and equipped several plants in the past 20 years. Will begin on approval. Highest references from past employers. Formule for various soaps, with plain, common sense directions, by mail. All answers strictly private. Address: EDWIN D. GOULD, care American Soap Journal.

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POSITION WANTED.


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Position as soap maker. Make settled soaps, mottled German, floating soap, chip and cold process; also red oil soap. Address: J. S. D., 296 N. Water St., Columbus, Ohio.

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Wanted—Position by a practical Soap Maker, who can make green, white and mottled castile, also cold toilet, milled soaps chip and laundry soaps. Worked 17 years for old established firm. Best of references. Address: Dyson 53, care of American Soap Journal, Milwaukee, Wis.

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As Soap Maker and Superintendent of factory where a perfectly reliable man, capable and intelligent in every way, will be appreciated. Have built and equipped several plants in the past 20 years. Will begin on approval. Highest references from past employers. Formule for various soaps, with plain, common sense directions, by mail. All answers strictly private. Address: EDWIN D. GOULD, care American Soap Journal.

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Position wanted by Soap Maker of long experience. I understand my business and can give good references to that effect. Qualified to take charge of any factory or to set up new plant. No bad habits. Address: "B," care of American Soap Journal.

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Situation wanted by a chemist who has 30 years experience as soap maker (laundry as well as toilet soaps) in all its branches, oil refining, analysis, &c. Expert perfumer. Want no wages if not satisfactory. Answers to: C. H., care of American Soap Journal.

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The latest complete edition of our

**LIST OF SOAP BRANDS.**

having been entirely sold out, we are not prepared to fill any orders for it at present. A new edition will not appear until a sufficient number of new brands will have accumulated in our Supplementary list now published in this paper.
Many heads, many minds.” It would be a hopeless task to undertake writing about the Soap Manufacturers’ Association in a strain that would not be criticised adversely by some members, and—for that matter—non-members. However, the association is there, its doings are interesting the trade, and by expressing the thoughts of those whom we believe to be sincere and conservative members, we hope to fulfill our mission as disinterested chroniclers of events.

As a correspondent this month expressed it, a successful association must develop. It is not in the nature of the problem before the soap trade, that a plan could be devised all at once which should do away with all the evils that have crept into the business. In fact, it does not seem possible to ever eradicate at one time all the bad practices that are so many excrescences on a once prosperous business. But earnest joint endeavors in that direction could not fail to lead to valuable improvements in many respects.

It is to be regretted, therefore, that no sooner had the membership assumed such numbers as to be fairly representative of the business than it found a very influential member withdrawing from it again. We understand, on good authority, that the Proctor & Gamble Company has dissolved its connection with the association. So far as membership is concerned, the development of the association is therefore at present not such as we should like to be able to report.

Of course there are differences of opinion on what measures the association should seek to enforce. Premium giving, advertising, one box free in five, allowance for boxes, price agreements, discounts, these are among the questions that effect different firms differently, and it is impossible to bring about a complete adjustment of them all. Moreover, from agreeing on and adopting a rule, to its faithful performance by each and every member, is a long step. Mindful of past experiences in this respect, we are inclined to believe with a member of the association that the latter has done for the present nearly all it can safely attempt to do, namely to bring competing firms together in a friendly personal exchange of opinions several times a year.
More than one member of both the former and the present association has held that the personal meeting of competitors from time to time was of enough service to warrant maintaining an association, even if nothing else were accomplished directly.

In the course of active competition between firms that remain strangers to each other year after year, there will be done things that would not occur if the competitors were to meet each other frequently, were to learn to appreciate and trust each other frequently, and were to face each other from time to time after or while the battles of competition are being fought. While thus fostering a friendly personal intercourse between members further measures for mutual interest could be gradually developed. It is along these lines that we hope to see the association demonstrate its power.

A subscriber writes: "You are aware of the present condition of the Cochin cocoanut oil market and of the future prospects in Manila. It looks as though this oil will in the future be largely used in place of lard for cooking. It is a fact that it will do many kinds of cooking better than lard, and its purity and flavor is at least most inviting; so says J. H. Connelly of New York, who is authority on this subject."

As many of our readers must be aware, cocoanut butter for purposes of cooking has been made on a large scale in Germany for five years or more. If cocoanut butter should become known as an edible fat in this country, cocoanut oil soaps will probably for ever after be ranked with olive oil soap in public estimation.

The words "Almond Cream" as a brand for soap have been on our list for a considerable time (as being made by at least two parties, in fact). Now comes our patent report for the month and says that a third party has just entered "Almond Cream" for toilet soap as a title in the patent office. This is not the first occurrence of this kind, but it will give our readers some idea of the job of keeping a list of brands in shape and what correspondence many a single brand entails before its ownership is settled so we can enter it and be done with it once and for all.

"The complaint that consumers do not support home industry seems world-wide. We have heard it of soap manufacturers in every part of the country and it may be some melancholy consolation to know that it is the same outside this country. An Irish paper cites as an instance the experience of a Dublin firm of manufacturers who could not succeed in introducing to Irish consumers a very nice toilet soap pressed with the name of the maker, but who succeeded admirably when he got a Parisian die to help that same soap along. It is said, however, that various influential Irish journals have taken to discussing this problem seriously with good results. Thus the Leader, a Dublin paper, is quoted in Oils, Colors and Dyes as follows:

"Thousands of tons of English and Scotch made soap and candles have been coming into this market, and now that the season is on for the latter, if only the consumers would insist on getting Irish-made candles, they would help to promote an enormous industry, which has recently been going fast ahead in Ireland, and should continue to do so, as Irish-made candles, like Irish-made soaps, are second to none in the world. Let the Irish people be true to their own manufacturers and they will avert a great deal of unnecessary poverty."

A Prize for Contributors to the Soap Journal.

"A subscriber" to the American Soap Journal who does not care to have his name published and who, by an unexpected complication of little events, finds himself in possession of $5 which he does not want to keep and which he sees no better way to dispose of, has sent them to us with the suggestion that we apply them to open another prize fund to be awarded to the best writer for the American Soap Journal. He further suggests that each contributor should have the privilege to name a subject on which he would like to hear from the competing writers; (this latter is so good an idea that we regret we did not think of it in past occasions of this kind).

As he attaches no conditions of any kind, we can only state the facts as above and add another $5 on our own account to the fund, so that it amounts to $10 in all at present.

We are open to receive further suggestions before proceeding further in this matter; for the present we content ourselves with simply announcing the above and await developments.

Let's hear from everybody interested.

They Say.

that peppermint oil will henceforth be a product of Western Wisconsin, a company having been organized in La Crosse for that purpose.

that a mine of natural shoe-blackening of very good quality has been discovered in Utah. What with mines of natural soap, natural shoe-blacking and what not, we shall soon be "digging" for everything we need—even as we have always done.

that a certain English Grocers' Association, having become dissatisfied with the profit its members realized on the general run of "dry soaps," i.e., soap powders,
One mineral will hand sounds The thousands will be combined and saponified; and was no oil, as they have been for the next twelve months, to restrict the cutting of boxes to half of those cut last year, provided they can get two-thirds of the entire output to agree.

The cotton seed oil mills assembled in meeting in New Orleans early in the month decided that $12 a ton should be paid for seed, while the cotton growers are trying to combine on getting not less than $15 per ton. The oil mills can combine more easily, but them can do nothing without seed; the cotton growers on the other hand do not depend on the oil mills entirely.

that a new process has been invented for making a very useful soap from cotton seed oil and kerosene that will contain no free alkali and less than 1 per cent of uncombined oil; but experiments have been made for many, many years looking to the conversion of mineral oils into saponified matter, and from time to time there have been reported instances of success from a scientific standpoint, but not commercially feasible. If these reports from scientific laboratories have been correct, it seems reasonable to expect further improvements in the same direction. Whether the present report concerns a process of this kind we do not know.

that a nut is found in Cuba which promises to add to our oils available for soap making. It is described as being in size about like an English walnut and containing a kernel of one-half inch in diameter. An analysis of the meat has shown it to contain 85 per cent. of an excellent oil, suitable for edible purposes as well as for making a high grade of soap. Although there are thousands of acres covered with trees bearing continually, ripe nuts and blossoms at the same time, no machinery has yet been devised for taking the kernels out of the shell and so no particular use has been made of this material. The meat and oil are described as resembling those obtained from the cocoanut, and with cocoanut oil in increasing demand and high in price, it sounds encouraging to hear that the oil from this nut can be made at a cost of 6 cents a pound. We are promised a sample of soap made from this oil and hope to see the predictions made for it realized. Between developments in Cuba and the Philippines we should certainly expect the introduction of American methods to produce something new for the soap trade also.

that Mr. J. G. Rhodine, of Manchester, England, has discovered an economical method of manufacturing potassium salts from feldspar. The feldspar is primarily finely ground, and is then mixed with slaked lime and sodium chloride, the mixture being subsequently heated to 900 deg. C. By this means about 85 per cent. of the potassium in the feldspar is extracted in the form of potassium chloride. It is stated that the process is very cheap and is well adapted for commercial purposes. It is proposed to carry out a series of farther experiments with the process prior to erecting a factory in Sweden for the manufacture of potassium salts upon an extensive scale. The latter country is peculiarly adapted as the center of such industry owing to the abundance of feldspar which is to be found there, and for which so far, there has been no commercial utility. Another prominent feature of the process is that the insoluble residue that remains after the potassium and sodium salts have been extracted by water constitutes an excellent material for glass manufacture by the addition of a little sand and alkali.

Cancelled Soap Brands.

The following brands, entered at one time or another on our list, have been dropped again from the same, the parties originally credited with them not now claiming ownership of the brands named. Any one claiming ownership of any of the brands given below, will please notify us:

Apples, One Pound Bar,
Aromatic Vegetables, Queen of Toilet,
Cocoa Nuss Oel Seife, S. S. & Co.'s Honey,
D. U. & Co.'s, S. S. & Co.'s Glycerine,
English Violets, Sterling Rose,
Family Toilet, Toilet Glycerine,
Gem Toilet, Variegated Bouquet,
K. & E. Bouquet,

The Soap Manufacturers' Association.

To the Editor of the American Soap Journal:

Dear Sir—More than once had I made up my mind not to write any more for this journal and to give others a chance to air their views, but as letters from colleagues do not seem to come very fast, and as it is a hobby of mine to put in writing any ideas which I believe to be useful, my resolution is broken whenever anything occurs which stirs up my interest in the profession of soap-making.
The cause of this epistle are the "Editorial Comments" in the September number of the Soap Gazette and Perfumer, which are very instructive and interesting reading, and amusing at the same time. The sum and substance of the articles in question is that it does not matter whether the smaller manufacturers join the Association or not; "those houses which have influence" "are felt in the trade," "would so dominate the business that all the others might do individually would be of little importance." Being one of the "smaller soap manufacturers," I take it upon myself to present a different side of the situation and give some of the reasons why certain "uninfluential" manufacturers do not ask to become members of the present Association and what might induce them to join, and why their doing so might prove to be very desirable.

In former essays I have endeavored to explain that no union of any kind can be successful if it has pecuniary benefits for its members for its sole or principal object; to reach high ideals must be the ambition of Associations, else they will not last long. And, surely, a union of men for the purpose of providing means for the promotion of thorough sanitary cleanliness and for rational skin culture of the best quality, and at the least cost, is an object worthy of the best thoughts and effort of the best men this country holds.

In order to avoid the impression as if the writer was opposed to organized efforts, he summons as a witness the publisher of the Soap Gazette and Perfumer, whom he met in Philadelphia, while there as a delegate to a convention of societies whose members have been working hard for centuries to attain that which is necessary: for the success of any enterprise, viz: Harmony of body and mind, the harmonious development of physical and mental powers, harmonious co-operation of brain and muscle. As long as these, the fundamental principles of success, are not understood, it is useless to erect the superstructure, and I am very much inclined to believe that advocating the Soap Manufacturers' Association in the spirit the Soap Gazette does, is endeavoring to erect a large building without the proper foundation. Has he forgotten the important and interesting lesson we both witnessed together in the Academy of Music in Philadelphia some time ago, where the gradual growth and development of proper harmonious co-operation of body and mind was illustrated, beginning with small children exercising their mental and physical powers and progressing toward perfect man and woman?

In a similar manner a successful, permanent, useful association of soap manufacturers must develop. The very first requirement, without which no union of men will accomplish anything, is an exceedingly old-fashioned one. We must have good, honest, capable men and we must endeavor to make them so by esteeming good qualities far above men's worth in dollars and cents, by treating with scorn and contempt all those who deserve it—don't smile—after all, the esteem or admiration of one's fellow men is what we all are after, and if the great majority of people do as here indicated, it will be found that scorn and contempt for low and mean acts and behaviors in an all-powerful weapon for reforming bad characters. The next step for creating a successful association is the airing of our views in our trade journals or in public meetings, when all classes of soapmakers can meet and discuss the evils existing in the business and the best methods of abolishing same. Publicity is necessary; people are distrustful, unless everything is done openly and above board. Having been a member of the society above mentioned almost since childhood, and presiding officer for years of one of its most influential branches, I have some knowledge of human nature in its relations to associations.

The embarrassments mentioned in the last number of the Soap Gazette as interfering with the success of the Soapmakers' Association is what amuses me, because it was so easily to be foreseen. We soapmakers ought to set an example. It is our business to make the world cleaner and purer and thereby healthier, stronger, more vigorous and to last longer; let us commence with our relations to each other, by an association based upon the principles outlined above. This is not meant to express any doubts as to whether the present society of soap manufacturers follows high principles; for all I know it may have even loftier aims and purposes, but why not come out publicly and so silence the slanderers, who would hint that mercenary motives were the prime movers in the organization?

Hoping this letter will cause others to express their opinions, I am, Yours truly,

GEORGE A. SCHMIDT.

The Rising of the Nigre.

CHICAGO, SEPTEMBER 18, 1901.

Editor American Soap Journal:

DEAR SIR—Referring to article on page 14 of September issue of your valued paper, entitled "Who Can Tell," would say: I have argued the same question years ago in your Journal, the nigre will certainly rise and mix with the soap; more so in dished soap kettles than in flat-bottomed ones; the reason is simple enough. The soap nearest he sides of the kettle will cool, contract, thereby getting heavier, sink to the bottom, and thereby force up the nigre in the middle. To avoid this spoiling soaps we draw off our finest qualities (for milling, remelting, etc.) while still boiling, into large frames, none less than 7,500 pounds capacity, and let the settling proceed here. Olive oil soaps remain liquid for weeks. When cutting up the soap it is easy to see how the nigre is forced up in the middle; these portions (nigre mixed with good soap) are reboiled. There is nothing certain about how and when the nigre rises.
Sometimes there is none, at other times large spots appear, usually in round “islands,” which can be easily cut out and separated from the pure soap; of course, this extra work would not pay to do to ordinary soaps. I only relate this as a proof that nigre rises after having settled to the bottom, even in perfectly flat-bottomed receptacles. I have shown blocks of soap containing such nigre to several colleagues, and will cheerfully do the same thing to those interested.

Geo. A. Schmidt.

That Nigre.

Montreal, Sept. 21st, 1901.

Editor American Soap Journal, Milwaukee, Wis., U. S. A.:

Dear Sir,—Replying to letter signed “Pan-American,” in your issue of Sept. 1st, I set up two kettles on stone foundations with brick up to within three feet of the top and got perfect work out of them all last winter. But in the hot weather last June and July I found that the kettles retained too much heat to settle out perfectly, a thing I did not think possible, and the nigre was forced up and mixed with the clear soap, spoiling my dip. I opened up holes in the brick work, allowing the kettles to cool faster, and got perfect work out of them in just as hot weather later on in the summer. Perhaps the kettles in question retain their heat too long.

Yours truly,

Canuck.

[As the writer of the above has not given his name, we can only guess at his identity, and therefore, not feeling sure in addressing him, we take this means of thanking him for writing.—Ed. A. S. J.]

To Olive Oil Producers.

Prag-Zizzkov, 6th August, 1901.

Henry Cathmann, Esq., Publisher of the American Soap Journal:

Dear Sir,—Your Journal brought, on February 1st, 1898, a most interesting paper about Olive Tree Culture in California and the Increasing Olive Oil Industry in that State.

We like to join hereto a pamphlet of great interest to all olive oil makers, treating of a new process to make heavy profits by making up the exhausted olive pies or pulp by distillation for charcoal, wood spirit, acetic acid, acetate of lime, etc.

We are of the opinion that your readers interested in the olive oil tree culture should like to learn something of this new industry, and that you might give them pleasure by publishing the joined pamphlet in the Soap Journal.

Will you please favor us by an early answer and oblige,

Yours very truly,

Dr. Jürgensen & Bauschlicher.

[The article here referred to appears on another page of this paper.—Ed. A. S. J.]

Scents of the Century.

From Soapmaker and Perfumer, London.

Among the claims to progress that are being put forth on behalf of the century which has just passed is that of an advance in the chemical manufacture of scents. In place of the delicate perfumes procured by the gentle and subtle process of distillation, the laboratory can now provide such mysterious combinations as are expressed in names as “Anethylene ether” or “Orthohydroxyxacinic anhydride.” There is, perhaps, an analogy worth noticing between science as applied to sweet odors and that which finds the latest colors to delight the eye from the anilines of coal tar to take the place of the laboriously-prepared vegetable dyes of hygone days, but in the case of the scents, at least, these new methods do not obtain the delicate fragrance of the old-fashioned methods. Now that women are devoting themselves seriously to horticulture as a calling, this country is likely to witness a considerable revival in the culture of sweet-scented plants and flowers, not only for their charm, but for their utilitarian value. Mr. Donald McDonald, an expert authority on this question, has recently pointed out that to a limited extent lavender and peppermint are most profitably grown round Wallington, Mitcham, Hitchin, and Canterbury, while herbs are extensively raised in Cambridgeshire and Lincolnshire. We buy very largely annually of all descriptions of perfumes, both in their made-up forms as scents and as essential oils to be incorporated with soaps and toilet washes, and there is not the slightest reason that we should not supply our own requirements of lavender, peppermint, camomile, and other things much more largely than we do, as there is no question that they would be, under present conditions, far more remunerative crops than many that are now grown.

There is material in plenty to write a history of fashionable taste in the matter of scents, which from the dimmest days of antiquity have always been a marked accompaniment of luxury and refinement. It is not necessary to go back to the early Egyptians and Persians to discover this appreciation of delightful odors. There is quite a little library of books written during the sixteenth and seventeenth centuries on the place of fragrant flowers in the garden, and quaint old Gervase Markham in one of these observes, "What is more delightful than an infinite variety of sweet smelling flowers—the violet nothing behind the rest for smelling
sweetly, and July flowers which have the name of cloves—for their scent, and the damask rose most pleasant to sight and smell? This is but a foreshadowing of Francis Bacon's charming essay "Of Gardens" of some twenty-five years later, with its keen appreciation of the various aromatic plants and blooms as "of the strawberry leaves which yield a most excellent cordial smell," and "those which perfume the air most delightfully, not passed by as the rest but being trodden upon and crushed, are three, that is: burnet, wild thyme, and water mints. Therefore, you are to set whole alleys of them to have the pleasure when you walk or tread." Within the last three or four years there has come a revival in the old fashion of the eighteenth century for a bowl of potpourri, and those queer old commonplace books of our great-grandmothers filled with "elegant extracts," in manuscript, paintings, mottoes, posies, and recipes have been ransacked to find the formula by which a compound of delicately-blended bouquets could be made. Among the most favored of gifts during the lately-ended season of goodwill were valuable porcelain or silver bowls to contain this old-world nosegay.

Comparatively few new perfumes have been added to those available for extracts during the last four or five decades. Far and away the most widely sold scent of the present day is that of the Parma violet, which, in its highest and most refined type, is produced from the flowers grown on hundreds of acres on the shores of the Mediterranean, and especially in the vicinity of Grasse. But this is a decidedly costly and somewhat elusive perfume to manipulate for trade purposes, even with the orris root, which is an uncertain crop, and is at times excessively expensive. Chemistry has therefore stepped in, and with a substance known as "ionone" provides a crude and ranker substitute. Japan has given us one or two slightly different odors in recent years, but European taste does not greatly care for the distinctly Oriental perfumes. To most people of the West, the strong clinging redolence of sandal-wood oil, so greatly loved in the zelamias of India, is really disagreeable. At the present moment, so far as can be judged, scents that are largely coming into demand are those distilled from our own garden flowers, as honeysuckle, heliotrope, verbena, and stock, which must be of the subliest and most delicate order. Many women nowadays affect one scent as peculiarly their own, and by means of sachets set within their wardrobes, tiny tablets concealed somewhere in their dress, a fragment of powder strewn over note-paper or personal belongings, suggest a dainty, but scarcely definable exhalation of characteristic fragrance. But anything strong or overpowering is in the worst possible form, and is never now adopted by women of fastidious tastes. The late queen had always shown a marked dislike of powerful scents, and ladies who were aware of this never carried highly-scented flowers, as gardenias or tuber-roses, in their bouquets at the drawing rooms.

Among her majesty's favorite perfumes, however, old-fashioned English lavender-water, with its refreshing properties, always held a high place. Orange-flower water is perhaps less used in this country than upon the continent, but it will give some idea of the extent to which this is manufactured to mention that a single distillery in the South of France crushes half a million pounds in weight of the blossoms every season, while for rose-water some 350,000 pounds of petals are daily distilled during the month of May around Grasse. The world seems to be realizing again that our forefathers showed sound sense in the use they made of sweet herbs and aromatic plants as preventives of infection, and the eucalyptus has established its position, not only as a valuable safeguard against malaria, but also as a powerful disinfectant, and judging from the keen interest that is now being taken in the whole question of scents and extracts, the dawning century will see them used more and more for hygienic reasons, as well as for pleasant luxury.

The Refining of Cottonseed Oil.

Refining consists in removing free fatty acids, brown coloring matter and any other foreign matter that may exist in crude oil. This gives the product commonly referred to as "summer yellow oil." It should be a light straw color, free from sediment or water, and entirely neutral (that is, free from either acid or alkali), and nearly tasteless. This condition is referred to in the trade generally as "prime," or, when with but the smallest possible taste, "butter oil." The trade definitions are not absolute, but depend upon the individual judgment of the sampler. Large sales should always be made by sample, rather than by definition. As most of the best cotton oil is finally intended for culinary use, it is best judged by tasting. Any oil that is the least offensive to a sensitive taste, no matter what its chemical purity, cannot pass as prime.

Caustic soda is the principal chemical used in refining. It is received at the refinery in iron drums, weighing about 700 pounds. The kind known as 74 per cent. is generally used. The purer it can be had, the better it refines. It is sold on a basis of 60 per cent. If it is 74 per cent., the actual cost is 1460 more than the basic price. The soda is broken up and dissolved in an iron tank. Its solution generates considerable heat. Great care should be exercised in handling this substance, both while solid, and while in solution, as it is very dangerous. A small drop of the concentrated solution would make an angry burn on the flesh, or would put out an eye. The dissolving tank is usually located under the floor, so that it is not necessary to lift the heavy drum of soda to get it in the tank. When solution is perfect, it is pumped into the mixing tank located above the refining tank, where water is added to bring it to the required strength. Only the cleanest, purest water should
be used, and the solution should be cool (not over 90 degrees) before used. The strength of the solution is measured with a hydrometer with Baume scale. It is usual to have with the hydrometer an iron or copper pot, holding about a gallon, and being deep enough to float the instrument. This is dipped full of the solution, and tested from time to time as the water is added. The desired strength and amount to be used must be separately determined for each different lot of crude oil. Theoretically, the amount of alkali required might be determined by finding the amount of free fatty acid present in any particular lot of crude oil under consideration, and calculating the amount of alkali necessary to neutralize it; but practically this would not be sufficient for the purpose of refining, because it is found by experience that an excess is required for the purpose of saponifying a small quantity of the oil after the free acid is neutralized. In saponifying, it catches and carries to the bottom the particles of coloring matter and other floating impurities. For this reason the amount of required alkali is determined by making small refinings in bottles in a water bath, with varying amounts of alkali until a sample of refined oil is produced of the desired color and flavor. The percentage of alkali solution (of the strength used) for that particular lot is assumed to be the correct percentage for the entire tank. Within certain limits, the same results may be obtained by using a larger quantity of weak solution or a smaller quantity of strong solution (the amount of an actual amount of being about the same in each case). The varying of these elements to suit varying lots of crude oil gives scope to the skill of the refiner. Generally a weaker solution is used at the beginning of the cotton or season, when only new oil is refined, a smaller quantity being also required at that time. As the season advances, a stronger solution is used. With the best quality of new crude, an amount of alkali solution of 6 degrees Baume strength, equal by measure to 4 per cent. of the oil to be refined, will be found sufficient; while later in the season it may require 15 degrees strength, and 10 per cent. in quantity. Crude oil which is not prime (technically “off oil oil”) may require 15 degrees strength and 20 per cent. in quantity. A 700-pound drum of 74 per cent. caustic soda will make about 700 gallons of solution at 15 degrees Baume or, roughly, one gallon to the pound.

An iron tank capable of holding about 139 barrels, and having a conical bottom, and some means of agitating the oil, and some means of heating it, is used for refining 100 barrels of crude. This is considered about the best size, a larger quantity not being capable of sufficient agitation and heating, and a smaller quantity not being as profitable. The oil is measured and pumped in, and the agitation begins. Then a certain quantity of a solution of caustic soda of a certain strength is gradually delivered from the mixing tank over the top of the refining tank through a perforated pipe, which sprays it uniformly over the surface of the agitated oil.

“It is important that the solution of alkali put into the oil be evenly distributed in small jets over the surface; otherwise, by reason of its considerably greater specific gravity, it might settle to the bottom of the tank, and thus fail to be thoroughly mixed with the oil, which is the essential point in the whole operation. After the agitation with cold alkali to insure perfect mixture of oil and alkali (say 30 to 40 minutes) the entire mass will have turned almost black. Heat is then applied, and the temperature generally brought up to 120 or 130 degrees (never in good oil above 140), agitation still proceeding. The heating and agitating are kept up till quantities of dark-brown flakes separate, and the mass has a curdled appearance. The oil is then dipped up from time to time and filtered through filter paper into successive sample bottles, until one is finally reached which is satisfactory. Or if it is required to produce an oil equal to a given sample, the process may be stopped when the filtered sample from the tank equals that required. It is important to note, in this connection, that a sample kept as a guide for a long time, especially if in a light place, will grow lighter in color, on account of the bleaching of light. The stearin will also settle out, and the sample will become unreliable. All samples should therefore be kept in a dark place, and should be frequently renewed by duplicates taken from fresh oil.

“When the process of refining is judged complete, the heat and agitation are discontinued, and the whole allowed to stand until the floating flakes settle with the excess of alkali. This should occur in about three hours, leaving bright yellow oil in the upper part of the tank. The yellow oil should be drawn off through a large pipe (say 6 inches in diameter), having its end projecting the tank with a flexible connection, which will enable the refiner to draw off the yellow oil to any given depth, this depth depending upon the thoroughness of settling, and the amount of sediment (which varies with the quality of the crude oil). The yellow oil drawn from refining tank is delivered into a similar tank below, known as the 'finishing tank,' where it is heated and agitated again in about the same way, for the purpose of evaporating any entrained water. It is allowed to settle again, and is pumped off through a filter press into storage tanks or into barrels or tank ears for shipment. The filter press removes all sediment, and leaves the oil clear and brilliant.

“Some refiners now prefer not to use the filter press. They claim that by settling out the impurities by gravity, the oil is made clearer than by the forced filtration. This process necessarily requires more tank room in the refinery than when the filter press is used.

“If it has been necessary to use very strong alkali, or a large quantity of it, the finished oil may still taste of
alcohol, in which case it is necessary to wash it. This may be done in a special washing tank or in the finishing tank, after the sediment has been drawn out through the large gate valve at the lowest point of the conical tank bottom. Agitation is then started in the oil, and 2 to 6 per cent. of clean water put in through perforated pipes at the top (the same kind as used for distributing alkali in the refining tank). It is sometimes advantageous to use salt water for washing oil. It is made about 10 degrees Baume. The purpose is primarily to make the washing water considerably heavier than the oil, so it will settle off more readily; but it is also thought to add to the flavor of the oil. The temperature is brought up to about 100 degrees F., and it is agitated for an hour. Heat and agitation is then stopped, and the water allowed to settle for several hours. This water is drawn off at the bottom until cloudy oil appears. This cloudy oil contains some water, and is to be put in a small tank and heated and agitated, to drive off the water. The clear oil in the finishing tank still contains a little water, which must be driven off by heat and agitation. The purpose of separating the small quantity of cloudy oil, containing most of the entrained water, is that its water may be more easily expelled than if left with the large lot. Great care is necessary in heating refined oil, especially when mixed with water. Its flavor is easily ruined by heat. It begins to decompose at about 140 degrees F., and should therefore never exceed that temperature, and be kept as much below that as will accomplish the ends required.

"First-class crude oil in the early part of the season may, with sufficient skill, be refined at a temperature below 100 degrees F. In working oil by this cold process, no additional heat is applied in the finishing tank, but the water is driven off by agitation. The oil is required to stand quiet for ten or twelve hours, so that any remaining water may settle out.

"With a special view to working at lower temperature, it is well to make the finishing tank large in diameter and shallow, thus presenting the maximum surface for evaporating the entrained water.

"But the most perfect way to remove the water at low temperature would be to use a finishing tank with an air-tight cover, supplied with a vacuum pump. By this process, the water is vaporized and removed, and any other bad gases or odors are drawn out.

"In refining 'off oils,' which are not sold on a basis of flavor, high temperatures do not damage the quality. Off oil is harder to reduce to a light color than prime oil, and, as it is sold on a basis of color only, and, as higher temperatures produce brighter colors, it is frequently economical to heat these oils as high as 160 or 170 degrees F.

"The sediment left in the bottom of refining and finishing tanks is drawn off into a tank below and heated again to separate what oil may have gone down with the sediment. This good oil is skimmed from the top of the tank, and the residue is drawn off into barrels with large bungholes, and is sold as 'soap stock.'"—From a Monograph by D. A. Tompkins.

**Olive Pips.**

**ABOUT THE TREATMENT OF EXHAUSTED OLIVE PIPS BY DESTRUCTIVE DISTILLATION, TO MAKE CHARCOAL, WOOD SPIRIT, ACE. TATE OF LIME, ACETIC ACID, TAR, AND OTHER PRODUCTS.**

(Written especially for the American Soap Journal and Manufacturing Chemist.)

We made a specialty for years of the destructive distillation of wood in putting up and starting large factories of this kind—an industry of importance in the center of Europe, but nearly unknown in the southern part of Europe, as there are no forests of extension.

The absence of wood has caused us to make inquiries to make out a raw material to substitute the wood, in order to put up this important and remunerative industry also in the southern parts of Europe, engaged in the production of chemicals which are imported to-day in heavy amounts to Spain, France and Italy for the production of acetic acid, acetone and other products.

Studies of different waste materials of industries have been made, but there was no one offering such good chances as the olive pips.

Since 1897 we have been constantly occupied by studies to make out the best conditions of destructive distillation for this waste product.

Of course, the question is of pips exhausted of every trace of oil by either washing or extracting by sulphide of carbon, pips of which there is a large production in Spain, Algeria, Tunis, Isle of Crete, Asia Minor, Greece, Italy and the Pacific Coast States of America.

Up to the dated exhausted olive pips have been partly employed as fuel of somewhat inferior quality in want of a better one, but for a great part of it there could not be found any other employment but for fertilizing.

In Spain the culture of olive trees is practiced in 33 provinces: in the southern provinces: Jaen, Cordoba, Sevilla, Malaga, Cadiz 65,000 hectares are occupied by this culture, and for the other provinces the culture is nearly of the same extension.

The average yield of an olive tree is about 20 litres of olives and that of 1 hectare, 18 hectolitres (of 61.64 kilos). These figures are representing for the said provinces an annual production of about 12,240,000 hectolitres of olive fruits, which leave about 15 per cent. (up to 25 per cent.) equal to 1,836,000 hectol. of olive oil, and about 30-40 per cent., equal to 4,800,000 hectol. or 300,000 tons of exhausted pips and nuts.

- The annual average crop of olives of all Spanish pro-
vines is about 2,976,384 hectolitres, and the quantities of waste-pips and nuts being left, 550,000 tons.

In Italy, 1,913,579 hectares are occupied by the culture of olive trees. The crop of 1900 of olive oil is indicated to be 1,500,000 hectolitres, with 300,000 tons of waste-pips, spread over Italy as follows:

75,000 tons for Sicily.
100,000 tons for the southern part of Italy (on the Adriatic side).
75,000 tons for the southern part of Italy (on the Mediterranean side).
50,000 tons for the center and north of Italy.

France, Tunis and Algeria: Whilst the production of olives is limited in France to some southern provinces, it is in Algeria and Tunis as well important as in Spain.

Greece, Isle of Crete, Samos, Asia Minor have, too, a culture of olive trees much extended, and accordingly these countries are disposing of considerable quantities of waste-pips.

Supposing that we might get half of all waste-pips for destructive distillation, we could make out the following figures:

Spain, about 200,000 tons.
Italy, about 150,000 tons.
Algeria-Tunis, about 200,000 tons.

Other countries of the Mediterranean Sea, 30,000 tons.

Making a total of about 600,000 tons of waste-pips for a year.

In California and the Pacific States of U. S. A. the cultivation of olive trees lately has got a heavy extension and will no doubt increase every year as a well-paying culture for the sale quality of the olive oil extracted. The oil freed olive pulp, up to date of little value, will be a source of great benefit to the olive plant farmers, if collected from several mills and brought to a factory working our system in question.

As it is known, the waste-pips leaving the mills are treated by washing with water or by extraction (with sulphur of carbon, gasolin, etc.), in order to get the remaining 10-12 per cent. of oil, and the pills deprived of all oil are employed as cheap fuel or for manure purposes, on account of their content of nitrogen.

The average selling price of 1 ton of exhausted pills is about 5 francs for heavy contracts; but a manufactory fitted out with an extraction plant, with modern improvements, is able to cover by the yield of sale of the extracted oil not only the purchase money for the exhausted pills and all fees of manufacturing, but also it makes considerable profit, and the waste-pips left do not cost anything, as we have been aware personally in Spain.

In Spain, Algeria, Tunis only few manufactories of extraction are existing up to-day, but in several parts of Italy, especially in the surroundings of Bari, this industry is well developed, and the waste-pips are employed partly as fuel in the manufactories of this district and in the neighborhood at moderate quotations; only a little part of it is submitted to carbonization on a most primitive way, and the resulting charcoal is employed in winter time for foot-warming purposes in open vases.

The destructive distillation of olive pips (carbonization with recovery of the by-products) wants an apparatus of a quite special construction, and we were obliged to spend much time and to make many trials to overcome the difficulties met with by the particular qualities of the material. However, we have been successful in constructing an apparatus of large size and capacity and of continuous work, able to distill up to 10,000 kiles (22,000 pounds) of exhausted pills per day. This system has been patented in all Mediterranean countries, and in Spain we have got the sole right to submit the olive pips to the destructive distillation.

The output in chemical products of the destructive distillation of waste-pips can be compared with that of destructive distillation of the most fitted hard wood, as beech and oak, and we did not exaggerate at all in saying previously that the olive pips will substitute for the southern countries entirely the forests of beech and oak of Central Europe, which are serving to this industry for manufacturing wood spirit, acetone, wood charcoal, etc.

The charcoal brought out from the distillation of olive pips is in size of peas; it contains very little ashes and its calorific power is about 6,800 calories. It is easily formed in coal bricks, so-called "charbon de Paris," well resisting in fire as has been experienced; these bricks are well appreciated and well paid. Where charcoal is in want or where it is dear, as for instance in Algeria and Tunis, these bricks might lead to a flourishing industry putting up high furnaces in order to treat the rich iron minerals of the country, that is to say, to transform same into soft iron or steel.

For the Mediterranean countries the employment of olive pips for destructive distillation is a question of greatest value as to national economy, as can be seen by the following figures established on practical results:

**ESTIMATE PROFIT FIGURES FOR A PLANT**
on continuous work to distill 30 tons of exhausted dry olive pips per day:

**INVESTMENT FOR PLANT.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retort—furnaces and condensation, elevators, cars to quench the charcoal, transmission and steam engine</td>
<td>24,000</td>
</tr>
<tr>
<td>Plant for refinement of pyrolignite acid, wood spirit and pyrolignite of lime</td>
<td>180</td>
</tr>
<tr>
<td>Steam boiler, pumps, boiler house, chimney</td>
<td>1,220</td>
</tr>
<tr>
<td>Mounting fees</td>
<td>400</td>
</tr>
<tr>
<td>Buildings</td>
<td>1,200</td>
</tr>
<tr>
<td>Fund</td>
<td>2,000</td>
</tr>
</tbody>
</table>

£10,400
ANNUAL RECEIPTS.

5 | 6% of pyrolignite of lime 80 | 82%, equal to 905 tons at £8 | £3,900
0.8 | 1.2% wood spirit 92 | 55°tralles, equal to 90 tons at £3 | 288.0
30% charcoal—700 tons at £1 | 2700
4% tar to be served as fuel.

ANNUAL EXPENSES.

Wages, 20 workmen, daily | £2.8
Fuel (waste pipes) | 3.0
Quick lime | 0.16
Package | 0.21.7

ANNUAL EXPENSES.

SINKING FUND.

Maintenance of the plant | £340
Chief engineer, storehouse | 600

Sinking Fund.

Plant £7,200—10% | 720
Buildings £1,200—and interests of capital £10,400 | 580
Unforeseen | 217

Net Profit, Sterling £2,100

For the said chemicals there is an easy sale on the market at the quoted prices. In France, Italy and Spain there would be no more imports from abroad.

It will be a matter of industry—men to give way to this industry so very remunerative and national at the same time.

We are prepared to give any information still wanted and for sending samples of the products brought out by our proceeding.


Techn-Bureau fur die Chem.-Industrie, Prag-Zizkov, Austria.

City and Guilds Answers to the Questions of the Technical Examinations, 1901.

Question 1.—Calculate the theoretical quantity of glycerine you would expect from a charge of 10 tons of tallow and 3 tons of rosin?

Answer.—Rosin contains no glycerine. It may therefore be left out of the question. Glycerine C\(\text{H}_2\text{O}\)_3 = 92 is a triacid base. It is therefore equal to three equivalents of K\(\text{H}_2\text{O}\) = 56.1 + 3 = 168.3, but the saponification value of tallow is 196.5, therefore if 168.3 of K\(\text{H}_2\text{O}\) yield 92 of glycerine, how much will 196.5 yield?

196.5 \times 92 = 107.3 \times 100 = 10.73 per cent.

168.3 tons.

Therefore, 10 tons tallow \times 10.73 = 1.073 glycerine.

100 grams

Question 2.—What do you understand by 76 per cent. solid caustic soda? How would you verify the percentage?

Answer.—By 76 per cent. solid caustic soda is meant a caustic soda containing 76 per cent. of anhydrous caustic alkali Na\(\text{O}\). The percentage is verified by taking 50 grammes from a well-pulverized average sample, dissolving in water and making up the bulk to a litre, drawing off an aliquot part and titrating with normal hydrochloric acid, using methyl orange as indicator.

Question 3.—Describe the bleaching of palm oil by means of bichromate. Give a chemical equation explaining the action of the bichromate.

Answer.—Bleaching with bichromate is an oxidising process. It may be done either with hydrochloric acid or sulphuric acid. The hydrochloric acid process is the most powerful, owing to the evolution of chlorine gas, which indirectly liberates oxygen, the active bleaching agent.

\[K\text{Cr}_2\text{O}_7 + 4\text{HCl} \rightarrow 7\text{CO}_2 + 2\text{KCl} + \text{Cr}_2\text{O}_3 + 3\text{H}_2\text{O}\]

When sulphuric acid is used the reaction is as follows:

\[K\text{Cr}_2\text{O}_7 + 4\text{H}_2\text{SO}_4 \rightarrow 7\text{SO}_2 + 2\text{K}_2\text{SO}_4 + 3\text{Cr}_2\text{O}_3 + 4\text{H}_2\text{O}\]

For further details see Andrés “Vegetable Oils” (Scott Greenwood & Co.), page 286.

Question 4.—What is sulphur oil? How is it produced, and for what purposes is it used in a soapery?

Answer.—Sulphur oil is a lower grade green olive oil extracted from the press residues of olives by carbon disulphide. It is used in the preparation of low quality dark greenish colored olive oil soaps.

Question 5.—For what kinds of soap would you use bone-fat? How would you ascertain the suitability or otherwise of a given batch for your purpose?

Answer.—Bone-fat is used for coarse household soap for scouring floors, etc., and for textile soaps for wool scouring. It often contains lime salts which spoil the detergent power of the resulting soap. Test each batch of fat for lime with hydrochloric acid, ammonia, and ammonium oxalate. Bone-fat soaps smell badly, especially soap made from extracted bone-fat, which can neither be bleached nor deodorized in a satisfactory manner, but takes up any amount of water.

Question 6.—Enumerate the various brands of tallow in the market, and explain fully how you would value them.

Answer.—The commercial brands of tallow are (1) rendered tallow, (2) pressed tallow, and (3) premier jas. Tallow is valued—its color, smell and taste—by the titre test, that is to say, the solidifying point of the fatty acids as determined by Dalican’s method, the higher the solidifying point the greater is the percentage of solid fatty acids. Moisture is determined in the usual way, and gross adulteration by filtration of the melted
Question 7.—What would be the effect of the presence of, say, 20 per cent. of distilled grease in a tallow if you proceed to make soap from it?

Answer.—The soap would contain a great deal of unsaponifiable hydrocarbons, which would hinder even the saponifiable oils and fats from being completely saponified. The soap would not lather, and would not be completely soluble in water. It would be greasy.

Question 8.—What raw material is used in making alkaline silicate? Describe its manufacture, and the preparation of alkaline silicate for soap-making purposes.

Answer.—A solution of carbonate of soda is boiled under pressure with Kieselguhr, the SiO₂ from skeletons of fossil diatoms, in such proportion as will produce a soluble alkaline silicate. This solution is concentrated by boiling to 138 degrees Twaddell, sp. gr. 1.690, and sold to the soapmakers in that condition, who can reduce it to any desired strength to suit their purpose. Gossage, of Liverpool, are makers to the trade, and have long been famous for the excellence of their products. Silicate of soda can also be made in the dry way, but the soapmakers' life is too short to dissolve the resulting products. The better plan is to buy the liquid of the strength given above from manufacturers who make a specialty of the article.

Question 9.—Write a short paper on the manufacture of the various textile soaps you are acquainted with, stating the stock they are made from, and the kind of textiles they are best suited for (35).

Answer.—Hurst gives the following recipes for stock for wool scouring soaps:

A. 
- ⁷⁄₈ cwt. cotton oil.
- ⁳⁄₄ cwt. oleic acid.

B. 
- ⁵⁄₈ cwt. low tallow
- ⁴⁄₈ cwt. palm oil.

C. 
- ⁵⁄₈ cwt. bone tallow (?fat).
- ⁵⁄₈ cwt. cotton oil.

A slight excess of alkali in wool scouring soaps is not detrimental, but rather beneficial. Hess recommends the following as the best soap for silk: Saponify two parts of olive oil with caustic potash, then add one part of oleic acid, which will combine with any free caustic potash that is present, and finish the saponification by adding sufficient carbonate of potash to get a clear soap solution. Neutralise this solution with bisulphate of soda in the ordinary way, and you will find it very emollient neutral soap.

Alkaline soaps must not be used on fabrics dyed with delicate colors.

A resinate of soda soap is much used in the preliminary stages of lye boiling in the bleaching of linen and cotton. It cannot be used for wool, as it turns it brown or "singes it.

Question 10.—Describe fully the manufacture of a cold made soap (choosing the stock yourself), and explain how you would guard against the production of an alkaline soap (25).

Answer.—The cold process of soap manufacture consists in heating the fat as far and no further than will keep it melted during the time it is being mixed with strong caustic lye, say, with a mixture of cocoanut oil and tallow; this temperature is about 100° Fahr. The lye must be thoroughly incorporated, but too energetic agitation (crutching) is to be deprecated, as saponification is meant to take place in the frames and not in the mixing-pan. The alkali must be of the highest percentage strength obtainable, and to ensure the absence of free alkali as far as possible the saponification value of the "stock" should be determined, and the quantity of alkali adjusted so that only the excess necessary to saponify the fat is used. Hess has suggested the neutralization of alkaline solutions of soap by the addition of the requisite quantity of a solution of acid sulphate of soda, "nitre cake."

Taking equal proportions of tallow, and taking the saponification value of each as follows—

| Tallow, say. | 195 |
| Cocoonut oil, say. | 350 |

\[
\frac{222.5 \text{ milligrams of} \ KHO}{\text{1 gramme}} = \frac{222.5 \text{ milligrams of} \ KHO}{1,000 \text{ milligrams}} = \frac{222.5 \text{ milligrams of} \ KNO}{31 \text{ NaO}} = \frac{56.5 \text{ KHO}}{31 \text{ NaO}} = \frac{56.5}{31} = 1.8 \text{ NaO}
\]

Therefore, from the above we have

\[
\begin{align*}
\text{KNO} & : \text{KNO} : \text{NaO} : \text{NaO} \\
56.5 & : 32.5 & : 31 & : 12.4 \\
100 & : 100 & : 100 & : 100
\end{align*}
\]

The 16.1 lbs. given above is therefore the amount of 77 per cent. caustic required to saponify 100 lbs. of our mixture of tallow and cocoanut oil. The alkali has to be dissolved in water before use, and perhaps the best strength for such a mixture would be 38° Baume (71.4° Twaddell), specific gravity 1.357. That density of alkali contains 25.17 NaO, but our alkali to start with contained 77 per cent.; if, therefore, we take 100 lbs. of our alkali and dissolve it in 200 lbs. of water, that is to say, 29 gallons, we get an alkaline lye of the required strength.

Question 11.—Calculate the cost of a hard soap to be
made from 40 per cent. tallow, 10 per cent. palm kernel oil, and 20 per cent. of rosin (20).

<table>
<thead>
<tr>
<th>Tons</th>
<th>Cost.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tallow at £25</td>
<td>£1,000</td>
</tr>
<tr>
<td>Palm kernel oil at £25</td>
<td>1,000</td>
</tr>
<tr>
<td>Rosin at £7</td>
<td>110</td>
</tr>
<tr>
<td>100</td>
<td>£2,140</td>
</tr>
</tbody>
</table>

Having got the price of 100 tons of the fatty, etc., ingredients, we must now calculate the cost of the alkali, and we must again have recourse to the saponification values. We may take those of both rosin and tallow as being, say, 195, and palm kernel oil as, say, 250, but these are points that would have to be determined in actual practice. But going upon our assumed data, we get the following—

<table>
<thead>
<tr>
<th>Fat, etc.</th>
<th>Sap. value.</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>198.5</td>
</tr>
<tr>
<td>40</td>
<td>250</td>
</tr>
<tr>
<td>100</td>
<td>2,180</td>
</tr>
</tbody>
</table>

\[
\begin{align*}
\text{Fat, etc. sap. value} & = 218 \times \text{value of mixture.} \\
100 & \quad \text{but 56.5 KHO} = 31 \text{ Na'O, therefore} \\
\text{KHO} & : \text{KHO} : \text{Na'O} : \text{Na'O} \\
56.5 & : 218 : 31 : 120 \\
\text{but higher grade commercial caustic only contains 77 per cent., therefore, by inverse proportion,} \\
77 & : 100 : 120 : 156 \\
\text{156 milligrams of 77 per cent., caustic are therefore equal to 218 milligrams of pure KHO, but these} \\
\text{218 milligrams of pure KHO will saponify 1,000 milligrams of the mixture we are using; therefore 156} \\
\text{milligrams of our 77 per cent. caustic will also saponify 1,000 milligrams of the mixture—that is to say,} \\
\text{100 tons require 15.6 tons of 77 per cent. caustic.} \\
\text{But we have already found that—} & \text{Cost,} \\
100 \text{ tons of fats, etc., to be used} = £2,140 & 0 \\
\text{And 15.6 tons of 77% alkali at} £11 = 111 \ 12 \\
\text{£2,311 12} &
\end{align*}
\]

But a soap of this nature generally contains 30 per cent. of water, and we have got 115.6 tons of actual soap; therefore if 70 tons of actual soap require 30 tons of water, how much will 115.6 tons of actual soap require?

\[
\begin{align*}
\text{Tons} & : \text{Tons} : \text{Tons} : \text{Tons} \\
70 & : 115.6 : 30 : 50 (\text{say}) \\
\text{Therefore, 115.6 tons} + 50 \text{ tons of water} = 166.6 \text{ tons, but water costs next to nothing, and may therefore be eliminated out of the cost. Now, anyone who chooses to} \\
\text{make the calculation will find that 165.6 tons} = 370,914 \text{ lbs., and that} £2,311 12s. = 554.784 \text{ pence, or that the} \\
\text{actual prime cost of the soap without taking into account labor, rent, freight, commission, insurance, taxes,} \\
\text{interest on capital, etc., is as near as may be 1 1/2d. per lb.} \\
\text{Question 12.—Can wool fat be used in soapmaking? state your views in full (25).} \\
\text{Answer.—Yes, it can be incorporated with soap after saponification like any other unsaponifiable matter. Being} \\
\text{emollient, it is an excellent ingredient of "superfatted" soaps, and being readily absorbed by the skin, it is} \\
\text{an excellent vehicle for the active principle of medicated soaps. As a matter of fact it figures in the "stock"} \\
\text{ingredients of some writers, but none the less it is unsaponifiable.—Oil & Colorman's Journal.} \\
\]
is flowed into a thick-walled receiver, which is covered; over the first covering a second one, of very clean cloth, is placed, in order that cooling may be effected as slowly as possible. This allows of a more complete precipitation of the impurities at the bottom of the receiver. The mass of wax is then taken out, and the whole is ready for the second operation.

The water with which the operation has been conducted ought then to be filtered through a linen cloth. In the residue at the bottom of the filter will be found among the impurities a certain quantity of wax to be extracted. The whole is then boiled in water, and under the effect of heat the wax melting and detaching from these impurities will float, while the latter will be precipitated on cooling and allowed to settle. It will then be easy to collect the floating wax with a skimmer.

In many establishments water alone is not employed, but during the boiling cream of tartar and borax are added, sometimes only the first of these products. It is claimed that the action of these agents in sufficient proportions contributes, while the wax is melting, to purify it from the foreign bodies it contains. The following proportions are used: For 100 kilos of water and 80 kilos of wax, 2 kilos of cream of tartar and 1 kilo of borax. The two products are melted in water before the wax is put in. A quicker separation may thus be procured and supplementary manipulations avoided before passing to the process of bleaching. There is also more chance of freeing the wax from the impurities, and sometimes the honey which it may still contain.

Yellow wax serves for quite different uses, and according to its prospective use it is moulded in cakes of different forms. The bleaching has, from remote times, been effected by a process simple and easy by exposing it to the rays of the sun in the open air, watering it from time to time until it becomes completely white; but this process, besides being very long, has another inconvenience. Not being able, like Joshua, to command the sun to stand still, it is necessary to wait for the solar good will, especially in certain regions (may be a long time coming. It is also difficult to find space sufficiently sheltered from the dust.

It has, therefore, been necessary to search for a different method, and recourse has been had to chemistry. This has furnished various very active methods of bleaching, which have been tried, but many manipulators have been forced to return to the good old system, the chemical agents often acting in a way quite injurious to the quality of the wax, rending it hard and brittle and taking from it the malleability that it ought always to preserve, even cold. Chlorine, especially, is pernicious. It not only renders it hard and brittle, but imparts the property of burning very readily. So, a return has often been had to the slow process of the action of the sun.

In order to succeed as quickly as possible by this process, thick masses of wax should not be operated on, but layers as thin as possible, in the form of fillets or sheets of less or greater size, according to the apparatus in which they are placed.

In exposing the wax to the action of the sun, wooden frames are used, extended on a thin trellis or coarse cloth, which, in its turn, is arranged on stakes driven into the ground, or it may be on the grass. It is necessary that the wax should be spread out evenly in these frames. It is moistened several times with a watering pot having a nose perforated with very small holes. The operation is continued for fifteen or twenty days, according to the weather and the action of the sun. During this period care is taken to turn the wax several times in the frames until it has become very white.

Instead of arranging the wax for the action of the sun in thin layers, it may be granulated.

In this case the granulation may be obtained by pouring into cold water, constantly stirred, a thin stream of liquid wax. After a little practice the granulation is readily secured.

A special machine is used for making small fillets of wax, but it is also cut in the form of fine shavings by means of a special apparatus. It may likewise be prepared by hand, but this takes longer time.

It is, therefore, more advantageous to employ a wax plane. In this case, the wax is melted in forms of about 50 cc. in length by 25 to 30 cc. in width, and 25 to 30 cc. in height, according to the dimensions of the frame or of the machine in which the planing is to be done.

The action of bleaching may be intensified by adding oil of turpentine to the wax. This, in open air, absorbs oxygen, and by the formation of ozone, acquires bleaching qualities in a high degree. The mixture is heated until the turpentine is evaporated, the bleaching continuing for six or eight days. In this case, the wax must not be heated too much, of it would assume a brown color.

At every melting, a black, powdery substance is formed, which might soil the wax and interfere with the bleaching. In order to avoid this, the wax is strained through a cloth.

The experiments, made with one part of turpentine only, have always been too slow. It is, therefore, necessary to operate on one-half to commence with. If, after having added the turpentine to the wax, it is passed into the planing apparatus and afterwards exposed to the sun, the action of the turpentine is immediately apparent in the rapidity with which the bleaching commences, which will be obtained in one-half less time than without the addition of this product. But if the wax is watered with water, mixed with turpentine, in place of watering with water alone, in the proportion of 100 parts of water to 1 part of turpentine, the bleaching will
be still quicker. This mixture and frequent stirring is continued several times a day, for eight days. After having been left to repose, the water is drawn off, to be made use of again, and it remains at the bottom of the receiver; a new-quantity is added to replace that which has disappeared. The water from this infusion smells strongly of the turpentine. So, rectified turpentine only should be employed, for this volatilizes more quickly, without leaving an odor, which it is important to avoid.

Generally the industrial bleaching of wax is produced by means of chlorine or other chemical agents having the same properties, either by first granulating the wax or cutting it into shavings, as has been described, and afterwards putting it in Javal water, or still again subjecting it to a high temperature.

If the first of these methods is employed, it is suitable to mix in a vat, 2 parts of chlorine and 15 parts of water, filter and afterwards put the whole with the wax in a receiver of wood. For about 20 kilos of wax, $\frac{1}{2}$ kilos of the bleaching lixivium may be employed. The latter should be slightly acidulated with sulphuric acid, which promotes the action of the chlorine, and the mixture frequently shaken and finally left to repose for 24 hours. At the end of this time the lixivium is flowed off, and the wax washed carefully with plenty of water until no trace of chlorine remains. The wax is afterwards remelted, separated anew, bleached by the same process and washed carefully. The bleaching may also be accomplished with sulphuric acid, putting the wax in a freshly mixed solution of water and sulphuric acid; the whole stirred for some time until the wax has become sufficiently white, and then carefully washed several times.

One of the most efficacious and active bleaching processes is that by means of oxygen superoxide. This product, which in a few minutes will bleach the hair or soiled feathers, may be also employed for wax. For this purpose the wax is manipulated for half an hour in water saturated with superoxide, then spread out and exposed to the rays of the sun, and from time to time watered with the superoxide. By this process it becomes as white as possible in a very few days, without need of undergoing any washing.

Another process consists in melting the wax by putting it in boiling water that has been salted, 20 grams of salt to 1 liter of water. A little sulphuric acid is added, and the whole stirred until it commences to cool and all sulphur odor has disappeared. Should the wax not be sufficiently bleached, the operation must be repeated. After bleaching, the wax is again put into water for five or ten minutes in order to remove every vestige of chlorine odor, and afterwards remelted and cast into any form desired. By this process, not only does the wax become of a beautiful white, but what is equally important, it loses none of its peculiar qualities.

The following is another process: The hard wax is put into a boiler to melt it and for 25 kilos of wax the tenth part of water acidulated with sulphuric acid is added, and steam injected between the walls of the boiler. As soon as the wax is well melted, a solution of chlorine is poured in until a sample drawn from the mass shows that the wax has become sufficiently white. The floating wax is then removed and thrown into water acidulated with sulphuric acid. After thorough skimming, when none remains in the liquid state, it is washed with water until all the chlorine has been eliminated. It is then prepared in shavings or otherwise, as has been previously indicated, and dried in the sun.

Wax may also be bleached by treating it with a lixivium of Javel water, manipulating it in the liquid state in the hot lixivium, until it is rendered colorless, and afterwards washing it very carefully with plenty of water; it is then drawn off and allowed to cool, cut up by any of the processes described before, and finally exposed in frames to the rays of the sun.

Javel water may be purchased ready made, or prepared by putting one part of a filtered solution of chlorine with 12 parts of potash melted in 4 parts of water. The liquid which results from this mixture is separated from the deposit forming at the bottom of the vat and filtered. The wax is then ready for use. For 25 kilos of wax, 250 kilos of lixivium of Javel water are employed.

There are some other chemical processes of bleaching, more or less known. One of these is the following: Five kilos of yellow wax are placed in an appropriate receiver to be melted; 600 grams of saltpeter and 300 grams of a solution of 8 parts of water and 1 part of sulphuric acid are added. The solution is added gradually by drops, while constantly stirring. As soon as the addition is complete, the temperature is allowed to fall to 30 degs.-34 degs. C. Afterwards the vat is filled with soft boiling water, and the whole allowed to re.pose. As soon as cooled, the wax floating on the surface is removed and placed again in boiling water, in which it is carefully washed.

In all chemical processes it is necessary, above all, to take particular care with the washings. These ought always to be thorough, that no trace of acid may possibly remain, which would act quite injuriously on the whitest waxes. After bleaching, the wax must always be placed in frames perfectly dry, where they can remain sheltered for ten or fifteen days. It should finally be melted with much care, in order to avoid any coloration during the melting. Then it can be poured into the different molds to receive on cooling the various forms in which it is to be sold.—Les Corps Gras Industriels.
How Soap is Sold.

Some very forcible arguments are admirably advanced by Kingan & Co., Ltd., in recent advertisements. Thus one of these asks: Can you afford to buy water to drink? and then goes on to say—

If a man tried to sell you water to drink at 4 or 5 cents per pound you would either disagree with him violently on the matter or you would call the police.

Yet when the soap man daily, yea yearly, sells you 35 pounds of water with every 65 pounds of soap you think him a good fellow, and so he is.

Kigan & Co. are content to sell you Soap. You have the water, therefore why should you buy the water?

On another occasion they put it this way—

"The farmer waters his cattle before weighing and the soap manufacturer his soap. Its the same old game and the same old water. We prefer to buy our cattle dry and then water them afterwards, and you should do the same with your soap. 'Tis cheaper, we know. We have bought cattle both ways."

A sure way to tell how much water you are paying for at the rate of 4 or 5 cents per pound is to weigh out a pound of soap you are using from the center of the barrel. Put in a warm, dry place for 3 or 4 days and then weigh again. The loss in weight is the water you have paid for. Figure how much this amounts to on the barrel. Apply the same to Kingan's Soap and we will abide by your decision, but we think you will agree with us that its the same old game and the same old water.

* * *

The Cudahy Packing Co. is advertising the "Cudoma" soap chips, containing a percentage of purified and refined ox-gall.

* * *

The Vinolia Soap Co. has a striking advertisement in the shape of two pictures, contrasting on one hand an evidently prosperous dealer in soap, comfortably seated on some boxes of Vinolia soap, representing "a good support," with another poor fellow weighed down by "a load of care" in the shape of such undesirable soap brands as "Heartburn Soap," "Headache Soap," "Workhouse Soap," "Kill Joy Soap," etc.

* * *

Wm. Waltke & Co. put it in this way—

A reward of merit usually follows commercial transactions when correctly conducted. In our Laundry Supply Department this has been verified to gratifying extent. When some years ago we were determined to manufacture only the purest quality of soap chips and to handle the best supplies of every description, some of our friends seemed to think this a risky policy in the face of so many so-called cheap supplies in the market with which we would necessarily come in competition. But the uniformity, reliable quality of our soaps soon became popular, and in carefully buying supplies from the best sources for spot cash by a judicious manager of that department, we were enabled to place them in successful competition, even against inferior grades of supplies.

Our steadily increasing trade, and the general demand for our excellent chip soaps are the reward of merit we received, and it is a very substantial and satisfactory one. Laundrymen who want to build up a satisfactory, profitable and lasting trade can be assured of an equally satisfying reward of merit by dealing with us and thereby taking advantage of our cash purchases and of an experience of many years in the manufacture of first-class soaps. To convince yourselves send us a trial order or write for our price lists and quotations.

* * *

On various occasions for public display the product of the soap factory has been used to construct buildings, landscapes, etc. Probably the most unique effort of this kind was that of Edw. Cook & Co., Ltd., London, a year ago, an account of which we saved at the time and now rescue from oblivion. The description at the time read: It is a representation in soap of the country-house occupied by King John on the banks of the Lea. The palace was in existence so recently as 1863, when it was destroyed by fire. There seems no reason to doubt that, in the midst of what was then a lovely country scene, and close to the river, which was then larger in volume than at present, King John used to pass part of the summer of each year. The firm, whose manufactory is in the same locality, have reproduced the old palace in which tradition says the king resided. Messrs. Jerrard & Sons, architects, prepared the plans, and blocks, etc., of soap were produced in accordance with them. "Gold Medal Mottled Soap" takes the place of what was Kentish rag in the original; primrose soap is used where freestone was employed. Soaps were specially prepared to take the place of red brick and tiles, and the window panes are of "Transparent Glycerine" soap. The interior of the stand—we mean the "Palace”—forms a room 25 by 14 feet fitted up as a throne room, and used for the reception of the company's customers. In order not to detract from the dignity of the palace, the firm had a stand adjoining it at which they showed soaps for all purposes.

* * *

How Laundrymen Make Soap.

The Conkling Chemical Co. is getting up some plain talk to laundrymen which we have read with quite a little interest at times. From one of them we extract the following—

We have often thought, in our wanderings through the different laundries in the country what a blessing
and a source of revenue one of those old springs would be in a washroom, for with that soft, clear water no caustic would be required, and there would be no danger of any of it getting mixed up with the ink. We have oftentimes thought that laundrymen use altogether too much caustic in their washroom and in their ink.

While there may be some difference in the methods used by laundrymen in making their own soap the results obtained is about the same and they make practically what is called a semi-boiled soap, by boiling a given amount of lye and grease together. The method most generally used is first to melt and boil the tallow, and secondly to run in the lye of a certain strength, depending upon the judgment of the party making the soap; or, in other words, the amount of lye used depends upon how strong he wishes his soap to be. When the lye is run in with the tallow it is kept boiling gently until it is all thoroughly mixed, and if they should have a mixture which is not an emulsion, or in other words a mixture of liquids insoluble in one another, where one is suspended in the other in the form of minute globules, as the fat or butter in milk, they let it stand for two or three hours in order to allow the necessary chemical action to take place, when they again boil it until it has turned into an emulsion and is then considered to be soap. Some laundrymen boil the soap for quite a long time, when it is allowed to stand and cool. Oftentimes, however, this soap is used before it has had time to cool. This should never be done under any circumstances.

It is also advisable to make a neutral soap and build it up as required than to make a strong soap at first, because soaps made in this way set too quick and do not allow the lye and grease to properly saponify. Another method used quite extensively is to take a certain amount of tallow, and when it is boiling pour in a sufficient amount of caustic to make a neutral soap and boil until it forms an emulsion, when salt is introduced, boiling well until it is all separated, when it is then allowed to settle. This method will only take off part of the glycine when the under liquor or spent lye is drawn off.

One cannot obtain a pure, neutral soap by using any of these methods, and as a rule they have an excess of grease, although they may have used the proper proportions of caustic to obtain a neutral soap. There is only one way to make a pure soap for the laundry and that is a boiled soap by the settled process. In order to make a soap according to this process one must be properly equipped, and furthermore he must have the necessary facilities for properly drying and curing the soap. Some laundrymen are of the opinion that by allowing the soap to stand in drums or barrels it will cure. Well, it will probably, in the “sweet bye and bye.” At any rate, it will take a mighty long time to dry and cure soap in either drums or barrels.

All From Coal-Tar.

As is well known, coal-tar, a by-product in the manufacture of ordinary coal-gas is a wonderfully complex substance, says The Spatula. No less than sixty different substances have been discovered in it, and more are being discovered every year.

One of the most interesting of these is benzine—a clear, mobile liquid discovered in gas oils by Michael Faraday in 1825. It is used in enormous quantities for the production of aniline, and also of a powerful perfume known as artificial oil of bitter almonds, or essence of mirbane. No less than 150 tons of this perfume are used in scenting soaps and other toilet requisites. Benzine has the useful property of dissolving fats, resins and India rubber, and is therefore of much value in the cleansing of goods by the dry cleaning method, and also in the forming of India rubber solution, so well known to lovers of the cycle and the football. In 1820 naphthalene was discovered in tar by Garden. This is a substance from which we derive some of our most beautiful colors, ranging from a buttercup yellow on the one hand to reds, pinks, greens, and scarlets. To entomologists this naphthalene is of interest, as it is now considered the best preservative for cases of moths, butterflies, insects, and other natural history specimens.

In 1832 anthracene was discovered by Dumas. It is now of immense importance, as it forms the base from which that beautiful and well known color Turkey red is now obtained. From time immemorial this valuable dye has been derived from the roots of the madder plant, the coloring principle of which is called alizarin. But in 1868 two German chemists, Graebe and Libermann, discovered a method of making artificial alizarin from the coal-tar product anthracene—a discovery which has completely revolutionized the dyeing and calico-printing industries. The excitement in the dyeing and coal-tar industries was immense. Anthracene, which formerly was considered a useless by-product, sold at a few shilings a ton and utilized as a cart grease, immediately rose in price and shortly after this discovery commanded something like $500 a ton. This artificial alizarin has now entirely superseded the natural product from the madder plant; and the cultivation of madder, which was once a great and flourishing industry, has now dwindled away, and in the course of a few years will probably be altogether extinct.

Phenol, or carbolic acid, discovered by Mitscherlich in 1834, being one of the most powerful antiseptics and disinfectants, purifies the atmosphere from noxious gases and destroys the infectious germs of disease. Its valuable antiseptic properties have been introduced into surgery with great success by the present Lord Lister, president of the Royal Society. From carbolic acid is obtained a valuable series of coloring matters, ranging
from a beautiful yellow, i. e., picric acid, to reds, oranges, browns and many other colors.

The wonderful substance, aniline, is found only in small quantities in coal-tar, and its production on a sufficiently large scale for industrial purposes only became possible when Zinin, in 1842, showed it could be made from nitro-benzine, or the artificial oil of bitter almonds, already mentioned. All the aniline for the production of the innumerable beautiful colors is obtained from this derivative of benzine. In 1856 Dr. William H. Perkin, then a young man of 18, was engaged experimenting on aniline with a view of making an artificial quinine. Though his experiments in that direction were a failure, they were the means of his making the great discovery of the first aniline color, namely, mauve, and from these experiments has arisen a worldwide industry. In 1858, Prof. A. W. Hofmann discovered the magnificent color magenta, or aniline red, one of the most brilliant colors known to the dyer. Then came in quick succession greens, blues and yellow coloring matter, all the hues of the rainbow, and at the present day the number and varieties of colors are bewildering.

We are indebted to coal-tar not only for beautiful colors, but also for some of our most valuable drugs. The valuable drug antipyrine, discovered in 1883 by Dr. Knorr, of Erlangen, is considered even better than quinine as an assuager of fevers, and is much cheaper in price. Another is thallium, discovered by Skraup, which has the special power of mitigating yellow fever, or the "yellow Jack," the dread of every colonist. Phenacetine is still another, possessing valuable antipyretic properties. Sulphonal, discovered by Prof. Baeyer, is a hypnotic. But perhaps the most remarkable substance obtained from tar is saccharine, 220 times sweeter than cane sugar, useful for sweetening fruit preserves, jams, jellies, etc., where ordinary cane sugar would melt and ferment in course of time. A most interesting and important property is that it does not nourish and fatten the body as cane sugar does. Hence it is of value in certain troubles like diabetes, where it is often recommended by the physician for sweetening tea or coffee in place of cane sugar.

Vanillin, now obtained from this tar, is a delicate flavoring essence resembling the true vanilla from the vanilla bean, and the cultivation of the plant in the Cordilleras and Mauritius has been greatly restricted from the introduction of this artificial vanilla. By mixing essence of mirbane with a certain proportion of this coal-tar vanilla, Lord Roscoe has prepared a delightful perfume known as white heliotrope, and many of the pleasant perfumes which play an important part in the toilet of every pretty maiden and courtly dame are extracted, by the magic of chemistry, from that black and ill-smelling substance, tar.

A Weird Tale.

A Boston suburban druggist tells this of one of his customers: She came in and asked for "Lettuce Soap," saying she had seen it advertised. The man of the pestle and mortar did up her little package and just as she was paying for it she asked if it was surely efficacious in its work? It then came out that her family had undertaken to raise lettuce, a few radishes, cucumbers and like things, and they had been troubled with lice on the lettuce, making it hard to wash the insects off. The woman really thought that the lettuce soap was intended to be used in some way to kill the lice, just as fica soap is used. Just how she got this idea into her head, she was unable to say, yet she laughed heartily with the druggist when he explained that it was not intended for that purpose.—Pharm. Era.

Nail Polish.

Peroxide of tin, 1 ounce; glycerine of tragacanth, a sufficient quantity. Make a paste and color with solution of carmine.

Bath Paste.

A heaping teaspoonful of the following paste will perfume 2 to 15 gallons of bath water: Sodium bicarbonate, 150 parts; tartaric acid, 125 parts; starch, powdered, 210 parts; oil of sweet almond, 90 parts; attar of rose or ylang-ylang, q. s. Mix the soda, aed and starch, and make into a paste, with the almond oil, working in the perfume. As to the latter, 20 drops of attar of rose and 8 to 10 drops of clove oil to each pound of paste will be sufficient. It is claimed that the paste also softens the bath water.

Red Ink.

Cochineal, in coarse powder...... 5 parts
Potassium carbonate.......... 10 "
Water..........................110 "
Tartaric acid.................. 30 "
Ammonia alum................ 2 "
Alcohol......................... 5 "
Gum arabic.................... 5 "
Oil of cloves.................. sufficient.

Dissolve the potassium carbonate in 100 parts of the water, and to the solution add the cochineal, and macerate for two days. To the macerate add the tartaric acid, and as soon as the violent reaction has subsided, add the alum, and heat the mixture until the residual carbinic acid is driven off. Add the alcohol and filter. Dissolve the gum arabic in the residual water, and with the solution wash the filter. This makes a brilliant and very stable red ink of a superior quality.
Acid-Proof Cement.

I.
Asbestos ...................... 2 parts.
 Sulphate of barium .......... 3 "
 Silicate of sodium .......... 2 "

By mixing these ingredients a cement strong enough to resist the strongest nitric acid will be obtained.

II.
If hot acids are dealt with, the following mixture will be found to possess still more resistant powers:
Silicate of sodium (50° Baumé) . 2 parts.
Fine sand ..................... 1 "
Asbestos ...................... 1 "

Both these cements take a few hours to set. If the cement is wanted to set at once, use silicate of potassium, instead of silicate of sodium. This mixture will be instantly effective and possesses the same power of resistance as the other.

Testing Tar Dyestuffs.

Dr. Marquardt discusses in “Lehner’s Faerber-Zeitung” the simplest methods by which the practical man may quickly ascertain the properties interesting him most of the unity and dilution of the dyestuffs furnished to him. In the first place he can determine by blowing a trace of the powdered dyestuff upon moist filtering paper or upon distilled water contained in a white dish whether the dyestuff is single or represents a mixture. Most dyes are mixed by the manufacturer with a small quantity of another dyestuff to obtain a uniform shade in various lots of the same article. Sometimes mixtures of certain dyestuffs of equal dyeing qualities are sold, but frequently this mixture is manipulated by dealers to the detriment of the consumer, such dyestuffs often consisting of ingredients operating and dyeing unequally. If the mixture is so thorough that a mechanical separation as above described is impracticable, the various lengths of time required for the absorption of the dyestuff ingredients from their aqueous solution by means of a strip of filtering paper is often a valuable aid; zones of different shades will form. For a quantitative test serves the comparison of the dyeing of the dyestuffs to be examined with a dyestuff of certain value used as a standard. The quantities of dyes which dye wooden goods of equal weight with the same shade are equivalent.

Many dyestuffs are mixed with dextrin by the manufacturer, e.g., the rhodamines, the aniline dyes and auramin. This is done because these products possess such a strong coloring power that a mistake in weighing of only a few grams would cause an enormous difference in the shade. Frequently, however, the dyestuffs are extended by the dealers with dextrin, glauber’s salts or sugar, for which reason, if the merchandise is not bought direct from the maker, a strict test for these mixtures is advisable. Their presence is recognized either in the dyeing test or else one gram of the dyestuff may be washed on a weighed filter with spirit of wine until the latter runs off almost colorless, and the filter weighed with the residuum. If dextrin is present it is recognized by its characteristic odor by dissolving one gram of the dyestuff in a little hot water and boiling the solution.

Soap Powder.

A writer in the Seifensieder-Zeitung, Angsburg, describes the German method of making soap powder without the use of a mill, as follows:

One hundred and twenty parts of 30° lye are brought to a boil and 50 parts of red oil are run in and saponified; then 100 parts palm kernel oil are added and saponified so that a uniform, compact mass results which solidifies on cooling and tastes somewhat sharp. Then 90 parts of soda ash are gradually added under constant crutching whereby the soap turns from a doughy to a friable mass. Larger factories have a special crutching apparatus for the purpose. Instead of, as formerly, running the mass into shallow frames and later breaking up the hard lumps into pieces suitable for the mill, the crutching avoids the need for this process, for by the constant mixing, aided by the spontaneous heating, a powder results which may at once be passed through a sieve. If a very fine powder is needed, however, a mill will still be required. By using open steam it may be considered that 120 parts of condensed water are introduced during the process, yielding a powder containing 35 to 36 per cent fatty acid. Made with closed steam and without adding water to make up the difference, the resulting product contains 39 to 40 per cent fatty acid, though of course a larger proportion of soda ash may be introduced.

Eating Soap Sandwiches.

A party of commercial travelers were discussing their oddest experiences in the smoking compartment of a west-bound sleeper. One of the party surprised the others by remarking: “Say, fellows, did you ever hear of a man eating a soap sandwich?”

“No,” “Come off the perch,” “That will hardly wash,” and other similar remarks followed the question, for the nauseous suggestion was too much even for a drummer’s credulity.

“It has been done, though,” replied the other. “I knew a man, a porter in our store, who ate a soap sandwich and seemed to enjoy it—at least for a time. If you chaps will keep quiet for a few minutes I’ll tell you about it.”

The others promised to be still as mice, and the man began his story with a little description of the peculiari-
ties of "Irish Mike," a trusted porter for many years in the employ of a leading dry goods firm, who had boxed the ears of a score or more generations of office boys.

"He seemed to hate boys," continued the speaker. "He had been with the firm so long and was so exact himself that he could not excuse a mistake, and as for skylarking, he considered that a capital offense. He intimidated generation after generation of youngsters, but he met his match at last in a harum-searum youth named Bob.

"This boy came from—no one knows where. He was almost unbearable to the clerks and salesmen, and at once took the lead in all the boyish mischief in the store. He ran counter to 'Irish Mike' from the first. They hated each other heartily, and Bob led the other boys to revolt against the tyrant.

"It is unnecessary to outline the nature of the campaign beyond saying that it was one of petty annoyances. They would hide Mike's hat, nail his street boots to the floor or fill them with water, and fill his pockets with tacks and things of that kind.

"The campaign culminated in the following manner: Mike was in the habit of bringing his lunch with him and eating it in the store. He was very fond of cheese sandwiches. One day Bob found his lunch basket and inspected its contents. He discovered the cheese sandwiches and was quick to seize the opportunity to get even with his enemy, who the day before had dusted his jacket well.

"From a bar of yellow soap he cut nice, thin slices. These he substituted for the cheese, sprinkling a liberal quantity of salt over the surface. Then he hid behind a case of goods to await developments.

"At noon-time Mike took his dinner basket to his favorite resort and began to enjoy his repast. To Bob's surprise he ate the nasty soap sandwiches without turning a hair. He finished his lunch and sat down contentedly to take a short nap. Now this was more than the boy could stand. From his place of concealment he began to throw paper wads at the man until he aroused him.

"Mike began to chase his tormentor. They ran back and forth through the aisles, in the basement; the boy scrambled over boxes with the agility of a cat, and chased his pursuer easily. The latter was rapidly becoming furious, when of a sudden he paused in his efforts and turned pale. Then he beat a hasty retreat, sick and disheartened. Small wonder, for the beer he had taken with his lunch and exercise working on the soap had resulted in converting it into a mass of suds, which the stomach of no human being, not even Mike's, could resist.

"Bob was delighted with the result of his work, and bragged not a little of the achievement. It reached the ears of the firm, who promptly dispensed with his services. Mike's system was entirely deranged by his novel repast, and when he returned to the store after a week's absence, he was a much altered man in disposition. He always got along well with the boys after his experience with a soap sandwich."—Cincinnati Commercial-Gazette.

The Profession of an Industrial Chemist.

By Dr. Julius Lewkowitsch, F.I.C., F.C.S.

(Continued.)

Let us take an example: Commercial anthracene is sold on the basis of the pure anthracene it contains, and the method of analysis is a somewhat cumbersome and lengthy one, requiring about three days. But if one has to ascertain on the last day of the month allowed by contract for delivery, whether a parcel can be sent out or not, for which purpose it is only necessary to know the true contents within a few per cent., then, obviously, an abbreviated though not strictly accurate method is most welcome. For such a purpose I employed a rapid method, the error of which I had ascertained by a series of comparative analysis. The true percentage, for the settling of the payment, could then be ascertained in a drawn sample, after despatch of the goods, with the greatest accuracy obtainable.

Here, then, is a wide field for exercising your ingenuity. Similar cases happen daily in a works. If the manager has to decide, in the shortest possible time, how an intermediate product has to be dealt with, and that decision can be arrived at by means of an analysis, then, obviously, an analysis, though it be 1 or 2 or 3 per cent. from the truth, will be useful, whereas the most accurate analysis got by the chemist after two or three days is perfectly useless. In this respect most young chemists sin frequently. Hence volumetric analysis, and a certain alternation in weighing and generally turning about, will be of the utmost usefulness. It will be of no less importance to the young industrial chemist to rapidly learn how to work with kilograms instead of grammes of the student's laboratory, how to use bottles and buckets instead of breakers and porcelain dishes, and how to employ metal apparatus for distilling and filter-presses for filtering instead of flasks and funnels. And what is of the greatest importance, the young chemist should learn to adapt himself to circumstances, and be prepared to make the best of the perhaps too scanty means and apparatus a works' laboratory can offer him. Our young generation is not a little spoilt by the magnificent laboratories of the colleges. Every works' laboratory has not a special room for sulphurized hydrogen; there may be laboratories even, especially abroad, where there is no gas. A little common sense will be of great assistance to you, and will soon lead you to rigging up simple apparatus with which you can get your results rapidly and at the same time with such accuracy as the special case demands.
In the laboratory you become acquainted on a small scale with what is going on in the works on a large scale, and whilst the raw material, the intermediate products, and the finished stuff are passing through your hands you gain a bird’s eye view of the manifold operations which you are destined to conduct, supervise, improve and perfect. And when in due course you then go into the works themselves and the vast piles of buildings, the large boilers, the steam engines, the enormous vessels of various shapes and designs, the bewildering net work of piping, the endless number of taps and valves seem to overawe you at first, this acquaintance with the material and the products will be your guiding star through the apparent maze, and you will soon place all this mentally in the order you have been accustomed to in the laboratory. As you are acquainted with the sequence of the operations, the ease with which the ordinary workman attends to his apparatus, turns steam on, and moves tons of liquids by compressed air, the apparent unconcernedness with which he feeds a boiler working at 200 lbs. pressure, or draws a sample from an autoclave working at still higher pressure, or runs up a hydraulic press to 400 atmospheres, they all act as a soothing remedy, if in the first moment the load of responsibility weighs heavily upon you. Although the foreman certainly knows infinitely better than you do how the work should proceed, and although even the ordinary workman may smile at the extraordinary simplicity your questions betray, the consciousness that you have in your mind to the key of these operations—the philosophy, as it were, of the manufacture—will give you the assurance that all this will be mastered by you in due time.

You will then do, what the ordinary workman has had to do:—Follow the course of the pipings, acquaint yourself with the meaning of the taps and valves, learn to start and stop machines, pumps, and presses, and by watching the men in carrying out the operations, and not considering it infra dig, to dirty your hands, or handle a shovel, or creep into an apparatus, that is just being cleaned, to see its inner machinery; you will soon get a complete mastery of all details, and you will be able, by dint of application, to localize mentally the whole plant, and visualize all its taps and valves, just as it is said that the Alpine guide sees in his sleep all the crevices and crannies he has to get hold of in order to negotiate a stiff couloir.

This will be your apprenticeship, and during this short time you should make it a rule that none of your workmen—excepting of course, the skilled artisan—should be at a job you could perform yourself, if need arise. You can only judge what a workman can do by being able to perform his task yourself. It is easy enough to bully a fireman for not keeping steam up whilst your hands are in your pockets, but it may happen, and does happen, that the fireman throws the shovel down, and bids you do the work, which he deems too hard. And if you can then pick up and show him for an hour or so that the work can be done, you will be able to secure to your orders that respect you are entitled to. And again, an important workman may be absent and there be nobody else to do his work. The work, of course, must be done, and, naturally, you will be expected to supervise a fresh hand which may be tantamount to performing the work yourself. Or, a strike may suddenly break out, and you may thus lose all your old hands; of course you will have to reorganize the work with inexperienced men, and show the mettle you are made of by keeping the machinery going. Or a fire may break out in a department, and valuable material may be lost, unless certain valves and taps inside are turned off. When no life is in danger, I always found, that workmen will not expose themselves to any risk, and the manager himself will then have to grope for the taps with which he has become as familiar as the workman himself.

Thus you will acquire the right and the ability to command the men, whose respect on the other hand you will readily obtain. But do not think that it is so easy to gain it. However simple it may appear to control machinery and make it do your work, the living machinery, man, is the most difficult to manage. To do this effectively you must exercise the highest qualities of a leader; strict attention to your duty, firmness, strength of will, and, above all, tact, in dealing with your men. You must set them an example by our punctuality, which will be all the more appreciated, as, unlike the workman, you are not bound by strict hours. Once you have decided, after due deliberation, on a certain course, you must have the firmness to insist on what appears the best, and by the strength of your will, you must beat down all opposition that an unwilling foreman or a lazy workman will raise. And yet, you need not be a martinet. Much as one hears about the perversity of the British workman and his proneness to disobedience, the vast majority are easy to handle; and notwithstanding his facility for somewhat forcibly calling a spade a spade, Jim is amenable to discipline, and does his work properly and cheerfully, if his superior goes the right way about it. If you make it a rule never to use coarse language, however abusive a man may become, if you take a kindly interest to some slight extent in their personal affairs, and assist them with your advice, when appealed to, you will not only gain the respect, but even the confidence of your men. This you will not infrequently require, if you have to act as a judge between foreman and man, or even between workman and workman, when their exuberant manliness bursts forth into a free fight inside the works.

(To be continued.)
Around the Soap Factories.

The United Soap Company has been incorporated in Chicago by A. A. Worley, N. H. Hanehette and M. G. Smith. Capital stock, $10,000.

The plant of the Banner & Will Candle Company at Syracuse, N. Y., was destroyed by fire last month, which originated in an adjoining silk mill.

Herman O. Armour died at his summer house in Saratoga on Sept. 8, aged 64. Deceased was born in New York state and was the last surviving of five brothers, being five years younger than P. D. Armour, who died so recently. He was one of the founders of the Plankinton Packing Company of Milwaukee, and at all times prominently connected with the success of the firm of Armour & Co.

The Connellsville, Pa., soap factory has been destroyed by fire.

Bradshaw Bros., who lost their soap factory in Minneapolis by fire nearly a year ago, have brought suit for $2,000 against the insurance company.

Des Moines, Iowa, is expecting the erection of a soap factory by C. A. Pearsall Manufacturing Company.

The Markets.

There has been a considerable rise in tallow since our last report, with a consequent firmness in other stocks used largely by soap manufacturers.

Tallow.—The market, as foreshadowed in our last month's report, is very strong. New York report sales at 53½c for city, in hogsheads, with 6 and 6½c asked for further lots; country made at 5½¾c as to quality. Western markets have advanced about ¼c, Chicago quotations being: Prime packers, 6-6½c; city, 5½-5½¾c; prime country, 5½-6c.

Cotton Oil.—There is no particular change, but an advance is expected, owing partly to conditions affecting cotton oil directly and partly to the tallow situation.

Glycerin.—Chicago quotations are: A white 5½-5½¾c; B white, 4½-5c; yellow, 4½-4½½c; brown, 4½¼e. 

Cocoa-nut Oil.—6-6½c asked for Ceylon; sales of Cochin reported at 7½-8c.

Olive Oils.—In demand at 5½-5½¾c for spot.

Corn Oil.—New York and Chicago quotations: 5½c for car lots; 5½c for smaller quantities.

Palm Oil.—Market active, in sympathy with tallow, but last sales reported at same quotations as last month.

PATENTS AND TRADE-MARKS.

The following is a list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.


682,166. Washboard. William P. Brush, Jersey City, N. J.


TRADE-MARKS.


36,961. Certain named medicinal preparations and soap. Benjamin J. Bruns, San Francisco, Cal. Essential feature:—The words “Bro. Benjamin’s and the bust representation of an old man, the old man being dressed in the garb of a Quaker, wearing a broad-brimmed hat and having long flowing hair.


LABELS.

8,632. Title: “Staufer’s Laundry Tablets.” (For Laundry Tablets.) W. B. Staufer, St. Louis, Mo.


The attention of our readers is called to the column of

“WANTED” AND “FOR SALE”

advertisements on another page. Manufacturing firms looking for intelligent up-to-date help, or who have second-hand machinery they wish to dispose of, and practical men experienced in any branch of manufacturing chemistry looking for employment, can mutually profit by using this column.
Latest Additions to Our Brand List.

340 J. P. Rex, Toledo, Ohio.
341 Monahan Antiseptic Co.,
Chicago.
American Green Oil S. 241
American Green Oil Toilet
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Chem. Co., N. Y.
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Vestal Iris 16
Vestal Rose 16
Vestal Violet 16
White Tar 38

An Australian subscriber to the Soap Journal
and purchaser of the work "American Soaps,"
writes us: "The sample of soap sent you herewith
is an evidence of the educating power of your
publications; I could not have made anything like it
before reading them." No better compliment could
be paid any trade journal, and we take much
encouragement from the fact that we have
a number of just such statements on file, in black and
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Minteaux Soap Co., Cincinnati, O.

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& Bogart

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The Scientific American, a paper known particularly to every one of our subscribers, in a recent issue, says:

"The first edition of 'American Soaps' appeared in print seven years ago and was well received, and since that time the author has continually collected all the available new information that could assist in the best direction of the subject and the author has had the benefit of the experience of many of the original purchasers of the book.

There is an extensive literature upon soap making, but most of them are adapted from foreign practice or deal with antiquated methods. The present book cannot be placed in this category. It is an excellent contribution to technical literature by a man who thoroughly understands modern American soap making and is in no sense a compilation. To those who wish to have a thoroughly practical book on soapmaking of all kinds, with special reference to modern practice, we can conscientiously recommend this book more highly. It is well illustrated, and the number of formulas for soaps of various kinds are large. The section devoted to the actual processes used in the manufacture of soaps of all kinds occupies three quarters of the volume. It is an admirable book."
The American Soap Journal & Manufacturing Chemist.

A MONTHLY JOURNAL OF THE MANUFACTURING CHEMICAL INDUSTRIES.

DR. HENRY GATHMANN, Publisher. 322 Windsor Place. MILWAUKEE, WIS., November 1, 1901. VOL. XII. No. 3.

The most curiously made soap in use, according to the Brit. and Colonial Druggist, is that supplied to the station of the London and North Western Railway Company, which is made from the fat and grease washed out of their meat cloths.

And according to the same paper commercial travelers for soap houses are nicknamed "bubblers" in England. The district known ordinarily as the Potteries on the other hand is known to commercial travelers as the "Soapman's paradise." In their turn customers are re-christened by travelers. The "baksheesh-glutton" is the manager who must be squared, and the man who deprecates any present, and yet hands over his private address, is a "don't forget the number" man. Even the hotels do not escape, "no-light-or-latch-key" and "all-but-my-ticket" are very descriptive.

Our thanks are due for a compliment paid us by the Oil & Colourman's Journal of London, England. In speaking of the course of instruction given by the City and Guilds of London Institute and of the text-books, recommended by the Institute for studying the various branches taught, the contemporary named points out that the list of books mentioned greatly needs revision in order to bring it up to the times, and that while a goodly number of old-time books are recommended year after year, the work "American Soaps by Gathmann" (among others) is not even mentioned. A number of other evidences are also given to show that while literature on various chemical manufactures is growing constantly, the list of the Institute has long failed to take any account of the fact.

The enquirer who, in our September issue, pronounced the query why nigre rises in a kettle, made a base hit, so to speak. We have now printed five replies to his letter, which goes to show that the interest of soapmakers in their work is quite as much alive as ever, if it is only touched in the right spot. It also seems to indicate that if you have no information to impart you may still help to make the Soap Journal interesting by turning an inquiring eye upon some interesting question.

We need scarcely add that these same letters show the unabated interest which practical soapmakers take in reading the Soap Journal.
"The writer of an article on a rational subject conscientiously weighed before giving utterance to his ideas need not hesitate to give his views to the public. He may reach a few readers who have thought of, or worked on, the same subject, but for the great majority it will, to say the least, furnish food for thought in a direction that may be profitable. If the article may be classed among scientific researches he is liable to present his views to a few scientists who are even better informed on the subject; in fact the identical subject may have been treated at length in some scientific periodical which may have escaped the writer's notice. A well-known chemist, himself possessed of a wonderful variety of knowledge, criticised writers for rushing into print with "ideas that are new only to themselves." Strictly speaking this is hardly ever the case; not even the most thoroughly posted scientist has knowledge of everything in print that may be of value to his branch of science. To the majority of readers the subject will be new and for those few who cannot glean some advantage from the article it will be a recitation probably of something they once knew well, but so long ago that the subject needed but to be mentioned—and thus they have also have been benefitted. Many a person who is able to express himself intelligently would probably be willing and even anxious to enter upon an interchange of ideas through the medium of their trade journal, if they were not in fear of being criticised or for fear of expressing ideas with which others are familiar. It is to the respective Journal's interest to improve forms of expression and errors in orthography and grammar, without interfering with the substance of the matter treated. So far as the few are concerned who "knew it long ago"—why, let them keep this unimportant matter to themselves.

The foregoing paragraph was not, in the first place, our own expression (though we wish to most heartily endorse every word in it), but is extracted from a letter written to the Soap Journal by a chemist—working in the lines represented by this paper—who took occasion to thus express himself in commenting on the prize fund mentioned in our last issue. We hope that these sentiments will find a response in the minds of many capable of entertaining useful and logical thoughts connected with the manufacture and marketing of soap and allied products, and of putting the same on paper in a form ready—if not to go to the printer—to be dressed up a little by the editor before being set into type.

As to the prize fund itself, there is nothing new to report, and, we therefore can only repeat that we have $10 to be awarded for the best reading matter contributed to our pages. The amount is not a large one, but it is something to be awarded a prize of any kind even if it were only a little medal whose intrinsic value ordinarily is small and certainly nearly always less than $10. We therefore invite contributions of readable articles and make no other condition than that the contributions sent be marked "Prize-Fund Articles" so that there can be no question as to which articles are to be considered in the competition. The award will be made by the contributors to the fund within a reasonable time.

From a report printed in this issue it appears that soap manufacturers of this country at least have not been guilty of selling soap cheaper in foreign countries than at home. Nor is it quite plain how they could.

We have received the sample, mentioned in our last, of toilet soap made from a new oil derived from a nut growing in Cuba. The cake has pretty much the same appearance as though made from cocoanut oil, and in lathering qualities it also resembles the latter closely. Though apparently not just made when received, the cake looks so far as if it would not change particularly on keeping and appears, in fact, to be a well-made, serviceable, creditable article in every respect.

The great abundance of these nuts reported to prevail in Cuba, together with the conditions of cocoanuts in the Philippines, give promise of coming to the aid of soap manufacturers in the matter of prices for cocoanut oil. Whether or not, however, the latter will not be more freely used for edible purposes in the future when machinery for more rational utilization of the cocoanut products will be more generally used at the points of production, remains to be seen. Cocoanut fat for cooking purposes is an established fact and will appeal to the fancy of many much more than will the various lard compounds on the market. It is altogether likely that the prices and uses of the several fats named will in the not distant future enter into new reciprocal relations.

If, with this, the new process of soap making, of which we made mention, but have no further details as yet, should materialize, the picture presented by the soap factory of the future would look rather different from the present one.

Another Conundrum.

Editor American Soap Journal:

Though I have been long experienced in soap making, I have never had so much trouble as that for the past two months. The most part of my work is to boil a settled soap from olive oil, olive oil roots, red oil, etc., for mills. For the last two months the soap I boil gets a kind of white crystals on the surface. I have tried every possible thing to prevent it, but have been unsuccessful, therefore I address your patrons to oblige me to tell the reason for it.—German-American.
The Newly Reported Soap.

NEW YORK, Oct. 5, 1901.

Editor American Soap Journal:

Dear Sir—In your issue of Oct. 1 mention is made of the anticipated patenting of a new process by which cotton-seed oil, kerosene oil, or other oils or fats are successfully combined in "a very useful soap." May I, through your highly valued journal, tender my felicitations to the unnamed inventor who has achieved that very desirable combination, and my condolences to the alleged scientist who will be pinned by this absolute proof of his ignorance or worse in swearing that such a soap would be "impossible."

It was Prof. Henry S. Morton, of the Stevens Institute of Hoboken, N. J., who, because of his supposed knowledge of chemistry, was hired to support certain allegations, and in that service loyally and recklessly maintained that "kerosene oil could not be combined in a soap;" that it would "always remain distinct" from the other components of the mass into which it had been introduced, "like sand in sugar," and that even so little as 3 or 4 per cent. of it would make a soft, greasy, sludgy mass of soap containing it. But then, it was this same Prof. H. S. Morton who once showed to a convention of coal gas producers a glowing platinum wire and solemnly assured them that was all they or any one else would ever see of the dreaded electric light, for which they had a great fear. Yet, if he read the newspapers he must have known that Edison's electric lamps had already been illuminating Menlo Park during hundreds of hours. Perhaps, however, the reading of newspapers was something he had not been paid to do.

Doubtless, he will read by an electric light, such as he "staked his professional reputation would never be seen," the report that a patent has been granted for what he proclaimed, as a chemist, would be "an absolute impossibility."

Dick Croker, New York's "Squire of Wantage," is not the only man who has had occasion to regret public demonstration that he was "working for his pocket all the time."

Respectfully yours,

PETROL.

The Nigre Still Rising.

Editor American Soap Journal:

Dear Sir—I have seen in the American Soap Journal & Mfg. Chemist the question of "Who can tell" the reason that the kettles would not work well, on account of being dished too much and consequently forcing the nigre up in the middle of the kettle?

Being a soap maker for many years and having worked a good many years, especially on the kettles mentioned, I have discovered through my long experience that the reason the soap is not well settled and consequently less good soap could be taken out does not concern the kettle but depends on the finishing of the soap.

By finishing the soap in a dished kettle the soap must be perfectly natural. We call natural soap which is saponified, strengthening and settling.

We have experienced enough that soap can be finished stronger and weaker. By finishing the soap stronger it is likely in keeping up a mixture of nigre, and trouble results in filling, but the practical soap maker puts in a little more water to have it settled; although the soap is natural it is not quite because the natural soap contains more water, and in finishing the soap in a weak way I think the soap maker ought to know the trouble that can arise. By finishing the soap in a kettle which is not dished the result would be successful. But in the kettles which are dished, there is no matter how even from 4 feet to more than 12 feet, the soap ought to be pure natural. There is only one way, that is to make the strengthening change in a short settling, run the lye while it is hot, turn on open steam the same day until the soap is closed; leave it settle over night and in the morning run a little lye and a slimy mixture until you will see soap; turn on open steam and finish the soap with a little water in the general way. The slimy mixture is no more than 3 per cent. By getting the slimy mixture cold it is ground soap and you can use it for the next batch.

J. DOUBSHKES, Soap Maker.

"That Nigre" Once More.

Editor American Soap Journal:

Most likely it is because sharper colleagues foresee the occurrence of cases like these, that they do not follow my example in writing their experiences for publication; it obliges the writer to keep on doing so even if he does not feel like continuing.

Nobody likes to be misunderstood, and as the occurrence of two diametrically opposed explanations for the same phenomenon, while it may have amused some of your readers, may also illustrate many an important lesson, I take the liberty to ask your readers to "look more closely and systematically at things." If we do so, we will find that both "Canuck" and the writer are right, with the slight difference that I took it for granted we were discussing modern methods. The explanation of "Canuck" takes me back 20 or 30 years when similar things happened to me as to "Canuck." "Pan-American," however, very properly wishes to know the reason why and there are so many if's and when's in soap-making that I admit my folly in attempting to answer the question in a short epistle as I did in the last issue of your paper. I should have said in the beginning.
“study thoroughly, carefully and repeatedly the book American Soaps, after you have mastered its contents, remember that the rising of the nigre in the kettle may be due to causes as per previous essay on “The Rising of the Nigre.”

What “Canuck” writes is also quite true and correct when we consider hastily boiled, imperfect soaps. There are more of them than is generally supposed, especially when materials are used which saponify slowly, say such mixtures which contain cotton-seed oil, impure, poorly causticized lyes, etc., these may have been boiled for several days, pitched and “finished” and still contain sufficient uncombined fats, which, combining later, evolve, in doing so, sufficient heat to cause some nigre mixed with soap to rise in the soap; (in all my varied and long-continued experience I have never found clear nigre to rise, and I take it for granted that the inquirer means nigrish soap, or soap mixed with foreign matter or nigre). In other cases, when poorly causticized lyes have been used, which contain carbonates, these decompose, liberating carbonic acid which causes some portion of soap, especially those next to the nigre, (which latter contains the carbonates) to become spongy, and so causes these to rise; other similar causes may be at the bottom of the trouble, but knowledge about soapmaking is best acquired as medicine is taken, in small doses; it is easier assimilated and does more good, so I will let the above be enough for the present.

Yours truly, GEO. A. SCHMIDT.

P. S.—Shape and size of the kettles described by “Pan-American” will not be the cause of any trouble; properly selected materials well managed will make good soaps for ordinary purposes.

Why The Nigre Won’t Stay Down.

Editor American Soap Journal:

In September number of Soap Journal, “Pan-American” says that, in setting up two new kettles to be used in making settled soap, a gentleman who has had some practice in boiling soap, informed him that those kettles would not work well, because, dried too much, and that the nigre would be forced up and mixed with the clear soap while settling, etc., etc.

Since writing that communication, “Pan-American” has perhaps made several batches of settled soap in those kettles and has been agreeably disappointed in that none of the predictions of the gentleman referred to in his communication have come true. The form of his kettles, as described, is very good, and there is no reason in fact why the nigre should rise and the pure soap go down, in a kettle of shape as described, or in one of any other shape. If “Pan-American” should ever find soap in his kettles mixed with nigre, let him look for the trouble in his valves.

Just 25 years ago, we also set up two new kettles; their bottoms were not dished too much, in fact, they were not dished at all, but these kettles were properly proportioned and piped and worked to perfection; however, when we came to frame the first batch of soap we made in one of them, we noticed nigre mixed with the soap after taking off 10 or 15 frames. We “re-pitched” that soap and when ready to frame, found Mr. Nigre waiting for us in about the same place. Then we added new stock, boiled and finished the soap with extra care, but when framing-day came, Mr. Nigre was on hand again same as before. We were non-plussed and ready to believe in witchcraft, but after going over the kettle carefully, found that all our trouble was due to leaky valves. We wanted quick-acting valves on our new kettles and used double gate lever valves that were guaranteed steam tight, which perhaps they were, but they were not water tight, and permitted the condensed water in the steam pipe to force its way into the kettle through the open steam coil and disturb the nigre sufficiently to prevent it from settling properly, but not to the extent of breaking through the soap on top. After replacing the gate valves by a double set of globe valves with drain-cocks between, to intercept any leak, those kettles have given us no further trouble. Would further say to “Pan-American” that we have two kettles identical in form to those he described, but somewhat larger; we like them better than any of our others.

M.

More Light on The Nigre.

BUFFALO, Oct. 20, 1901.

Editor American Soap Journal:

Your issue of Oct. 1 contains two answers to my query on page 14 of the Sept. Journal, relating to the rising of the nigre; one from the well-known, able soapmaker, Mr. Geo. A. Schmidt, whose opinion is most certainly entitled to respect, and another from a Canadian soapmaker, whose name is not known.

I am grateful to both gentlemen for their replies, and I wish to pursue the matter still further, as one of them says it is because the soap cools too quickly, and the other that the soap is too long in cooling.

First, Mr. Schmidt says that the edges of the soap cool, contract, and fall under the nigre, forcing it up. On this theory, how could we ever get a good settle? Would not every boil be spoiled? Again, he says that he gets better soap by settling it in batches of 7,500 lbs, and draws it from the big kettle, in lieu of letting it settle in the kettle all in one batch. Why would not the same trouble arise in the small batch, as it certainly would cool more and faster around the outside than in the kettle?

It is generally understood by soapmakers, and I think
the authorities agree, that the best settle is obtained by keeping the soap hot as long as possible and consequently thinly liquid, which would seem to be the best condition for dropping the impurities, or "nigre. Hence the saying, "The larger the kettle, the better the settle."

Hoping to hear from those gentlemen again, and others also on this subject, I remain,

Yours very truly,

PAN-AMERICAN.

Silicate of Soap Makers.

Warrington, Oct. 19, 1901.

Editor American Soap Journal:

Dear Sir—We have noticed in your excellent Journal of the issue dated Oct. 1, 1901, on page 45, a paragraph in reference to the manufacture of silicate of soda to the following effect:

"Gossage of Liverpool are makers to the trade and have long been famous for the excellence of their products."

As we are the largest makers of silicate of soda in the United Kingdom, and probably in the world, and the excellence of our products is well known in the trade whom we supply in large quantities, we feel quite sure that you will be glad to correct the impression which your paragraph is calculated to give, both from a sense of fairness to us on the one hand and also in the interests of your very important journal.

Thanking you in anticipation for this correction, we beg to remain,

Yours faithfully,

Jos. Crossfield & Sons, Ltd.,
F. Roberts, Director.

[The item referred to appeared in the report of examination questions of the City and Guilds of London Institute; these and the answers are always interesting and as such we were glad to print them for what they are worth. We have occasion to refer on another page to the backwardness of things connected with the Institute in keeping up with the times, and do not hesitate to believe fully that our correspondents' correction rests on good grounds.—Editor A. S. J.]

Obituary.

It is once more our sad duty to chronicle the death of one of the oldest as well as most prominent figures in the soap business.

Thomas Elkinton, a member of the firm of Philadelphia Quartz Co., and also of the firm of Joseph S. & Thomas Elkinton of Philadelphia, died on Sept. 29, 1901, in his 66th year.

He was born in Philadelphia the 8th of January, 1836, in the dwelling next to his father's soap factory; as he grew to manhood he became warmly interested in all that pertained to the growth of the city and welfare of its inhabitants, and while never taking any active part in its government, he was a fair type of a Philadelphia business man.

On arriving at the age of 21 years, he was admitted into the firm of Joseph Elkinton & Son, whose business was the manufacture of soap, candles and sal soda. On the retirement of the father in 1862, the firm became Joseph S. & Thomas Elkinton. A little later, the firm assuming the manufacture of some other chemicals, traded also as The Philadelphia Quartz Co., and the subject of this sketch became the active and financial partner of the concern, for the remainder of his life.

The business life of Thomas Elkinton was marked by close application, and all his transactions with others, were characterized by strict integrity, uprightness and a fair consideration for the interests of all concerned, and these traits, with the Divine blessing, were crowned with success.

The most beautiful part of Thomas Elkinton's life, however, was apart from his business career. His sympathy for those of his fellow beings, who were in distress or suffering from whatever cause, was deep and tender, and many could bear testimony to the relief that had come to them through his generosity.

Soap Prices, For Sale at Home and Abroad.

It has long been claimed, chiefly in connection with tariff arguments, that certain American goods are sold more cheaply in foreign countries than at home. The Industrial Commission has investigated this question and prepared a report from answers made by several hundred large manufacturers in various parts of the country. Some of these answers are from soap, perfume and candle manufacturers (the names of the firms answering being kept secret, as agreed) and from them the following statements are derived:

One firm, manufacturing soaps for woolen and cotton mills and producing about 10 per cent. of the United States output, formerly exported 3 or 4 per cent. of its product to England and Germany, but the prices secured were always lower than those realized in the United States, hence it was compelled to abandon the foreign market.

Another establishment, manufacturing soaps and producing 4 or 5 per cent. of the United States output, exported considerable quantities to the West Indies, South Africa, China and Canada. The prices received were no lower except that sometimes freight to New
York was paid, whereas domestic sales were f. o. b. factory.

A third factory manufacturing candles, stearine, and red oil, exported last year $60,000 worth, or about 10 per cent. of its output, to Spanish-American countries and Europe, realizing prices no lower than those secured in the domestic market.

And, lastly, a fourth firm, manufacturing scouring soap and cottonseed oil, exported about 80 per cent. of its product to Great Britain, France, Austria, Germany, Italy, etc. It made lower prices only when freight happened to be lower than to New York. This establishment writes: "All prices are made by adding freight and other charges to the nearest f. o. b. factory. At certain seasons freights to Liverpool are lower than to New York. Therefore, when this condition exists prices in Liverpool are lower than in New York."

The Use of Rosin in Soap.

The story is told of a boy who wrote a composition on a well-known animal and stated therein that "the crawfish is a red fish that walks backward." The teacher, on reading it, remarked that this was a very fine description, but not exactly faultless in that the animal in question was not red till boiled, was not a fish, and did not walk backward.

In the same sense there is written a wealth of very fine articles on soap making. In the various technical journals of the world—chemical papers, soap journals, textile reviews, drug gazettes, textile reporters, laundry monitors and oil magazines—there appear every month a number of articles on soap written evidently by professional writers on the strength of encyclopedia information alone. These make very fine reading—in the foregoing sense. Ordinarily we simply pass these articles by, but now we come across one that claimed our attention by reason of being a most typical product of this kind. It is "from the French by Charles Baron," as it appeared in the Revue de Chimie Industrielle, and is such an odd mixture of scientific jargon, entirely impracticable, self-made observations and old-fashioned ideas as laid down in books written long ago by equally theoretical men, that we can just picture to ourselves the author as he chews his penholder and runs his fingers over the familiar "lexicon of chemical manufacturers" for his main points.

With this little introduction to explain what we mean by reprinting such a stupendous aggregation of soapmakers' knowledge "from the French" we let the article itself follow herewith. (We won't do it again.)

"The real value of colophony resin, used in the manufacture of soap, is not yet well known.

The resinates of potash or of soda dissolved in water, and yielding an abundant lather—from this it is concluded that a certain proportion of resin can be introduced advantageously in soap. Some authors claim that resinous soaps are preferable to others in the fulling of cloth.

According to my view, the use of colophony in the manufacture of soap is very deleterious. The resins form salts called "resinates," improperly called resin soaps. These, it is true, produce a lather with water like soaps composed of fatty substances, but they are not precipitated or separated by sea salt like ordinary soaps.

Woolen manufacturers are not usually in favor of resinous soaps. Occasionally there are fullers who claim that they are useful in their operations. But others insist that such soaps, even if they aid the fulling by the action of the pitchy principle of the resin, which makes the threads adhere better, they are very annoying in the dressing and necessary preparation of the woolly materials. Wool washers and combers generally assert that wools washed with resinous soap do not cleanse well, yielding when dried an impalpable powder, which it is very difficult to get rid of, and that this inconvenience is not met with when the cleaning and washing have been done with pure soaps.

In America, but chiefly in England, colophony is used in soaps with a basis of animal fat to conceal the odor sui generis of the fatty acids. When the quantity of resin is considerable, a certain amount of sodium sulphate, crystalized or pulverized, is added to the soap. It is dissolved in water and mixed with the soap when sufficiently concentrated. The sodium sulphate can be readily replaced with the carbonate which is introduced into the paste by the same process to give it more consistency. But this adulteration, whatever may be the intimacy of the mixture, is always apparent. It is above all marked by small white particles formed by the sulphate or carbonate not perfectly mixed with the soap.

The resins dissolve very readily in fixed oils, and when mixed in small quantities conceals their presence. The resins also dissolve in alkalies, but they act as weak acids only.

Mixed with fatty substances, the soaps that they form are not precipitated by sodium chloride. They can be manufactured only by filling and evaporation, and with solutions, like pure soaps.

Resin soaps, decomposed by sulphuric acid, yield resin acids which, dissolved in alcohol and precipitated by water, they render milky. These do not, like fatty acids, collect at the surface of the liquid. This property favors the opinion that resins in soap do not produce any detergent effect, and that their presence is for the purpose of sale at the price of soap. It is certain that if they were more costly they would not be used to adulterate oils or to alter the quality of soap.
The mixture of fatty and resinous substances saponified produces particular effects. Soda or potash soaps containing resinous substances are always more or less sticky. It is owing to this fault that the manufacturers of cloth attribute the roughness, the adherence in the dressing, the inequality of color and the greasy, shiny appearance of their products which have been fulled with resin soaps. The resin introduced in certain quantities imparts a characteristic odor. To conceal this essense of lavender or mirbane is used. Given two soaps manufactured with the same fatty substances, of which one has a small quantity of resin, the soap containing the resin will always have a browner color than that which does not. Resin in its natural state colors the soaps dull yellow or yellowish brown. Resinous substances always produce soap softer than those manufactured with fatty substances.

Resin soap has but one advantage: it can be used with sea water. Only in this way can good results be obtained.

In a word, the resinates are not known to have the least detergente action. Their mixture with soap is generally useless, often annoying and always prejudicial.

In France, as everywhere else, a low price is desirable, even when cheapness is prejudicial to quality. If sales of certain kinds of merchandise are to be increased by cheapening the price, soaps ought not to be of this class.

On the Effect of Salt in the Saponification of Fatty Acids by Carbonate of Soda.

We translate the following interesting article by Dr. C. Streepel, from the Seifenfabrikant:

When I add to a soda ash solution an excess of fatty acid and boil, the first effect is a violent, decreasing evolution of carbonic acid gas; if then I add later on even a small quantity only of ordinary salt and continue the boiling, there occurs without obvious cause a renewed evolution of the same gas. For this phenomenon I found no explanation some time ago, but expressed myself as opposed to the view held by Schaedler in his work on the technology of fats and oils, who referred the occurrence to the formation of bicarbonate of soda; for the temperature at which we work or should at least work approximately—the boiling point—is at 100° C., at which a formation of bicarbonate of soda from the carbonate and carbonic acid cannot occur, since the former salt is decomposed at about 70° C.

In connection with other work on the saponification of fats and fatty acids I observed similar phenomena which afford a clear conception of the cause of the occurrence just mentioned.

In the following I desire to give an explanation, based on experimental determinations, of this phenomenon and hope it will meet general interest since it is always useful to know the aim and the effect of every operation carried out.

The ordinary method, I may say, of determining the saponification number of a fatty acid consists in dissolving the latter in alcohol and titrating with alcoholic or aqueous solution of potash, using phenolphtalein as indicator. If this test were made in purely watery solutions the results would be entirely wrong. The cause of this latter fact lies in the behavior of soaps in dilute watery solutions.

Nearly a hundred years ago Chevreul explained correctly the action of soap in watery solution, pointing out that the soap breaks up in these into an acid salt and free alkali. According to more recent investigations one is fully justified to determine the degree of alkalinity by titration with phenolphtalein as indicator.

The quantity of the alkali thus separated depends on the concentration of the soap solution. The higher the concentration the less is the separation of alkali and the conditions in practical soapmaking are such that with fatty acid saponified till neutral with caustic alkali—one molecule of fatty acid to one of caustic alkali—only an extremely small degree of alkalinity can be proven with phenolphtalein. But this is not so when working with dilute solutions such as are employed in determining the saponification number of a fatty acid where one or two parts of fatty acid are used with 100 parts of fluid. If we try in the latter proportions to saponify fatty acids in hot watery solutions until phenolphtalein shows an alkaline reaction, the fatty acid disappears from the surface after the addition of a little alkali, a homogeneous mass being formed, but alkalinity is already present when about half the amount of alkali is added that has been determined from the saponification number. Hence the point of saturation between fatty acid and alkali is here equal to that shown by neutral soaps in contact with much water, i. e., there is only half a molecule of alkali to one of fatty acid; the alkali further added (or separated) is present in a free state and indicated as such by phenolphthalein.

In concentrated soap solutions ("soap pastes"), as already stated, we do not have this extensive decomposition of the soap; now, we may consider every soap paste as a supersaturated soap solution—as a solution approaching the point of salting out (graining). This condition may be reached also by adding common salt to thin soap solutions, and if we grant the correctness of this view, such soap solutions—brought nearer by means of salt to the point of salting out—must also show a different neutralizing point than do the equally concentrated soap solutions without salt addition. My view to that effect is confirmed by experimental titrations in which the saponification number of the fatty acids from
tallow was determined by alcohonic titration and then
trial titrations were made—on one hand of the fatty
carids in hot watery solutions of alkali and on the other
of the fatty acids in hot watery solutions with the addi-
tion of certain amounts of salt. The proportions were
about 5 parts fatty acid and 100 parts water.

The results were as follows:

**TABLE I.**

<table>
<thead>
<tr>
<th>TITRATIONS OF FATTY ACIDS FROM TALLOW IN AQUEOUS SOLUTIONS AND IN AQUEOUS SOLUTIONS WITH SALT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saponification (4.91 parts fatty acid in 100 parts water.) Number.</td>
</tr>
<tr>
<td>In alcoholic solution ........................................ 200</td>
</tr>
<tr>
<td>With water, no salt ........................................ 99.8</td>
</tr>
<tr>
<td>With water, 1/2 part salt ................................... 124</td>
</tr>
<tr>
<td>With water, 1 part salt ..................................... 151</td>
</tr>
<tr>
<td>With water, 5 parts salt .................................... 161</td>
</tr>
<tr>
<td>With water, 7 parts salt .................................... 182</td>
</tr>
</tbody>
</table>

Though the point of neutrality and the appearance
of alkali was not so clear-cut as ordinarily required in
titation, the error so caused is immaterial in view of the
great differences found.

Corresponding to the ready separation of tallow soap
by salt, a curd soap was formed on addition of the 7
parts of salt, without however (as with concentrated
soap pastes) having really fully reached the point of
neutralization. The reason for this must be looked for
in the separation which occurred. But in order to de-
termine whether by addition of salt this point could be
reached at all the same experiments were made with
the fatty acids from cocoanut oil as these form soaps
whose solutions take up much more salt before separ-
ing.

The results were as per the following:

**TABLE II.**

<table>
<thead>
<tr>
<th>TITRATIONS OF FATTY ACIDS FROM COCOANUT OIL IN AQUEOUS SOLUTIONS AND IN AQUEOUS SOLUTIONS CONTAINING SALT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saponification (4.95 parts fatty acid in 100 parts water.) Number.</td>
</tr>
<tr>
<td>Saponification number of fatty acid .................................... 270</td>
</tr>
<tr>
<td>With water and no salt ........................................ 165</td>
</tr>
<tr>
<td>With water and 5 parts salt ................................... 194</td>
</tr>
<tr>
<td>With water and 10 parts salt ................................ 213</td>
</tr>
<tr>
<td>With water and 15 parts salt the soap separated.</td>
</tr>
</tbody>
</table>

So here also the real point of neutrality was not
reached, owing to the separation of soap. But both
series of experiments demonstrate equally that by the
addition of salt or by reducing the capacity for dissolv-
ing soap, the point of neutralization of the fatty acid is
brought materially nearer to the real point of neutraliza-
tion.

Owing to the separation of solid soap of an acid char-
acter toward the end of reaction, the influence of small
amounts of alkali is made so difficult that not without an
excess of alkali the real point of neutralization can be
reached, so that the latter is not in evidence.

To explain now the action of the salt, I will not pass
on to the complicated, theoretical, physico-chemical
theories of dissociation, but will only state what the ex-
periments clearly teach.

"Through the influence of the salt the acid character
of the fatty acids is raised, and in equal concentration
they are thereby enabled to combine with more alkali
than they can in purely watery solutions."

As an internal cause we may consider the lessened
solubility of soap in salt water.

In saponifying fatty acids in practical working these
conditions may also be brought about without the use of
salt by proportioning the amount of water to those of
fatty acids and alkali, inasmuch as the soap formed acts
by its large amount in a similar way (though far less
strongly) as does the salt; the conditions are then more
favorable in so far as no solid soap separates to impede
the further action of the alkali.

The titration of fatty acids in alcoholic solution, in
which we reach the neutral salt of the fatty acids, can
also be similarly explained. We have here the by no
means only case in which alcohol acts similarly, though
less markedly so, as does salt. Alcohol itself can dis-
solve but little soap and a hot, thinly-liquid alcoholic
soap solution corresponds to a soap paste which, in the
cold, both congeal to a jelly.

As it may interest one or the other reader I would
point out that the rapidity of inversion of solutions of
sugar by acids is considered fundamentally as a measure
for the strength of the acid character of the acid and in
this connection it is known that the rapidity of inver-
sion of sugar solutions by means of acetic acid may be
doubled by the effect of salt.

Returning to our subject, however, only a few words
are needed in explanation.

In saponifying fatty acids by soda ash the acid char-
acter of the fatty acids is of far greater import than in
the case of combining fatty acids with free alkali. Here
the fatty acid has to force out of its combination with
soda an almost equally strong acid—carbonic acid—
before it can combine with the alkali. Though working,
in actual practice, in saponifying with carbonate of soda,
with concentrations in which with the use of free alkali
there would quickly result complete saponification, there
occurs a reaction at a certain point in the soda ash sapo-
nification at which free fatty acids exist alongside of
soda without mutually reacting at all. If we now add
even a small quantity only of common salt, the reaction
promptly starts again, as may be known by the framing
up of the mass. Here also the salt increases the acid
character of the fatty acid by bringing the soap nearer
to the point of graining out. That a complete saponification with soda ash can really be reached, while I could not succeed in it with the experimental titrations with alkali in dilute aqueous solutions is due solely to the different degrees of concentration, since in the saponification with soda ash in proportionate concentrations of about 1.1 so little salt is sufficient to finish the saponification that no separation of soap can occur.

I close this communication in the hope to have thereby added a little to the knowledge of the chemical action in the saponification of fatty acids by means of soda ash.

The Make-Up of Associations.

While we do not, of course, mean to say that the soapmakers' Association is made up according to the description fitting the personal of any other association, yet human nature is sufficiently alike the world over to allow us to extract a little amusement from the following description of associations in general. It is from the pen of one signing himself "The Stroller" and has reference especially to druggists' associations, being written for the Druggists' Circular. It will be entertaining to soap manufacturers at this time.

Every traveller around to pharmaceutical meetings has met many different types of men. I have been to many meetings, and the men I have met are very much like those who have been encountered by some other stroller who has been to entirely different meetings. Some of these fellows impress us favorably, some unfavorably, and some neutral—if you will pardon an archaic use of a word which has become associated solely with gender. The man whom we regard with indifference, however, is frequently one of the best and smartest fellows in the association—after you get to know him well.

The Bantam Oracle, and the Man Who Excels in Thinking Parts.

Compared with the cocky little self-assertive fellow, the indifferent member doesn't seem to be one, two, three. The former, with enough nerve to assume the governorship of the state if he were requested, or even to accept the position of minister to China, reads two or three papers on subjects wide apart, and such an adept is he in the use of words and so glibly does he roll them off his tongue, that any ignorance of his subject with which he may be affected is lost sight of by his hearers. Oh, he's a slick 'un, and when a man with ten times the brains and one-tenth the words gets up to point out a few things—er, which seem to him—er, although he may be—er, mistaken—er, to—er, be—er, somewhat misleading—er, as it were—er, the reader of the paper jumps to his feet, and although the chair rules that the other member has the floor, takes his objections right out of his mouth, washes them away with a torrent of fine sounding language, and leaves the slower brother helplessly in his seat and disgust.

Then our cocky friend looks around the hall with an expression of triumphant scorn, or perhaps a half-patronizing leer which seems to say, "Oh, really now I hate to have to do this, but then he ought to have known better than to"—etc. When the members get a chance to give the matter a sober second thought they will see that Old Slowey was right, but in the mean time they have elected the swift brother local secretary for the next meeting. And to be just, he makes a good one. The next year he is made vice-president, while the able man remains in the ranks, and his friends talk about the association being run by a ring, and everything being cut and dried. The friends of the successful candidate, however, speak of the epaulets being conferred upon those who have stood the brunt of the fight.

Now, shall we kill this specimen? Not at all. He may not please some of us, but he adds to the gaiety of nations, and helps to keep the association from dying of dry rot.

The Politician.

Then there is the gammony old duffer who has long since been through the chairs, and is now on the board. He is not so much on reading papers, although the younger members think that he could write a creditable essay on any subject if he only wanted to, but, of course, understand that his reputation is too well established for him to need to do anything to add to it.

He is an astute politician. He says that he wants to see the younger men take the leading parts. He has something pleasant, perhaps even complimentary, to say to every one on the quiet, and each one thinks that he is a favorite and by rubbing the old man the right way may get something out of it. Therefore the old man is quite a power; he manages to keep in with all factions, and what he says goes. He remains on the board as long as he likes, unless some fresh governor comes along, gets on to him, and gives him the G. B.

He oughtn't to be killed, either. He is not only ornamental, but useful. Many times he adroitly prevents bad feeling from breaking out, and when, in deference to his long service and good record, he is asked to occupy the chair temporarily, it is a pleasure to see how the boys all vie in showing before him deference and making everything pass off as smoothly as possible.

He always sits at the right of the toastmaster at the banquet, and no list of toasts would be complete without one of "Our Association," to be responded to by him.

The Plodder.

We all know the plodder. Poor old plodder! At college he did not go in for a good time 'o nights, but burnt the midnight oil as he bent over his books. His thesis was so good that the professor insisted that it be pub-
lished in full in the college paper, where, of course, no one ever read it, although every one who saw it said it must be first-rate.

The plodder hadn't much taste for washing bottles, selling ready-made hand-me-downs, and drawing soda, at twelve per, and he would have failed in business for himself even if he could have raised the price. He wanted to see pharmacy a profession, but as the telescope was not working, he got a position in a manufacturing house. Here he does good work, but when his articles are published in the house organ his name does not appear.

He brings a good paper along with him, which is accepted on its merits alone—for he is no wire-puller. He makes friends with difficulty, but those who have known him the longest like him the best. He is a useful member, and some day in a burst of righteous generosity his fellows will rise and reward him by electing him a delegate to the meeting of a sister association.

THE KICKER.

As in days of old the poor were said to be always around, so now with the kicker. He is ubiquitous; we have him with us always. You would think from the way things displease him he would stay away. Not so—he couldn't be paid to. If he were not there he could not knock, and with him to knock is to live.

Things are not like they used to be. Why, my dear fellow, back in the early 'nineties we had an association to be proud of—the best men in the state were at its head—the meetings were worth coming to—the time of year when the meetings were held was so much more propitious—the speeches were more eloquent—things were better managed—all this claptrap and tommy rot was not heard of in those days—the action of some of these new members wouldn't have been allowed, no sir-rr, and—and as much more of the same as any one will listen to.

This man gets as much enjoyment out of the meeting as the next one, and he furnishes as much, too—but a little of him at a time is all that we can use. He is not prompted by malice when he says that the association is going to the demption bow-wows. If an association has faults it is no kindness to it to have them covered up until it is too late to mend them. The kicker could not be the plodder any more than the plodder could take the kicker's place. Each is a product mainly of heredity and environment—principally the former—so no matter how you may feel about it at times, please don't shoot the kicker.

THE INDISPENSABLE MAN.

There is one man in the association whom every member esteems it an honor to call his friend. He is one of the first to arrive, and is solid with the hotel clerk the day before the convention opens. He meets the train and greets all the old timers with a hearty handshake; the names of the novitiates he knows before the 'bus starts. He tells the clerk that this gentleman here is a particular friend of his, a leading member, and must have a cool front room. He jollies the head waiter, and nothing that the waiters can say hands on is too good for him and his friends—those ebony minions can tell by looking at his ruddy face and rotund paunch that he is accustomed to the best.

This is a nice fellow. He comes around to see if the reporters have good tables where they can both see and hear, although it is not his business to provide them. If anything is lacking he calls the first bell-boy that heaves in sight and sends him for it—the boy neglecting a previous order to get the extra chair, pitcher of water, or whatever it may be.

This man knows where the best bowling alleys in town are, and gets up a couple of teams to roll a match. If he happens to be in the hall at the time he will propose a vote of thanks to somebody. Perhaps he is a travelling man himself, but if he isn't he will steer the fellows around to the exhibit of a friend of his who is in attendance upon the meeting for commercial purposes.

We know this man, and we love him, and the fact that he would go all to pieces if called upon to preside over a stormy session, or is utterly lacking in the power to make original scientific research, detracts not an iota from our regard for him. Every man according to his talent, and this one can bring in more applications for membership than any other three in the association, and when he asks an old member to be at the next meeting as a special favor to him, that old member will be there or break a trace trying.

THE GOOD MAN GONE WRONG.

There is another man whom it would be a pleasure to omit, but no association is complete without him. He seems to feel it incumbent upon himself to see that all the business is conducted with a due regard for the proprieties of the occasion and the rights of the absent. He is frequently so tragic as to become comic, and not infrequently gives a free exhibition of moral courage by being the only one to rise when the noses are called for. He has been known to provoke a hearty laugh (in which he did not join) by making a needlessly prolix speech introductory to a motion which he was about to make, merely to find out in the end that the same motion had been put and carried without any ado while he was trying to set an erring brother straight just between themselves.

This member is a parliamenteer, and sometimes challenges the right of the chair to declare a motion carried, on points too fine to be visible to the naked eye, when it has been carried and it is evidently the unanimous wish
of the house, even including himself that it should be.
He explains his position in a long speech, the burden
of which is that he merely wants to save the time of the
association.

If there is an adilled place in this man’s path he did
not put it there on purpose, so we ought to let him live,
too.

THE METHODICAL MAN.

The very methodical man gets to be permanent secre-

tary, and remains in that position indefinitely, doing
more toward running the meeting than all the presidents
and vice-presidents put together, and never making any
fuss about it, either.

He understands the value of newspaper space, and
gives a good “story” to the reporters. He has his docu-
ments manifolded especially for the benefit of the press,
and he sends dated and corrected clippings from the
local papers to the journals which did not have a special
representative on the spot.

If it were not for the methodical secretary half the
business of the association would have to be done over
again to get it right, and the other half would never be
done at all.

He answers more fool questions, gets more cussing,
does a larger amount of work, assumes greater respon-
sibility, and has more different interests to harmonize
than all the rest of the association put together. He is
sometime abused for not reporting a member’s remarks
in full, whereas if he did he would not only double or
treble the cost of issuing the Proceedings, but would
make an enemy of that member for life. The best
speeches reported in the Proceedings would have been
a discredit to a schoolboy if the secretary had not pruned
and shaped the stenographer’s report.

Here’s to the methodical secretary! Who shall say
that he is not the most important man in the organiza-
tion? Palsied be the hand that is raised to do him hurt
—or dirt!

Simple Method for Valuation of Cochineal and
Carmine.

BY GEORGE F. MESSON, F.C.S.

The results of my experiments on the ash yields of
cochineal were such that, having regard to the Phar-
macopia in giving only an ash limit as the standard of
quality, I determined to compare each of the samples
with a view to finding if there was any relationship be-
tween the ash content and the color value. The potas-
sium permanganate process, published by Merrick some
thirty years ago, I did not find so speedy nor so accurate
as the following, by means of which a dozen samples
can be comparatively valued in an hour. Several bleach-
ing agents were tried, but chlorinated lime (or soda)
solution was finally fixed upon as a decolorising agent.
Various methods of preparing a solution of the coloring
matter of the insect were also tried, keeping in view
simplicity of manipulation, economy of time, and an
assurance of concordant results.

The valuation is conducted as follows: Weigh 0.5
gram of finely powdered cochineal, place in a 100 cc.
flask, with 30 cc. of distilled water and 5 drops of liquor
ammoniae; heat to boiling point; strain through cotton
wool into 100 cc. flask, and wash with sufficient water
to produce 100 cc. The marc on the wool should now
be quite colorless. Put 25 cc. of the liquid into a 100 cc.
stopped test mixer, add 5 cc. of strong hydrochloric
acid and sufficient distilled water to produce 100 cc.;
run in 0.5 cc. at a time of solution of chlorinated lime
(or soda) containing 1 per cent. available chlorine till
the cherry red color changes to dull orange, shaking
briskly after each addition. Continue adding chlorinated
solution in 0.1 cc. portions as long as the color is being
bleached. When almost completed note the burette read-
ning, and, after adding a further 0.1 cc. of solution shake
the liquid slightly and see if the top layer is lighter than
the lower. If there is no difference the reaction is fin-
ished; if the lower stratum is darker continue to add
chlorinated solution drop by drop till the reaction is
quite complete. The description may seem complicated,
but in practice it can be performed with the utmost ease,
and the end point is well defined and reliable. The titra-
tion should be performed a second time more carefully.
The number of cc. of chlorinated solution used multi-
plied by eight gives the quantity of solution required to
destroy the coloring matter of 1 gram of cochineal. In
examining a series of samples it is immaterial what
strength of chlorinated solution is used. The official
solution of either lime or soda diluted with an equal
volume of distilled water answers very well, and gives
the relative values of a series of samples, but for strict
comparison I suggest a 1 per cent. solution as a con-
venient standard.

Experiments in connection with the previous paper
show that about 20 cc. of 1 per cent. chlorinated solution
are required to decolorise 1 gram of high grade coch-
ineal, and counting that as 100. On comparison of the
color value with the yield of ash, it is found that there
is no relation between the two factors.

It may be objected that lime salts precipitate the col-
oring matter of cochineal, but while this is so it does not,
in the slightest degree, affect the delicacy of the re-
action nor the accuracy of the results. Mineral acids
act as precipitants, while 50 per cent. acetic acid is a
solvent of the coloring principle. As, however, it is not
advisable, even if practicable, to titrate in presence of a
large bulk of acetic acid by this strength, and as any
precipitate of the coloring matter by the hydro-chloric acid is so finely divided and diffused through the liquid, the latter is preferably employed.

Experiments were made to see whether a larger or smaller proportion of acid added to the cochineal decoction before titration in any way modified the results. Too little acid (say just what is theoretically necessary to decompose the chlorinated solution) does not liberate the chlorine with sufficient rapidity, and consequently does not give so sharp a reaction as the proportion I suggest, while a larger amount is in no way objectionable. In preparing the cochineal decoction, the trace of ammonia is used to insure perfect and rapid exhaustion, thus insuring the uniformity, which might not be attained, using water only. The fineness of the powder in different samples might vary, and the proportion of fatty matter is by no means constant. Some insects powder much more readily than others which contain more fat. One cannot judge of the value of a sample of cochineal with any degree of accuracy simply by its appearance, its coloring power may be defective either through careless collection or storage, or by other causes, such as partial exhaustion and re-drying with or without mineral facing. Moreover, one cannot judge quality from the depth of color or "body" possessed by a decoction made with distilled water. Dark grain yields an infusion of a brighter red than does silver grain, the latter being brought to the tint of the former by a trace of acid. In other words, the dark grain is more acid than the silver. On moderately acidulating two such samples, it is noticed that the infusion made from the dark grain is of greater tinctorial power. This is not universal, but it goes to show that cochineal cannot be judged by the eye from the depth of color it imparts to distilled water.

From the foregoing, together with the results obtained in the ash estimates, I suggest: 1. That the ash limit given in the Pharmacopoeia is too high, and should, if retained in future issues, be placed at not more than 4 per cent. This is a liberal margin to allow. 2. That in view of the wide variation in tinctorial power shown by commercial cochineal, as also the absence of any relationship between the ash content and the color yield, some test for color valuation on the lines indicated above should be added to the present official tests.

Time has prevented the examination of the whole series of ash residues to ascertain the adulterant used. Barium sulphate undoubtedly exists largely in some of them, also fragments of earthly impurity, French chalk, etc. I hope later on to be able to report if any noticeable feature occurs.

The foregoing process also answers admirably for the valuation of commercial carmines. I append results obtained in seven samples which I examined:

<table>
<thead>
<tr>
<th>No. of sample</th>
<th>Ash per cent.</th>
<th>Cc. chlorinated solution used per gram.</th>
<th>Color value.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6.5</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>8.5</td>
<td>31</td>
<td>97</td>
</tr>
<tr>
<td>3</td>
<td>7.0</td>
<td>31</td>
<td>94</td>
</tr>
<tr>
<td>4</td>
<td>6.0</td>
<td>28</td>
<td>87</td>
</tr>
<tr>
<td>5</td>
<td>4.8</td>
<td>24</td>
<td>75</td>
</tr>
<tr>
<td>6</td>
<td>5.2</td>
<td>24</td>
<td>75</td>
</tr>
<tr>
<td>7</td>
<td>6.8</td>
<td>10</td>
<td>31</td>
</tr>
</tbody>
</table>

As in the case of cochineal moisture present is of no moment, and ash content is only of secondary importance and unreliable. Note samples 1 and 7, which have practically the same ash yield, and yet sample 1 has more than three times the color value of sample 7. The color value, therefore, is the only reliable basis upon which to form an opinion as to the quality of the sample. In estimating the color value 1 gram of the sample is treated precisely in the same way as the cochineal, except that boiling and filtration are not necessary. A high grade carmine is taken as standard, and called 100.

**Sardine Oil Industry.**

Many products are unknown to the majority of people and yet are not unimportant. They may sometimes have unexpected applications. They may also, by utilization of residues, apparently without value, increase the direct remuneration, says the Oil & Colorman’s Journal.

Every one is acquainted, at least by name, with the industry of sardines in oil, which is of prime importance on a portion of the French coasts. On the other hand, few are aware of the existence of the industry of oil of sardines. And yet this is closely united to the other, of which it utilizes what might be considered as the wastes of the industry. We do not know whether this is practiced in all places where sardines are packed in oil, but it is the case on the Spanish littoral, and especially on the coasts of Galicia, where the preparation of sardines constitutes the chief occupation of the population adjoining the rivers.

The sardines in oil of that locality do not, perhaps, equal those of Brittany, but they keep up a lively competition, and sell not only in Spain and in the ancient Spanish colonies, but to foreign nations. More than a million kilograms are annually exported; also sardines pressed and salted and put up in legs. It may be asserted that the sardine production was the starting point of the prosperity of Vigo.

The various operations are attended with waste; first, because the head is cut from the fishes before packing, and, in the second place, the sardines are pressed after salting, and the oil is thus expelled. This oil of sardines, denominated soin, is mixed with that obtained by a special operation of pressing the heads, and exported just as it runs from the presses.
As no precaution is taken to preserve the heads in a fresh condition before treatment, the oil thus obtained possessed an odor sui generis. Although repugnant, this does not prevent its being eagerly sought for by foreign leather dressers. It also serves after refining, either alone or mixed with linseed oil, in the preparation of colors for cheap painting. In country districts of Spain it is currently employed in house lighting.

This strange oil is exported in barrels of 450 litres, and its average price is about 40 francs per 100 kilograms. The export certainly amounts to 300,000 kilograms per year, but has perceptibly diminished since the abrogation of commercial treaties.

Castor Oil.

According to the earlier investigations of Bussy and Leenau, castor oil was considered as a combination of oxide of glyeeril with three fatty acids, of which the one fusing at 130 degrees was called margaritic acid, while the two others, existing as liquids, were named rieie and elaioic acid. Bussy and Leenau considered the two latter to be identical with the acids appearing among the products of the dry distillation of castor oil.

Saalmuller, in again taking up this investigation, showed that castor oil contains no acid fusing at 130 degrees, and that the high fusing point and the difficult solubility in alcohol of margaritic acid, as observed by the above-named chemists, is to be ascribed to its retaining a portion of alkali. He found the fusing point of this acid to be 70 degrees, and its point of solidification between 68 and 70 degrees. One analysis of the substance furnished numbers corresponding exactly with the formula of stearic acid, these other analyses, however, made with substance of a different preparation, gave results more closely agreeing with the composition of palmitic acid. It, therefore, still remains doubtful whether all kinds of castor oil contain invariably the same solid fatty acid, and likewise which acid it is; invariably, however, its relative proportion in the oil is very insignificant.

The principal portion of the fatty acids, obtained by the saponification of castor oil, consists of an acid which at the common temperature is of a syrupy consistence, of a pale sherry color, and inodorous, but of a disagreeable, sharp and acrid taste, its spee. grav. is 0.94 at 15 degrees; it only solidified at from 6 to 10 degrees, to a mass of globular concretions. The best method for obtaining it pure is that described by Gottlich for the preparation of the oleic acid.

Saalmuller named this substance ricinoleic acid. It is miscible in all proportions with alcohol and ether. Its solution has an acid reaction and decomposes the alkaline carbonates. It is not affected by contact with oxygen, and yields on distillation no sebacie acid, but anethole and anethylic acid. According to Saalmuller, the composition of ricinoleic acid is expressed by the formula C_{13}H_{26}O_{3}. Like the oil itself, it does not absorb oxygen from the air. The following salts were obtained by precipitation of aqueous solutions of the chlorides with a very dilute solution of the acid in an excess of ammonia; the baryta-salt (crystallizing from its alcoholic solution in white, delicate laminea), the stonia salt (crystallizing in small white grains), and the lime salt (forming small dazzling white scaly crystals, which contain 1 eq. of water, and fuse at 180 degrees). The magnesia salt crystallizes in thin needles, the zine salt in small white nodules. The lead salt cannot be obtained of constant composition by precipitating a solution of the acid in an excess of ammonia, with acetate of lead, but can be prepared perfectly pure by digesting the acid with an excess of lead oxide at a gentle heat, and recrystallizing the resulting combination from ether, it fuses at 100 degrees. It is likewise difficult to obtain the silver compound of constant composition. Ricinoleate of ethyl is a sherry colored oily fluid, which cannot be distilled without undergoing decomposition.

A New Adulterant of Bergamot Oil.

By Dr. Salvatore Gulli.

The adulteration of commercial bergamot oil by means of turpentine, either crude or rectified, as well as by the bergamot distillate, or by isomeric peel essences, has almost ceased. Indeed, these adulterations so modify the physical and chemical constants—the optical rotation, but especially the normal ester-content—that they are easily detected. New falsifications, however, are at present largely used, particularly in intermediary commercial markets. As the value of bergamot oil is judged by the ester amount a new method of falsifying the results has recently been introduced, viz., the addition of turpentine oil which has been saturated with a current of hydrochloric-gas. By this treatment turpentine oil acquires an acid number corresponding to 18 to 20 per cent., if estimated as in the process for linaril acetate. The chloro-derivative thus obtained may be a liquid mono-hydrochloride of terbenithin (C_{16}H_{14}HCl) or the bihydrochloride (C_{16}H_{18}2HCl). This chloro-derivative is decomposed during the process of saponification of the oil with alcoholic potash-solution, and is, of course, reckoned as linyl acetate should proper precautions not be taken. The turpentine so treated can be added to bergamot oil in the proportion of 5 to 10 per cent. without much altering the physical and chemical constants, whilst it hardly lowers the ester-content in the proportion of 1 to 2 per cent. We have found this
adulteration in some samples of commercial bergamot oil even in the proportion of 10 per cent., as the following results show:

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<tbody>
<tr>
<td>2° C.</td>
<td>x 4 cm.</td>
<td>c.</td>
<td>c.</td>
<td>per</td>
</tr>
<tr>
<td>1...</td>
<td>0.882</td>
<td>+10.50</td>
<td>2.130</td>
<td>0.2213</td>
</tr>
<tr>
<td>2...</td>
<td>0.8817</td>
<td>+8°</td>
<td>2.315</td>
<td>0.2451</td>
</tr>
<tr>
<td>3...</td>
<td>0.8810</td>
<td>+6°</td>
<td>2.787</td>
<td>0.2910</td>
</tr>
</tbody>
</table>

It will be seen from these figures that the three samples of commercial bergamot oil have their sp. gr. and optical rotation nearly normal, and they contain almost normal linalyl-acetate content. Nevertheless, they were adulterated, the two first samples containing almost 5 per cent., and the third at least 10 per cent. of turpentine oil treated with hydrochloric acid. It is therefore advisable to be on one's guard against this new adulteration, which can be ascertained neither by means of physical and chemical constants nor by saponification. Instead of saponification fractional distillation may be employed, but we find the following to be the best plan. Several grams of the suspected bergamot oil is boiled with alcoholic potash-solution in a platinum dish until the whole of the liquid is evaporated; then calcine the residue so as to get rid of organic matter, and treat it with distilled water and filter. The usual test with nitrate of silver will show pressure of hydrochloric acid.

**Practical Hints on Advertising.**

**BY CHARLES AUSTIN RATES, NEW YORK.**

A person with only the experience of cities naturally supposes that in the country there is no advertising; then there is nothing to advertise; then even in villages of several thousands there would be little need of telling one's neighbors that new goods of latest styles had come by express. Everybody would see the boxes carted through the streets, and simply to kill time, would assemble to see them opened.

Maybe there's a good deal of truth in that—for the residents of the village, but farmers dress and eat and live in furnished houses; they don't loat about the streets looking for sensations, but they do read the local paper.

Even in much more primitive states of society than a busy prosperous farming community, advertising is necessary and it is done.

Far out West in the great desert plains there is advertising, systematic and persistent. The herders of cattle and sheep are the men who make and who read the ads. of the desert.

These ads. are made of flat pieces of wood whittled out with the knife of the herder and lettered with the wisdom of his experience. The work is done during the noon rest, or by the light of the camp-fire in the evening. These rough sign-boards tell those who follow that in one direction may be found water and pasture, in another there are wastes of sand where death or great suffering may be expected. Very often a lone, long pole in the mountains means, "cross here" and the herder who is wise in reading the signs, starts his flocks for the pass. Sometimes a solitary, tall pole standing out in the desert means, "water here for five hundred" or some other number. Many herders and their flocks have been lost and have perished in attempting to cross from winter to summer pastures through ignorance or heedlessness of the advertisements on the trails.

You see, business methods are not so very different, no matter where the business is carried on. If several herders on these wild western plains should fail to read these mountain and desert ads. for a season or two, it would make a difference in the advertising for men all over the world who deal in meat. And everybody knows what happens when there is a partial failure in any one staple food product.

* * * *

Is this going a long way round to say that a business man must keep his eyes open continually, not only to the signs whittled out by those a day or two ahead (the manufacturer, for instance) but he must be an industrious whittler for himself? He must let all who come to the trail that he is on know that he has been that way, and is not far away—that at his place are to be found the goods that the average housewife will need at the change of the season.

After a patient and persistent study of the advertising of many men, I have ceased to wonder at business failures. I see, in my mind's eye, the white skeletons of dead business enterprises with only an indifferent exclamation of "no wonder!"

* * * *

In very many instances, a business and the invitation to the public to come and see for itself, seem not in the least related to each other. True, there is the same name over the door that appears in the printed newspaper ad. or the circular or on the dodger. That name is the connecting link. Frequently the words of the ad. are high-flown and meaningless, or they are weak attempts at wit, or they are a medley of generalities that might be used by a dealer in dry goods, green groceries, fish or peanuts.

The real milk in this big cocoanut of advertising is just this: Be explicit; say what you mean. Tell what you have to sell and what your price is. Take time to whittle out your signs plainly. If your own garden doesn't grow a pole long enough to let your neighbors know where to find you, go out into the woods and find one. If you find, when you set yourself to writing your ads. that your wits won't run from your brain to the
point of your pencil, call on someone to do the work for you. Didn’t you do that way about your bookkeeping?

Don’t you believe that that quiet mouse of a girl at the women’s underwear counter sells more goods than you can? Doesn’t you errand boy do his work better than you could do it yourself, with less weariness, fewer words and on a smaller salary?

Look at your advertising in the same way. It is the start of the whole concern. It is the steam that moves the machinery, the electricity that lights it up. To neglect it brings calamity, sure and swift. If there is needed an expert about the place, it is in the start. If your bookkeeper is honest you will have no trouble with him. Boys and girls learn bookkeeping now-a-days as a part of their common school education.—Canadian Druggist.

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Fate of a Caesar’s Ashes.

SHAKESPEARE’S CONCEIT FINDS A COUNTERPART IN REALITY.

When Shakespeare put in the mouth of Hamlet the curious conceit about the dust of the great Alexander having become loam and then stopping a bung-hole in a beer barrel, he had seemed to reach the ultimate extravagance of imagination. Yet, near the Porta Salaria a still more unexpected extravagance was revealed after the excavations carried on there. In these a cippus, or sepulchral column, containing a cinerary urn of rare oriental alabaster was brought to light. The inscription on the cippus revealed that the ashes contained within the urn were those of Calpurnius Piso Licinius, who, in February, A. D. 69, was proclaimed Caesar by the Emperor Galba. Four days afterward Galba was killed, and Piso also suffered death in his thirty-first year. His were the ashes that the alabaster urn contained.

The precious urn was given to a workman employed on the premises to take care of. Some days after, when the proprietor of the place asked for the urn, he found it empty. “Where,” said he, “are the ashes that were here?” The workman, surprised, said that he gathered them together and, never dreaming that they were any good, but being white and clean, sent them to his wife to make lye for her washing! And this, said the late Shakespeare Wood, describing this incident, have the ashes of an imperial Caesar, adopted by Galba as Tiberius was adopted by Augustus and accepted by the senate, been used more than 18 centuries after his death by a Roman washwoman to cleanse her dirty linen, together with the ashes of other members of the family in whose veins flowed the noble blood of Crassus and of Pompey the Great!

Wealth Made by Chemists.

The expert chemist is an important figure in the industrial world today, a writer in The New York Sun truthfully says. He can earn not only fame, but also a large income, and he saves manufacturers many millions of dollars every year. Of course, nine out of ten chemists stick to the old routine, but the tenth goes in for industrial chemistry, and either allies himself to some progressive and flourishing manufacturer, or independently conducts his industrial experiments and spends his time and brains in devising schemes for the utilization of by-products.

One doesn’t talk much about waste products now. So little is wasted that it doesn’t deserve mention. The Chicago joke that the packing houses utilize everything about the pigs save their squeals and are planning to make the squeals into whistles, has more point than most Chicago jokes.

Probably the great slaughter houses furnish the most familiar illustration of the modern thrift in the utilization of what was formerly considered waste; and even the smaller abattoirs, while they haven’t attained the scientific perfection of the Chicago packing houses, are reformed characters. It was only a few years ago that the abattoir was usually built upon the bank of a stream, and all refuse was washed into the stream. In course of time neighbors were inconsiderate enough to protest against the practice. Sanitary bees invaded innumerable bonnets, and a howl of protest went up against the abattoirs. It was necessary to dispose of the refuse in some fashion.

Chemists were called in. Methods for drying the refuse and extracting all the grease were developed. The grease went into the manufacture of soap. The residue was converted into fertilizer. After jelly had been made from the hoofs, the hoofs and horns were used for buttons, knife handles, etc. The health of the neighborhood, and the income of the slaughter men, went up.

The development of the tremendous aniline color industry is altogether due to chemical experiment with waste products. In the dry distillation of coal or wood for gas, the gas passes through a succession of washers, which take out its impurities. These impurities, including ammonia, carabolic acid, acetic acid, and various nitrogen compounds were formerly waste, but are now separated and used. In fact, nearly all of the acetic acid in the market is secured from the dry distillation of wood. Five per cent. of the coal used in gas manufacture is coal tar, and by experiment chemists found that this coal tar, always regarded as waste residue, contained substances useful in the making of dyes. Fully 10 per cent. of the weight of the coal tar is available for this purpose, and upon the basis of this discovery the enorm-
ous coal tar color industry has grown. New plants have been put into many of the coke regions to collect the coal tar liberated in coke manufacture, and it will not be long before the open coke oven will be a thing of the past. Where coal is burned in an open oven no coal tar can be collected, and large profits are literally thrown away; but by burning the coal in closed retorts all the coal tar can be recovered and used.

This color industry, which chemists call the greatest of the modern chemical industries, has called for other chemical developments. It demands large quantities of sulphuric acid, of soda, etc., and chemists have succeeded their wits upon the problem of obtaining these products at a minimum expense. Until recently the greater art of the sulphur used in this country was imported from Sicily. Now, through chemical processes, the sulphur occurring with iron, gold, silver, and zinc is liberated and burned to sulphur dioxide, from which almost all of our sulphuric acid is made.

In connection with all of our mining development, chemistry has played an important part. Ores can be mined with profit today that would have been practically worthless a few years ago. In the old mining days only high-grade ore was profitable, and only a certain percentage of the gold contained in the ore was freed.

The tailings thrown aside held a considerable quantity of gold, but could not be worked by the ordinary processes, and were therefore piled mountain high and disregarded until chemists discovered that the gold was soluble in potassium cyanide, and that by washing in a very weak solution or potassium cyanide the tailing gold could be profitably separated from the refuse. The same process has led to the working of low-grade ores, running $1 to $5 to the ton, which could not be profitably worked by the ordinary mining processes.

The silver contained in lead has also been freed and utilized. It was found by chemists that when the melted lead was mixed with zinc the silver formed an alloy with the zinc and floated to the surface. When this mass was taken from the lead and heated in a retort, the zinc, being volatile, was freed, and left a deposit so rich in silver that it was easily purified.

The applications of chemistry to mining processes are legion, but it is in other branches of industry that practical chemistry is now making its strides. The Standard Oil Company is a hardy exponent of the merits of industrial chemistry and has expert chemists constantly employed. As for that matter, so have all the great gas plants, coke plants, sugar refineries, starch factories, etc. The original waste of the oil business was enormous; now it is next to nothing. Of course, the primary aim is the production of kerosene; but crude oil contains, on the one side, oils lighter than kerosene, such as gasoline and naphtha, and, on the other side, products much heavier than kerosene, such as paraffin. At one time all of these by-products were waste; now every one of them is utilized. By first distillation the lighter oils are freed and collected. Then the kerosene is distilled, leaving a product that is worked over into hard paraffin and soft paraffin or vaseline. A heavy oil, left after the collecting of the paraffin, is used for lubricating and fuel oil, much of it being made into carburet of paraffin for electric light. When one considers that until a few years ago every one of these products save kerosene was absolute waste, one can realize to some extent the place chemistry is taking in the industrial world.

The dairy business is one of the industries with which the chemist is busying himself, and the results so far have been most satisfactory, although, a much broader field for the use of casein is prophesied. The large creameries, having turned out their cream and butter, were confronted by great quantities of skim milk for which there was apparently no use. Skim milk was a drug on the market, and in many cases was drained off into neighboring streams. The chemist stepped in and changed all that. The milk is coagulated with alkali, and a dried product produced which is soluble in water. This casein has been used for paper sizing, kalsomining, etc., and successful experiments have been made with it in the manufacture of artificial foods. Moistened with water to a gelatinous consistency, put under a hydraulic press and then washed in acid, it forms a hard and insoluble substance, of which buttons and similar articles are made. Chemists say that the casein powder, which is like a fine tasteless flour, may be substituted for milk in cooking, and has a great future in respect.

Chemistry applied to the sugar industry has been invaluable; and, particularly in connection with the beet sugar manufacture, has recently effected a wonderful saving. The waste in the making of beet sugar was at first enormous, because the molasses was absolute waste. It contains products from the beet roots which give it a very bitter taste, and is also rich in an alkali which spoils its flavor. So, altogether more than one-half of the weight of the molasses was sugar, it was unavailable save for fermentation and alcohol. Experiment proved that dry lime, mixed with the molasses, combined with the sugar, forming a product insoluble in water. Washing the molasses would then separate this product from all the other elements. The lime and sugar product being heated with carbonic acid, the lime combined with the carbon, forming an insoluble product, and leaving the sugar free to be easily separated. By this process today 90 per cent. of the sugar is recovered from beet molasses, and there is practically no molasses
The phosphorus combines readily. This phosphorus is then used as a fertilizer.

The slag from iron furnaces is converted into cement. The tin is taken from old tin cans by chemical process and is used over and over again.

Even the acids used for chemical purposes are not allowed to outlive their usefulness with the accomplishment of their purpose. The Standard Oil Company formerly wasted great quantities of sulphuric acid after it had been used to remove the impurities from the oil. The acid was drained off into the river. Now it is used in a fertilizer particularly adapted to soil where phosphate rock must be dissolved. Then again in certain great galvanizing works the iron was cleaned with sulphuric acid, which was then run into the nearest river. This method of disposing of the waste was forbidden, and chemists were consulted. The solution was made stronger so that it could be clarified and used repeatedly. Finally, when it could no longer be used for washing, it was evaporated and the sulphate of iron extracted from it. This by-product proved so valuable that it is now the chief product of the works.

The list might be protracted indefinitely, and there seems to be in the industrial world today no product so utterly worthless that it may not find profitable incarnation in some form or other.

**The Profession of an Industrial Chemist.**

(Continued.)

When you thus secure your position with your workmen you will be able to fulfill the first function of the industrial chemist, viz., to control the works efficiently. Here you will have your opportunity of showing your business capacities and your power of organization.

The works can only be kept on if they show a profit, and provided the commercial affairs are not mismanaged, it will be your duty to so conduct the works that a profit results. You must, therefore, charge in your cost sheets the ruling market price for both raw material and finished product, quite irrespective of whether the owner of the works—and you may perchance be that person yourself—has bought well, and sold well ahead or otherwise. These are merchant’s profits with which you have nothing to do, as regards your cost sheets; as little as you would like to see charged the otherwise well-paying manufacturing part of the concern with the unlucky speculative market operations of your commercial manager. In the long run, these merchant’s profits and losses balance each other, according to the law of chances, and only that manufacturer will be able to carry on his works who shows a profitable return for the capital laid out.

In the first instance, you will, therefore, need to follow up your operations so that you are not only able
to state your total cost, but also to give a full, or at least a satisfactory account of the several costs making up the total. There are chemists who are satisfied, if the total costs comes out all right, without wishing to burden themselves with details. This reminds me of the time-honored process of ascertaining by half-yearly balances what the yield was in a chemical works. Through the various contending and countermarching influences, the real working became quite obliterated, and waste could go on undetected. This is not a rational manager's method. The monthly, weekly, nay, even the daily work should be properly controlled by record sheets of the foreman and leading hands, so as to ascertain at any given time, as far as feasible, whether the operations are carried on profitably. In that case the yearly or half yearly balances will merely be a kind of arithmetical check on the monthly, weekly and daily calculations.

Does this mean that our industrial chemist must be a bookkeeper? Certainly not! We have heard it demanded in Germany by technological professors that the future industrial chemist should study book-keeping—of course, under a professor. I consider this a waste of time. A little clear reasoning, that is a little common sense, will guide you in the arrangement of your sheets for controlling the operations, the yield, and the cost, much as the housekeeper manages to keep her books in order without having had a course of lectures on the theory and practice of double entry. At a pinch you can easily arrange for this clerical assistance you require by taking a boy who can pick up, and do under your guidance this almost mechanical work, whereas your work is to institute a system of control—by means of blackboards and testing benches in the various workshops, etc.—so that you can see at a glance, as you pass through on your daily round, how the work is proceeding. And on starting on these rounds, you should always assume that everything is going on the wrong way, until you have convinced yourselves to the contrary.

So far there is little chemistry in the work sketched out, but it is the necessary preliminary work, nay, the ground-work, on which you can base your usefulness. Your control-sheets will show you what yield you obtain from your raw material. As you should regard your work as a chemical analysis on a huge scale, you will add up your percentage yields to see whether your various finished or final products total to the theoretical 100 per cent. If that is not the case, you will have thrown open quite a field of research work. In the first instance, you will prevent every mechanical loss by keeping your works as tidy and clean as you can your laboratory. A chemical works need not necessarily be the dirty and dingy place we always imagine, since we have seen an alkali works of the old style, where the holes in a lead chamber were stopped up with rags, dripping wet with vitriol, and rivulets of dilute hydrochloric acid form the gutters. The modern chemical works vie, in appearance and cleanliness, with a well-kept engineering or fitting shop, and it is not very difficult to educate the workman into a quantitatively working assistant chemist.

Next you will follow up the losses occurring in the process itself, and you should not be satisfied with the self-consuming ready answer that losses are unavoidable. You will enquire into the losses caused by volatilisation, destructive distillation, degradation, etc., etc., and improvements will naturally suggest themselves to you. You will condense the volatile products, reduce the temperature at which you are carrying on your operations, if that be possible, etc., etc. It may not be possible always, but you must be in a position to put your finger on every sore point of the process, and be able to tell, by following your raw material through all the various operations, what loss you incur at every stage, and you must be able to account for the manner it has disappeared. To arrive at this, a very careful analytical control will have to be established, and you will use the resources of your laboratory to the full. Hence you will equip your laboratory in such a manner that those tests, which occur most frequently, can be dealt with in the most rapid manner, and you will rig up your apparatus, so as to be ready, at a moment's notice, to get through an analysis in the shortest possible time. Your own time is limited, and you may not be in a position to be allowed the assistance of a young professional chemist. You will, therefore, evolve from the raw material that abounds in every works, a staff of young men who can manipulate your work with a fair amount of intelligence, and a great degree of accuracy. These men again should be assisted by boys, who, starting as the indispensable "bottlewashers," are gradually drafted into the class of assistants just described. These will do all your chemical operations at your bidding—for even in the laboratory the economical law should hold good, that no one should do work which a cheaper man can do equally well.

With the nature of the chemical works the special equipment of your laboratory will vary, and it is, therefore, impossible to give more than the most general hints as to the laying in steam pipes, compressed air and vacuum pipes, if these are used in the works, and, above all, a good supply of metal utensils, in which experiments on a semi-large scale can be carried on. Better still, if you can fit it with apparatus simulating those employed in the works, such as auto-claves, fractionating stills, etc.

The laboratory is the true intelligence department of the industrial chemist; here you control the operations proceeding on a large scale, devise means of increasing the yield, work out new methods for cheapening the pro-
duction, and enter the domain of research by inventing methods for recovering waste products. You pass finally on to the realization of the most ambitious dream of the industrial chemist—that, namely, of creating new industries.

You cannot afford, therefore, to lose touch with scientific chemistry. You must keep abreast with the general progress of your science, notwithstanding the very pressing demands your special subject makes upon your time. Part of your laboratory will therefore have to be your study, in which, by the side of standard and reference works, the latest journals should be placed and —read. And when the worry with the human machinery in the works, or the unexpected or almost unavoidable accidents in the dead machinery, seem to spoil your humour and ruffle your temper, you will find the laboratory your haven of rest, the **lazaretto**, in which these small troubles pale and disappear before the higher objects that press themselves upon your attention.

Concurrently with your chemical work, the engineering side of the industrial chemist's calling must be cultivated, although it cannot, and need not, rank equally high with the chemical side. In many smaller works the chemist has to be the engineer as well, but he should only be the engineer in the higher sense of the word. Certainly, he must be able in cases of emergencies to look after a pump and similar simple apparatus, but, as a rule, he will do well to leave these small matters to the ordinary mechanic, or even the handy man, to execute under his supervision. The industrial chemist must, however, be able to think in, and speak, the technical language of his mechanic, and his training in engineering should enable him to do so. His ability to make simple drawings will put him in a position to readily explain his views, if he wishes to carry out alterations of a simple, or even somewhat complicated nature. Thorough familiarity with all the machinery and apparatus under your charge, coupled with the practice to look after each part of the plant, and to see especially that each repair and alteration is carried out efficiently in all its details by the mechanic, as well as frequent visits to the fitter's shop, will give you, in a surprisingly short time a stock of practical knowledge which will stand you in good stead in your daily work. Thus, for example, you may find that whilst your chemical process is fairly efficient and economical, the working cost is too high owing to the transport of the material in the work being too expensive. Without being actually required to design the necessary machinery itself on your own— for you cannot be both a chemist and an engineer—you will be able to prepare a drawing, and work out a scheme that can be made efficient with the help of your mechanic, or, if need be, with the help of an engineer you may have to consult. Or you may have to condense some volatile product by means of comparably inexpensive apparatus. A knowledge of what is being done in similar industries, or in other industries under similar circumstances, will be helpful to you in designing what is adapted to your special case, and, although you may not at once succeed, a clear grasp of the problem will assist you in overcoming difficulties that do not present themselves when you attack the same piece of work in the laboratory.

Similarly, your daily work will acquaint you with the construction of furnaces; their frequent repairs will lead you necessarily to alter and to improve. You will have to erect small outhouses, perhaps even larger sheds or buildings, and without being an architect or a builder the principles of building construction will provide you with the rudiments, necessary to the execution of a drawing which the builder, or even an intelligent bricklayer, can understand. And if then, under the beneficial influence of your endeavours the works grow and require extensions, you will be able to prepare the plans and detailed drawings of what your accumulated experience almost instinctively tells you, will approximate the ideal plant that lives in your mind.

Thus you accumulate the experience that will fit you to attain to the highest ideal of the industrial chemist:—To transfer your own chemical invention, made and worked out in the laboratory, into the works. Although you may have made your experiments on a small scale, say with pounds, or even with tons of pounds, you are sure to meet unexpected difficulties before everything runs smoothly. The many disappointments that beset your path can only be met by the consciousness, that what has been done in the laboratory must be possible on the large scale; hence you must search for the special conditions, and for the special apparatus, however painfully slow and laborious the process may be, until you succeed.

I should have liked to say something about the future of an industrial chemist, but I must conclude. I have endeavoured to show that an industrial chemist must be a man of many parts, and I am almost afraid that you may perhaps think I have sketched the picture of an unattainable ideal. In order to reach this I feel I cannot give you the advice which Liebig is said to have given to his disciples: "If you want to become a good chemist you must ruin your health," for to be a successful industrial chemist you must preserve your health. But if you enter your profession with a true scientific spirit, if you remain in touch with the progress of your science, and, above all, if you bring the love of your work to your work, you cannot fail to attain the success you hope for, and you will feel the inner satisfaction that you are contributing your share, may it be large or small, to the welfare of humanity.

(The End.)
Soap Made from Cariboo Fat in Philippines.

It might be quite profitable for some of the French manufacturers, expert in the production, to establish soap factories in the Philippines, where processes are at present rudimentary. The output might be disposed of in the islands of for export to the United States or elsewhere as affairs assume a settled state; or the fat might be sent to Europe to be converted into soap.

The cariboo is an animal that can be raised for food or used as a breast of burden. The flesh is not as delicate and succulent as that of an ox, but the natives are well satisfied with it. As a beast of burden its services are valuable. The cariboo are employed to transport burdens on the back in pack saddles, or to draw carts of primitive construction or drag a kind of sledge. They also serve as motive power in numerous sugar cane establishments. The machinery requisite might also be worked usefully and economically for making the soap for which the animal has furnished the principal material. He offers a considerable advantage over the draught animals in drawing easily and with great docility whatever is attached to him. This he does without any drawback in cases where mules, horses and oxen would prove rebellious.

Thus, where steam or hydraulic power cannot be economically utilized, two or three of these beasts would supply advantageously all the motive force needed for this manufacture; while the numerous herds would furnish the fat, without counting subproducts, not now rendered available by the natives.

They are raised by the natives and allowed to roam in the wild state in considerable herds, the breeders taking for service or for slaughter only those they deem the most suitable. The rest, in so fertile a country, find abundant nourishment, and fatten, left to themselves, so that the proportion of grease furnished, compared with the whole weight, is considerable; and as they can be bought at low prices, the yield would be profitable.

There is one factory at Manila, and at Iloilo, and a few others along the coast. Soap is also made by the inhabitants in the native villages for their own wants, but the waste from the primitive methods made use of shows the necessity of more rational and regular processes.

One of the principal advantages would lie not only in the cheapness of the material, but in the low price of labor. The transportation from the interior is inexpensive. The exportation would be advantageous whether of the rude fat, or crude soap, or finished soaps, both fine and ordinary, especially to nearby countries, as Japan and certain parts of China, where there is a great demand.—Les Corps Gras Industriels, after National Provisoner.

Around the Soap Factories.

The Cacti Soap Works, Columbus, Ohio, is reported as building an extension to the factory.

A certificate of half the capital stock being paid up has been filed by the Rockefeller Soap Co., Brooklyn, N. Y.

J. F. Mosser & Co. have changed their arrangements whereby hereafter their sales of tallow and greases will be conducted through their Chicago office, this point being more favorably located than Kansas City for closing such transactions.

Articles of incorporation of the "Estate of Samuel Colgate Company" were filed Oct. 7 with the county clerk of Hudson county, N. J. The capital stock of the company is $1,200, divided into twelve shares of $100 each, of which the incorporators, Richard M. Colgate, West Orange; Sidney M. Austen and Russell Colgate, Orange, N. J.; Gilbert Colgate, New York City; and Samuel Colgate, East Aurora, N. Y., hold ten shares. The authorized agent of the concern upon whom process against the company may be served is Austen Colgate.


The Florida Soap Co., capital stock, $25,000, has been incorporated at Atlanta, Ga.

The Will & Banner Co., of Syracuse, N. Y., will rebuild their stearine plant in an even more perfect manner than it was before the fire.

J. F. Mosser & Co. have changed their arrangements whereby hereafter their sales of tallow and greases will be conducted through their Chicago office, this point being more favorably located than Kansas City for closing such transactions.

The International Salt Co. has been incorporated under the laws of New Jersey, with a capitalization of $30,000,000, and authority to issue bonds to the amount of $12,000,000. The company purposes to manufacture and sell salt and to acquire securities of other corporations in the salt business.

E. M. Davis, I. M. Davis and J. A. Simmons have incorporated the F. M. Davis Soap Company in Chicago, with a capital stock of $5,000.
A unique method of attracting the attention of passers-by to a soap was used by a druggist last week. A well-worn glove was attached to a large display card, and below it was printed: "Glove worn by Mr. Hink Casey. We do not know who Mr. Hink Casey is, but we do know that Blank's witch hazel soap is awfully cheap, at—cents a box." Around the card the soap advertised was displayed in large quantities. The scheme had the desired effect, almost every passer-by stopping to see the novel display, and many of them entering the store for some of the soap.

The attorneys for S. B. Taplitz, soap manufacturer of New York, who has recently been adjudged bankrupt, have filed a schedule showing liabilities of $89,000, and assets $83,000.

The Interstate Commerce Commission on the 22d inst. heard arguments in the case of the Proctor & Gamble Co. against the C. H. & D., the Big Four and B. & O. Southwestern railroads, the question being, in the main, the legality of the action of the railroads named in changing the classification of common soaps from the sixth to the fifth class, so as to increase the freight rates by about 20 per cent. The commission has been a long time taking testimony and has taken the case under advisement. An early decision is looked for—with a variety of feeling.

**PATENTS AND TRADE-MARKS.**

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

**PATENTS.**

682,680. Liquid-soap holder, Amedee L. Fribourg, assignor of one-half to H. C. Fribourg, Denver, Col.


683,974. Washing-machine. Gustavus A. Paddock, Beaver Dam, Wis.


**TRADEMARKS.**


37,077. Washing-powder. George Sehneibel, Columbus, Ohio. Essential feature.—The words "White Swan."


37,111. Toilet soap. Allen Conkling, Chicago, Ill. Essential feature.—The words "Bitter Sweet."

37,147. Corn-starch, laundry starch, and mill starch, Archer Starch Co., Chicago, Ill. Essential feature.—The representation of an archer.


**The Markets.**

Tallow.—The market is less strong than at the time of our last report. In the East city in hhds. is quoted at 51/2c; in tiersces 53/8@53/4c; country make 53/8@53/4c, as to quality. In the West 61/4c is asked for packers; No. 1, 51/4@53/4c; No. 3, 43/8@47/8c; City in hhds. 53/4@53/8c.

Cotton Oil.—The market is rather dull, especially in view of the expected stop of the seed war and consequent cheaper crude oil. Sales of prime yellow are reported at 37c.

Grease.—Rather quiet. A white 6@61/2c nominally; B white 51/2@53/4c; yellow 43/8@47/8c; bone and house 5@51/4c.

Cocoa Nut Oil.—Ceylon 62@7c; small sales of cochin reported at 9@10c; for lots to arrive 71/2@81/2c is asked as to time of arrival.

Olive Foots.—54c asked for spot; 5c for new crop.

Corn Oil.—Quiet at 51/2@51/4c, as to quality.

Palm Oil.—Little change since last month; small sales of Lagos reported at 51/2c.

The attention of our readers is called to the column of

"WANTED" AND "FOR SALE"
Perfumes and... Their Preparation.

A Comprehensive Treatise on Perfumery
By G. W. ASKONSON, Perfumer.

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Containing directions for making Handkerchief Perfumes, Satchets, Fumigating Pastils; Preparations for the care of the skin, the mouth, the hair; Hair Dyers, and other Toilet Articles.

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AMERICAN SOAP JOURNAL, MILWAUKEE, WIS.

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The Lancet says: 
"It has been estimated that if London were supplied with soft water, the saving of soap would amount to tens of thousands of pounds per annum, and Glasgow is estimated to save £36,000 annually in the matter of soap since using Loeh Katrine water. That may be so, but in the matter of personal washing there is a waste of soap produced, rather than an economy, by using soft water. The fact that a tablet of soap disappears much more quickly when rain-water is used instead of hard, tap water is proof of this assertion."

That soft water does not waste soap in the laundry as does hard water, and statistics what it all amounts to, are really things too old to mention. That when used for toilet purposes a tablet of soap should disappear faster when rain water is used (other things being equal) may be open to doubt however. Certainly rain water will dissolve soap more readily, but when once used to rain water the consumer, we should think, would soon manage to get just the amount of soap on his hands and face that he likes to wash with. A clych cap on his first appearance in the country might waste the toilet soap for a while, but that is not a fair test. Given the same kind of water, a test would probably not bear out the Lancet's assertion.

Strictly speaking, though, tablets or cakes of toilet soap disappear most quickly from sleeping cars and hotels (if we are rightly informed) and the kind of water in use doesn't seem to affect this circumstance either.

There have been devised in times past a number of ways of utilizing spent soapsuds. A new method, said to be in use in Mühlhausen, Saxony, is described in which the suds are precipitated with lime, and the coagulum which results is pressed into bricks, dried, and burned in gas retorts. So treated it yields an illumin-
ant with three times the power of coal gas; and the Mülhausen factory finds its own waste much more than sufficient for its lighting purposes.

We think quite a little of the English paper Oils, Colors and Drysalters with its supplement Soapmaker and Perfumer, but for that very reason we desire to object vigorously to the following item taken verbatim from its columns:

"Different firms have different methods of doing business. At a meeting of the Portsmouth Grocers' Association held last week the President, Mr. Harold R. Pink, J.P., the ex-mayor of Portsmouth, intimated that a good many of the trade that had received a sample parcel of soap, each valued at 8s. 6d., from a company in London. His firm received one with an invoice. They dealt with it promptly, for when the goods were tendered they would not take them in. Other firms acted similarly, but a few took in the soap. On his motion a resolution was passed disapproving of business carried on in this way. Perhaps readers of Oils, Colors, and Drysalters may have had a similar experience, or may have in the course of the next few weeks. If they have, we would strongly advise them to refuse the delivery of the goods, for, if once they sign them and possibly retain them, they may be charged the full invoice price. We understand this system has its origin in an American soap making concern that recently commenced operations in this country, and there is no doubt it has some of the Yankee 'slimness' about it."

The first part of the above item we know nothing about and have no reason on earth to doubt. That the plan in this particular case may have originated with an American soap making concern is barely possible, and we will not venture to contradict the statement. But that the system should in any way conspicuously reflect "Yankee slimness" is an entirely and absolutely unjustifiable statement. The first thing that occurs to our mind in this connection is that for years we have noticed in English and continental trade papers innumerable examples of just such penny tactics, so that it was by no means necessary for English tradesmen to be introduced to such a poor practice by a "Yankee" firm. Moreover, to thus send out parcels of soap valued at 8s. 6d. each (less than two dollars) is too slim business altogether to be a sample of "Yankee slimness". Indeed it is very characteristic of the smallness of many European dealers. It is a practice of European writers to credit everything to America that is in any way preposterous or iniquitous, but when we see the many cases of petty litigation of just this kind which are constantly reported in their newspapers, we fail entirely to understand why they must refer to the Yankee every time one of their own midst commits one of these odious practices.

A large number of cottonseed oil men have been indicted by the Federal Grand Jury (Mississippi) on the charge of having conspired to control the prices of cottonseed and its products, contrary to the statutes of July 2, 1900.

We note with extreme pleasure that two brands for soap and allied products, further described in our list of Patents and Trade Marks, have been registered in this country by the Naamloze Vennootschap Eau de Cologne Fabrick Voorheen, J. C. Boldoot of Amsterdam, Netherlands.

Neither of the brands embraces a definite name, but only a picture, hence we cannot enter them on our brand list. Hence our gratification.

On a former occasion we promised to publish in time the result of the suit brought in Germany against the Sunlight Soap works, at Mannheim, for alleged unfair competition, in the course of which the famous competitive washing test was executed. The last chapter in this affair has just closed and consists of a mutual agreement as follows:

COMPROMISE.

In the case of Haas & Cons. vs. Sunlight, the suit before the court at Mannheim has been discontinued in conformity with the following mutual agreement:

1. The Sunlight factory employed in its directions for using its soap the sentence that by the so-called Sunlight method "ever so dirty clothes" could be cleaned without additions and without boiling and scrubbing, with the same effect and with less work than by previous methods.

As long ago as autumn of 1900 it actually discontinued the use of the words "ever article of clothes, if ever so dirty" and now agrees not to use the same in future.

2. Both parties undertake to refrain in future from the employment or publication of any claims of a spiteful character or untruthful remarks concerning the goods, firm or personality of the other party, so that a loyal competition may be created. Both parties will hereafter avoid all unpleasantness by not defaming the product of the opposite party, much as they may praise their own.

3. The party who brought the suit and its allies will do all in their power to suppress and withdraw from circulation as far as possible the circular "Competitive Washing in Mannheim" and the postal card entitled "Victory of the German Soap."

4. Complainant and its allies withdraw their action at court after this compromise has been completed and will publish this compromise one time, without comment.
or addition, in the Seifenfabrikant, Berlin, and the Seifen-Niederungszeitung, Augsburg.

Signed by counsel for both parties and by the representatives of the united German soapmakers' associations.

We are having an article prepared on a method of inventing new soap brands, designed to assist manufacturers in “hitting” upon desirable names. From our extensive correspondence with manufacturers on this question of brands, we have learned to realize how increasingly difficult it has become to think of new and desirable designations for new soaps, and the plan of the article is to afford a practical, systematic way of reaching a desirable result.

The work of preparing it, however, appears to have been more difficult and tedious than anticipated, so that it is not yet completed, and we have to postpone its publication until next month rather than to hurry it unduly. We give this advance notice because we rather expect an extra demand for this article, and any new or delinquent subscribers who may want the article may find us out of a supply unless they send their subscription in time.

The New York Sun has discovered that bearded women abound in Chicago, the sprouting of beards being attributed to the use of bad soap. We have heard of bad soap eating the hair off the victim’s face, but never heard of it bringing it back. Nor is it generally known, outside the Sun office, that Chicago is specially addicted to the use of bad soap.

The Last Of The Nigre.

at least so far as I am concerned. I suppose I ought to reply publicly to questions I am asked directly in your valued journal: I wrote as I did because I have seen the nigre rise when all ordinary and avoidable causes had been removed (and leaky valves are amongst those causes which any man with common sense ought to think about and guard against). If I knew exactly what makes the nigre rise and how it could be prevented I would not put soap in large frames and cut out the nigre spots—do not forget that I take the trouble to do this only with the very best of soaps)—there is so little nigrish soap there that very few soap-makers would notice it at all.

I haven’t had any “spoiled” ordinary settled soap, pumped out of large kettles, for over twenty years. Everybody is inclined to look upon matters from his own standpoint, and I did the same without reflecting that the less experienced ought to have different replies. I simply wished to advance my theory as to what causes the nigre to rise, and having used every precaution to eliminate all known causes and still finding traces of impurities in settled soaps, I am now practicing the theory explained and obtain good results. That the best soap-makers in Europe (fancy toilet soaps) have had similar experiences and did not succeed in settling soap perfectly by letting it stand is proved by the fact that the highest authorities claim that strictly pure soaps can be made only by similar machines as are used to separate the cream from milk; formerly the latter was done by settling, but as this proved unsatisfactory centrifugal force is now applied. Soaps to be settled will, before long, undergo the same process. Until the proper machines are built we shall have to content ourselves with adapting those methods which may best suit the case before us.

But here I go again without giving a direct answer. To say the truth, I do not like to encourage the habit of answering direct questions publicly. Only persons who think deserve to succeed, and if my replies are carefully thought over the plain reply to the questions asked will be found. How nigre settles can only be explained by examples. Observe fine rain drops beating against a pane of glass; as long as they are single they will adhere to it, remaining where they fell; under certain conditions one will be attracted by the other (for example, if the glass is somewhat greasy); several unite, become large enough and then fall down. Soap-makers who have made mottled and white Castile soaps know how to create the conditions necessary to either make the soap just so that the finely divided colored particles will be drawn together and, for mottled soap, remain suspended as mottle, while for the white Castile soap they will draw together still closer and thereby get heavy enough to go to the bottom as nigre, thus leaving a pure white soap. “Pan-American” is correct in stating that a thinner soap, kept hot as long as possible, settles out nigre better than smaller kettles which cool faster. Let him read over carefully my replies, study the book on “American Soaps,” and if he still meets with difficulties let him write directly to

Yours truly,
Geo. A. Schmidt.

Chicago, Nov. 4, 1901.

Why Crystals Form On Soap.

New York, Nov. 10, 1901.

Editor American Soap Journal.

Dear Sir: In the November issue of the American Soap Journal I came across the question of “German American” who says that, although long experienced in soapmaking, he never had as much trouble as for the past two months in that his ready made oil soaps get a kind of white crystals on the surface, etc. This question a soapmaker will not be able to tell, unless he sees the appearance of the crystals; in order to judge one
must see whether it is an alkaline crystal, common salt or a weather-changing crystal. But I will try to comply with his request, believing you will understand me, since you are long experienced in soapmaking.

Crystals may appear on the finished soap for several reasons. 1. In the end from saponified oil, if the salt is put in before the time. 2. In the strengthening change the lye may have been too strong or in excess. 3. It may be due to salt being put in to assist in settling the lye from the strengthening change or a special change. 4. If the caustic soda does not contain the right proportions.

Referring to No. 1: The salt may be put in too early by two errors; either the soap has no strong taste at all because the soapmaker thinks he saves lye, or the soap is strong and may be even too strong and yet the stock is not truly saponified, because he started to boil with too strong a lye. To prevent this the soapmaker ought to watch closely and remember that any fat will become saponified in time and at the same time it absorbs all alkaline taste, even common salt. The latter is difficult to remove from the soap. In laundry soap it does not do any harm, because it contains resin and is very thinly finished; or it may contain coconut oil or P. K. oil, and then the salt will do no harm either, because such soap will keep in a little salt. But with other kinds of oils, like olive oil, cottonseed oil, linseed oil, etc., where the soap is finished with a thicker body and the strong taste stays in the clear soap, after settling, we are apt to have a common salt crystal.

As to No. 2: When the strengthening change is made with too strong or too much lye, that makes trouble in the finishing, because in finishing the soap gets very thin with just a very little water, and even if the soapmaker put in more to take off the strength, the soap gets thinner and the nigre settles down too quick, and the result is an alkaline strength crystal.

Referring to No. 3: When putting in salt or pickle at the end of the strengthening or special change, if properly managed, the soap is nice, but develops a crystal on the weather changing, because a trace of salt remains in the soap.

Lastly, as to No. 4: The caustic may not be right, and we should have to examine it. The following is my way of doing it. I boil in a trial kettle a small portion of blue mottled (Eschweg) soap.

Tallow 80 lbs.
Cocoon oil 20 "
Water 38 "

I saponify with lye at 30° B. until saponification is complete, with a strong taste. Then it ought to get ready with all the signs of mottled soap, that is it must be not scummy nor crumbling between the fingers, with the right taste of soap strong. If it does not get thick enough then I should try with a known weight of salt or of pure alkal or sulphate of soda to get the right thickness, and that is where I find out the nature of the caustic.

Yours truly
J. Doushekess,
Soapmaker.

Southern Branch of Soap Manufacturers’ Association.

Pursuant to the general plan outlined by the national association, the Western and Eastern branches of Soap Manufacturers’ Associations have now been followed by a Southern branch, known as the Southern Soap Manufacturers’ Association. The object of these branches being to work in harmony for the general good, the membership of each is made up not only of firms located in the part of the country designated by the name of each of these branches, but includes also more distantly located firms that do business in the locality covered by the respective branch.

This Southern branch was organized on Nov. 13 at a meeting held in Louisville and elected officers as follows: President, E. H. Ferguson of Louisville; secretary and treasurer, F. C. Bushnell, New York; executive committee, W. C. Woolwine, Nashville; G. B. Wilson, Cincinnati; H. Donigan, Louisville; W. E. McCaw, Macon, Ga.; H. Haag, New Orleans.

The same points often touched upon in our reports of such meetings were discussed, and the meeting then adjourned subject to the president's call at a time when other manufacturers, who were not heard from as yet, may have had time to signify their allegiance to the new association.

Soap-Making In Mexico.

(Written for the American Soap Journal.)

There are at present very few soap factories of any size in Mexico, as almost all those north of Mexico City have been absorbed by the soap trust, which has its headquarters in Gomez Palacio (Leardo), all the soap being made there. The factories at Chihuahua, San Pedro, Torreon, Saltillo, Zaragoza and others, are not in operation. The only factory of any size which has succeeded in remaining independent is located in Monterey, Nuevo Leon. In the latter town is also the most complete toilet soap and perfume factory outside the City of Mexico, erected by the well-known soap maker, Mr. H. Dons, for Senor Guido Moebius, last spring, and turning out goods which compete successfully with the imported from France, Germany and the United States.

Laundry soap in the North is made of cottonseed oil and feet; they make two kinds, one white and the other
yellow (with rosin). Most of the oil is imported from the United States, as there is only one district (the Laguna) in which any amount of cotton is raised, since there is not water for irrigation.

The oil is imported as crude, and surely some of it is "crude." I know of one Texas firm who made a Mexican crude oil by heating the feet and adding some alum and 35° lye, settling and the product was oil for the greasers. The oil is refined, and of the refined oil is made a settled white soap by giving it two or three changes, settling and adding in crutcher 15 to 20 lbs. dry soda ash per frame. They use no salt down there, but only lye, to separate the soap, as the price is about the same and the soap seems to keep better when no salt is used. The resin made in Mexico, like most Mexican products, is of very low grade, and is shipped in sacks, boxes, mats and anything else except barrels. Tallow is very high—36 centavos per kilo: 8 cents U. S. per pound, when it was 33—4 cents in Texas. The tallow is sold in the stomachs of horses, burros and cows; barrels are too scarce and expensive.

For toilet soaps is used an oil made from a small nut which contains about 80 per cent. of a consistency and smell somewhat like cocoanut oil; it is of a bad color, but refines very readily with 12° lye, and makes a soap which—with half tallow and half oil—lathers more than pure cocoanut oil soap does. The boiled soap of this oil separates readily with salt; more so than does palmseed oil, which it works more like than cocoanut oil, For use in transparent soap it requires more water and alcohol than cocoanut oil does.

Transparent soap without alcohol is not made there, because the price of castor oil is too high.

In the state of Durango I had a chance to see a fine example of Mexican ways of doing business. After two days' hard ride from the nearest railroad I arrived at a large hacienda, the living house built in fine modern style; threshing machines and other American machines on the street, with the usual number of naked children, and near by a big soap factory and oil mill. The proprietor had died a ruined man. He had been one of the most progressive of Mexicans, but had fallen into the hands of an American agent, who had convinced him that it was a gold mine to make oil and soap in such a locality—where there were hardly any people and no water for irrigation. The oil mill machinery was obsolete and out-of-date, and had never been of any account; it was now in such a condition that there was one man standing by each machine, to help it along when it would not run any more.

(To be Continued.)

Pears' Trade Mark.

The proprietors of Pears' Soap, Messrs. A. & F. Pears, Ltd., sued the George S. Pears Soap Company to restrain them from using the word "Pears." Justice Hook in the United States Circuit Court for the Western Division of the Western District of Missouri, granted a temporary injunction to stop the business of the defendant. The temporary injunction has since been made permanent by Judge Philips, of the same court.

In his oral opinion, Judge Hook reviews the history of the makers of the orignal Pears' soap and finds that they have spent large sums in advertising their product, and that there has been a continuous and consistent effort to make the name "Pears" a most prominent feature in the system of advertising. The court admitted that the name Pears was not a lawful subject of a trade-mark, technically considered; but it was undoubtedly true that, when the name had acquired a secondary significance, so that its use by another would amount to a fraud upon the public and upon those properly entitled to the name, steps should be taken to prevent the fraudulent use of the name.

It seems that in 1898 a corporation which styled itself the "George S. Pears Soap Company" was organized under the laws of the State of Missouri. One of the incorporators was a barber, George S. Pears by name, who seems to have been the leading spirit of the company. As a prerequisite to lawful incorporation the laws of Missouri require a payment of a certain percentage of the authorized capital. Although the incorporators certified to such payment, nothing whatever was paid by the stockholders into the treasury beyond the actual fees and expenses of preparing the documents relating to the incorporation. Pears insisted that his name should be given to the corporation. He testified that a certain unnamed friend had given him formula for the manufacture of soaps.

It appeared from the testimony of persons connected with a well-known soap manufacturing company of Kansas City that it had furnished the George S. Pears Company with unstamped bars of glycerine soap, and that these soaps were not made according to any formula furnished by George S. Pears or any one else connected with him. It seems that after these soaps had been purchased in Kansas City they were cut and pressed by the George S. Pears Company into oval shapes similar to the English soaps, and then wrapped and boxed for the trade. In the stamping of the soap, and upon the wrappers and the boxes the word "Pears" was made a prominent feature. The complainant and its ancestors had sold scented and unscented glycerine soaps. The defendant placed upon the market similar soaps.

Although the court admitted that there were differences in the marking and dressing of the soaps of the
The Scenting Of Soaps.

(Written for the AMERICAN SOAP JOURNAL by Geo. H. Hurst, Manchester, England.)

The perfuming of soaps may seem at first glance to be a simple matter, yet experience proves that it is quite an art, for there are many things to be considered when scenting a batch of soap, viz., the cost, the quality, the strength, what blending proportion, softening, strengthening, in short, what improvement the mixing together of various essential oils and other perfume substances will effect in producing a pleasant and profitable perfume.

There are many essential oils used in toilet soaps which, if used alone, are not pleasant, but require the qualifying effect of others, and there are others that do not blend well, but may be used to shade or alter the stronger odor of others, and there may be said to be a harmony, or more properly, a compatibility in the manner of combination of the different odors to produce a pleasant perfume; thus, lavender with cloves; bergamot with thyme; caraway with mint; rosemary with cinnamon are combinations that blend well together to produce agreeable odors.

While all manufacturers of toilet soaps are seeking for perfumes that are novel and rare, there may be said to be but few new perfumery substances in commerce, yet there are perhaps a hundred essential oils and perfumes that can be used in soaps, so that from such a variety combinations could be found that ought to make novelty enough. Yet it would be a great error to make simply a confused mixture of the different odors; for without judgment in blending, a perfume may result that has no character; it is therefore best to bear in mind that a few properly proportioned perfumes will produce the most desirable results.

Again, many essential oils are useless in soaps, and when added to it lose or change their odors. Of the citron oils, bergamot is the most useful; lemon, cedrat and lime are soon changed and lost. Neroli is valuable, but owing to its expense can only be used with the more expensive kinds of soaps.

The spice oils, as cinnamon, cassia, cloves, caraway, coriander, etc., are all useful, for neither heat nor alkali has much effect upon them.

With rose, angelica, geranium, Canada snake root, etc., care should be taken to have the soap as neutral as possible, and also to be as cold as it is possible to mix them with it, that there may be no waste of odor, these oils being highly affected by both heat and alkali, the latter particularly.

The mode of preparation of the soaps has often an important effect upon the perfume; when the soap is made by the so-called cold process, and the perfume added before framing, the evolution of heat that then takes place, together with the alkaline character of the soap mass, injuriously affects nearly all the perfumes, and even in the case of boiled soaps that are not neutral or contain an excess of alkali, the perfumes may receive injury from these causes.

Much the best course to pursue and the one now generally adopted, is to add the perfume to the soap during the milling operations, for in that way but little can be lost, and if the soap has been properly made cannot be injured by the presence of excess of alkali.

It may seem unnecessary to speak of such common perfumes as citronelle, sassafras, lemongrass and myrtle, for they are rarely used with the finer soaps. They have strong odors, and no art can make a passable perfume by blending with cassia, thyme, wintergreen or mint. Being strong, they disguise the strong odor of coconut oil and palm nut oil (particularly if rancid) so much of which is now used, and for such these oils may be said to be very useful.

Of the other perfuming substances used in toilet soaps, such as musk, vanilla, civet, ambergris, etc., something must be said, for owing to the costliness of most of them they are only used for scenting the finest qualities of toilet soaps, and for these they are invaluable indeed, if not indispensable.

The price of natural musk is always on the increase, so attention has of late been directed to the artificial musk of Baur. This is a good perfume, but it has some faults; it does not mix as well with other perfumes as does the true musk, and its odor seems to change somewhat with time. From petroleum, too, it is quite possible to prepare a scent not unlike musk, but only suitable for cheap soaps.
More artificial perfumes are in existence now, such as Vanillin, which is the active ingredient of the true vanilla pod; this gives excellent results in practical working. Its price ranges about 52s. per pound. Coumam is the active ingredient of the Tonka bean, and is a very good soap scent. Heliotropin is an excellent substitute for the natural heliotrope, and is much cheaper.

Ionone is the artificial violet perfume and is a fairly good substitute, but unless care is exercised in using it rather poor results are likely to be got.

Nerolin is, as its name indicates, an artificial substitute for neroli, and is usually of a fairly uniform quality, and has a good, strong perfume that works well with soap. There is also a "synthetic oil of neroli," of some-what variable composition, which is also much used in soap perfumery.

**Arguments In Freight Case.**

Last month we briefly referred to the suit of the Procter and Gamble Co. against several railroads, concerning the re-classification of common soaps. In the presentation of the complaint counsel for the complainants set forth the following arguments:

"We have shown by our evidence that common soap was advanced in the carload lots from the sixth, or lowest, class in the official classification to which it had been assigned in 1890 by the former order of this Commission, and where it had been retained by the railroads for nine years, to the fifth class, and that common soap in less than carload lots was advanced from the fourth class to the third class from January 1 until March 10, 1900, and to 20 per cent. less than third class since the latter date. The railroads have thereby subjected the traffic in common soap to an undue and unreasonable prejudice and disadvantage with respect to the traffic in the articles generally named in the classification, and they now maintain an improper and unreasonably high rate on common soap.

"It is contended that the acts of making and changing freight classifications are not designed as methods of providing revenues or of increasing them from time to time as occasions may require; but are methods of fairly, justly and permanently distributing over all the articles carried, according to their relative and constant qualities as subject of freight, the burden of the total revenues to be raised, and we ask the Commission to so find.

"The change made by the present classification has increased the freight rates on common soap in carload lots an average of 20 per cent. and in less than carload lots an average of 17½ per cent. In proceedings duly brought before this tribunal an order was made July 1890, whereby it was in substance directed that common soap in carload lots be carried at rates not exceeding those charged for the sixth class. The parties to such proceedings all acquiesced in this order, and so rendered judicial proceedings for its enforcement unnecessary. The change made by classification No. 20 will materially reduce or contract the territory within which the plaintiff and other soap makers having more than a local business will be able to sell and distribute their product at a profit; and since the former order was issued the complainant has invested considerable sums of money in its soap plant and doubled its capacity.

"The sole object assigned by the railroads for the adoption of classification No. 20 was to increase their revenues, and the sole reasons offered for such increase was an alleged increase in the cost of railway operation and maintenance. The method adopted was to change a relatively small number and tonnage of classified articles form lower to higher classes, while a much larger number and tonnage of articles, both classified and commodity, were left to be carried at the same rates as before. The effect of such an increase in cost applied not alone to the articles which were advanced in the classification, but also to all other articles carried, and the defendants of the basis of rates upon the entire traffic, both classified and commodity, would not have yielded adequate revenues to meet such an increase in cost of railroad operation and maintenance, without materially increasing the rate upon any one of the articles carried.

"It is also a fact that the defendants have not shown that the increase alleged in the cost of railroad operation and maintenance is not temporary only. The same if any, has begun already to decline. A general advance or lowering of the basis of rate upon the entire traffic is an adjustable method of meeting temporary conditions such as the rise or fall in prices of labor and materials, whereas a change of classification, that is, in the relativity of articles, is permanent in its nature and not adapted to meet such varying conditions.

"During the time between 1887 and 1899 the rates of many articles having heavy tonnage carried by many of the railroads in the territory in question and the revenue therefrom had been materially reduced by the railroad companies, but no reduction, and on the contrary actual increase, has been made in the rates on the common soap. Defendants have not shown that a restoration to the basis of 1887 of rates and classification so reduced would not have supplied adequate revenue.

"The complainants' entire manufacturing business, including the candle, the glycerine and the soap departments, is and has been since 1887 very profitable, but no more so upon the amount of capital invested than before that time. One of the complainants' brands of soap, owing to its purity, quality and reputation, has many of the characteristics of a proprietary article, and is not affected as to where and how it shall be sold by the rate put upon it. All soap manufacturers, however,
make brands of soap known to the trade as competitive brands, all of about the same size, appearance, quality and price, a slight difference in price being sufficient to determine their sale in any locality. Manufacturers of such competitive brands are located in almost all cities of any size in official classification territory, many of them doing a more or less strictly local business.

"The complainants' business in the manufacture of the proprietary brand of soap referred to constitutes about 25 per cent. of the tonnage of its entire soap business, and not less than 2 per cent. of that of the entire soap business of the United States. The complainants' entire soap business is large, but does not constitute so much as 10 per cent. of the entire soap business of the country, and it has not been shown that the profits of the complainant and other soap makers are now more than a very moderate manufacturer's profit of 6 per cent. upon the capital invested therein.

"The advances in classification here complained of were made without conference with any of the shippers of any of the articles affected and without sufficient consideration of the qualities and conditions, physical and commercial, which should determine the class of any article. If there are any reasons for making these advances, it has not been shown that such reasons apply to common soap, either in carload or less than carload lots. It is a fact that common soap in carlots and the traffic therein possess in a degree superior to the articles generally in the fifth class and the traffic therein, in a degree equal to the articles generally in the sixth class and the traffic therein, a union of the qualities and conditions, physical and commercial, which should determine their respective classes; and that common soap in less than carload lots and the traffic possess the same in a degree generally superior to the articles now having the rate of 20 per cent. less than third class, and the traffic therein, and in a degree equal to the articles generally in the fourth class. The railroads have maintained since January 1, 1900, both an improper and too high classification, and also actual rate on common soap, both in carload and in less than carload lots.

"The difference in freight rate between third and fifth class articles is and has been for many years very much greater than the difference in freight rate between fourth and sixth class articles. One of the plaintiff's grounds of complaint, to which reference has not hither- to been made, was, that, by the advance of common soap in less than carload and carload lots, from fourth to third, and from sixth to fifth classes, respectively, the difference in rate between less than carload and carload lots has been widened, and that the same subjected the traffic in less than carload lots to an undue and unreasonable disadvantage in its commercial competition with the same in carload lots. On March 10, 1900, the defendants and other railroads in said territory amended their classification No. 20 by reducing all articles advances therein from fourth to third class, to 20 per cent. less than third class, provided, however, said reduction should not be to any greater extent than to the fourth class rate. The defendants have urged said action as, and the same is, to some extent, a replacing of less than carload traffic in the same relation to carload traffic as had existed before.

"The application, however, of said reduction in classification of said articles, including common soap in less than carload lots of 20 per cent. less than third class, to the freight rates in effect in the various portions of said territory, has the following results: The rates thereon in the eastern portion, taking New York City as a typical center, have been reduced to fourth class rates or what they were before, throughout a very large and thickly populated district, while the rates thereon in the western portion, taking Cincinnati as a typical center, have been reduced to fourth class rates, or what they were before, within only an exceedingly small and sparsely populated district. The zones in the west, within which there is only an advance of from 1 to 2 cents in the former rate, amount to practically nothing, whereas the same in the east are very large. The distance from centers in the west, at which an advance in rate of 3 cents begins, is only from 70 to 90 miles, whereas said distance in the east is about 200. The territory in the west, within which western manufacturers may compete upon the same terms as before with eastern manufacturers, has been very much contracted, whereas the territory in the east, within which eastern manufacturers may compete upon the same terms as before with western manufacturers, has been very much enlarged."

In reply to the foregoing, counsel for the railroads assert that the new rates are not unreasonable and that complainant's business did not suffer in the years 1888 to 1890 when the same rates as now were in force. They speak of the profits made by the soap factory as representing 17 per cent. on the actual capital put into the business and 56 per cent. of the capital invested in the one brand especially referred to, arguing from this that soap is one of the articles best able to stand an increase in cost of transportation.

To this the complainant firm demurs on the ground that the fact of its being financially successful should not exclude it from being heard in a court of justice.

The railroads also advance reasons why soap should be in the fifth class, along with canned goods, axle grease, packing house products, soda, pitch in barrels, sugar, putty, etc., etc., rather than in the sixth class which embraces only about 400 different crude or unfinished articles and not intended to take in completely finished products.
For Machinists, Engineers, Etc., Interested in Soap Making.

There is a suggestion of interest to machinists, engineers and inventors, contained in the article on "The Last of the Nigre," printed on another page of this paper. It relates to the settling (or rather separation) of soaps by centrifugal force. When it is remembered that machines of the kind are successfully used for creamery purposes in the separation of milk and cream, and that our large soap manufacturers have in use quite a number of large kettles, each of them settling, for many days, many thousand pounds of soap, it would seem reasonable to suppose that the same principle, applied on a larger scale, could be profitably adapted to soap making also. The amount of time, interest on capital invested, floor space, etc., saved if the ready, boiled soap were at once run through a machine which separates the nigre from the pure soap and cools it to the proper temperature for crutching (thus finishing a better and purer soap ready for the market in as many days as it now takes weeks), would leave quite a margin to pay for such an installation and a profit on it, and whoever will solve the problem of satisfactorily adapting such machinery to the needs of the soapmaker will not lack the reward for his pains. Soap-making machinery in general has reached such a state of perfection that it is along the lines here suggested that we look for the next decided improvement.

It is from the experience of practical soap makers and from suggestions coming from them that useful improvements must come in future, and we therefore recommend all doing business with the soap trade to subscribe for and read regularly the AMERICAN SOAP JOURNAL, and to profit from the hints contained in many of the articles.

American Names of the Cocoanut.

The origin of the name cocoa or coco, as the earlier writers used it, seems to have remained quite as obscure as that of the tree itself. Oviedo refers to the fruit of several species of palms as "sosoc," and seems to have been the first to record the fanciful idea that that word was applied to the cocoanut because the three foramina or "eyes" suggest the grimace subsequent writers have ascribed to the Portuguese, and some lexicographers have derived coco from a Portuguese name for monkey, macaco, or macoco. Others have thought to trace it to the Greek kouki, and even to an ancient Egyptian word kuku, which was formerly thought to apply to the cocoanut; and although Seeman furnished, in 1868, excellent reasons for believing that at least the Egyptian reference does not apply to the cocoanut, but to Borassus aethiopum, the Egyptian theory is still repeated in the latest editions of our most popular dictionaries. Nor did anybody attempt to show that either Hernandez, Acosta, or any of their contemporaries was acquainted with either the Greek or the Egyptian words, or that they were familiar with the cocoanut before coming to America. Hernandez refers, whether correctly or not, to Strabo, which indicates that he would not have avoided mention of any other Greek writers, while Acosta paraphrases his discussion of the cocoanut by the following remark:

And it is an admirable thing to see so many different forms, tastes, and effects unknowne, whereof we did never hear speake before the discoverie of the Indies. And whereof Plinie himselfe, Dioscorides and Theophrastus (yea, the most curious), had no knowledge, notwithstanding all their search and diligence.

Moreover, it seems probable that the word coco as a linear descendant from the Latin cocus was in use among the Spaniards in its original sense of a seed, nut, or fruit, and the seeds of Cocculus or India berries are still called in Spanish coca de Levante in much the same way as Hernandez referred to cochineal as "Coco Indico." Both Oviedo and Acosta used the word in a wide generic sense for the seed of several palms, and it is still applied to the seeds of smaller palms which must resemble those of Cocculus and are strung for rosaries. Acosta also refers to the seeds of a palm of Chili (Jubaea) as coquillos (modern coquitos), and describes the large fruits of Bertholletia (Brazil nut) or other Lecythidaceae as "another kind of cocos" containing almonds. We have thus, apparently, another case like those of Mimosa and Cereus, where ordinary Spanish words adopted into botanical nomenclature have been tortured at great length to fit the most improbable theories of classical Latin, Greek, or even more ancient derivations. But though already possessed by Spaniards, the word coco was by no means new to America. Eighteen of the names of plants in the "Historia" of Hernandez begin with coco and twenty-eight with caca, which seems to have been used interchangeably. Thus Dampier and Cockburn frequently refer to cacao (Theobroma) as "coco," "coco-nuts," and "cocoa." The difficulty which we still have in attempting to restrict cacao to Theobroma, cocoa to Erythroxylon, coca to Crosos, and coco to Colocasia may be but a legacy from the popularity of these syllables in the plant names of American aboriginal tribes. However curious such a coincidence between the Spanish and American word coco may seem to us, it appears to have produced no such effect upon Hernandez, even when explaining the name of the plant cocoytic, on the ground that the leaves were similar to those of palms, and, although not noted by Hernandez, this remarkable suggestion seems to receive support from the fact that the cocoanut plant has large, spherical swellings near the roots.

The statement of Hernandez, already quoted, that the Mexicans called the cocoanut "coyolli" is turned by
De Candolle into an argument against an American origin on the ground that the word coyolli "does not seem to be native," though no attempt is made to indicate when it was introduced; nor is the implication of an extra-American word met by the theory of maritime distribution. Yet if coyolli was not an Aztec word it either did not come alone or it fell into very friendly society with dozens of others, like amolli, yli, coyopalli, cocotzin, chilli, quilamoli, copalli, and otolli. But a different objection may be taken to coyolli as an Aztec name for the cocoanut. It is well known that the Aztecs came from the temperate plateau of Mexico, and that their power had recently been extended to the tropical coast regions.

It seems probable from the descriptions and figures of Hernandez that the coyolli was a native Mexican palm, probably Acrocomia, the fruit of which has the outer layer edible, oily, and yellow, so that Hernandez supposed it to be the same as the Areca or betel palm of the Philippine Islands, which is not known to have any similar name in the Eastern Hemisphere, while coyolli is still current in southern Mexico and Guatemala for Acrocomia mexicana. Although declaring that the Mexicans (Aztecs) called the cocoanut "Coyolli" Hernandez distinctly says that he never saw any of the trees in New Spain. This, however, is not necessarily a discrepancy or an indication that Hernandez thought that the palm had been introduced my the Spaniards, since "Nova Hispania" was used by some of the early writers in a rather narrow sense for the Aztec, region of Mexico, and not for that country as defined by its modern boundaries. But before this Hernandez had already said that the cocoa palm was generally distributed in the East and West Indies, and especially in maritime and sandy places about human habitations. He secured from travelers accounts of many Philippine plants and their uses, which seem to have been largely drawn upon in the present instance. But it must not be forgotten that even in his time the "Indies" were still one-quarter of the world, for as Acosta quaintly says:

... Wee meane by the Indies those rich countries which are farre off and strange unto us. So we Spaniards do indifferentely call Indies the countries of Peru, Mexico, China, Malaga and Bresil; and from what parts soever of these any letters come, wee say they bee from the Indies, which countries bee farre distant and different one from another.

Our modern curiosity as to how the cocoanut and other plants crossed the Pacific had not yet developed. Hernandez learned about the Philippine plants by questioning travelers who were going and coming across Mexico, but this was a matter far different from the introduction of the Philippine palms to use and culture in Mexico, which with three more centuries of improved opportunity has not yet taken place. Chocolate was certainly a far more important article to the Spaniards than the cocoanut, and yet cocoanut tree is believed not to have been introduced from Mexico to the Philippines until after 1660, a century later than Hernandez's visit; and Humboldt believed that Citrus trifoliata was the only Asiatic species which had become established in Mexico. This would seem to render improbable any very extensive introductions of tropical plants at an earlier date, and is a strong reminder that notwithstanding its obvious importance the introduction of useful plants is a subject still generally neglected in the agriculture of the most advanced countries, and even in dealing with plants which can be grown from seed of indefinite vitality instead of with the delicate and short-lived germs of tropical species.

But to return to Hernandez. We find in the sentence already quoted, the name maron ascribed to the "vulgus Indorum," or ordinary Indians, as distinguished from the "Mexicensibus," a fact which seems to have been entirely overlooked by De Candolle, who, after dismissing Coyolli, leaves us with the implication that no genuine American name for the cocoanut was known. Possibly he supposed this word to pertain to the East Indies, as does much of the essay of Hernandez. Such, however, is not the case. Nothing resembling maron appears in the extensive lists of Polynesian, Malayian, and Asiatic names, but it was reported by Heller, in 1853, as apparently in use in southern Mexico.

But etymological arguments based on old records are often of little use except as literary confirmations of facts already ascertained by more reliable evidence. Thus, the cocoa question might be carried another stage around the world when we read, in Pigafetta's account of the voyage of Magellan, that among the native products offered by the people of the Philippine island of Samar that "one which they call cochii is the fruit which the palm trees bear." But as no subsequent traveler has recorded such a name in that quarter of the globe, we may reflect that Pigafetta was an Italian among Spaniards and Portuguese sailors, some of whom had previously visited the "Indies," and that he did not show a philologist's caution in studying the forms and origins of words.

Although, as indicated above, the cocoanut is supposed to have been introduced into Brazil by the Portuguese, Nieuhoff recorded a native name for it in 1647. But, as Nieuhoff had already explained that the fruit of the pindava palm (Maximiliana?) was called inajumira, meaning "small cocoanut," we may be dealing, as in the case of coyolli, with a recently extended use of some native word or combination misinterpreted by Nieuhoff.—Contributions to U. S. National Herbarium.
Bone Grease.

In practice the commercial estimation of the value of bone grease depends upon the proportion of water and mineral matter that it contains. It is only rarely that the actual percentage of fat is directly determined. It can be got with sufficient accuracy from the two estimations already mentioned, by difference, and those two are more cheaply performed than an estimation of the fat. The two impurities should not be together more than 3 per cent.

The determination of water is made by drying five grammes of the fat, and determining the loss of weight. The temperature used is 105 deg. C., and must be maintained for about six hours, although most of the water is expelled in the first two. It is true that commercial bone-grease which has been extracted by means of benzene always contains a little of that solvent, so that strictly speaking the loss of weight represents benzene and water, and not water alone. The quantity of benzene is, however, so small that the error may be safely neglected. The reason that the drying is so slow is that the lime soaps in the grease retain water with great obstinacy.

The grease is never fully extracted. In various samples of bone meal after commercial extraction from 91 to as much as 2.97 per cent. of residue grease was found. The quantity naturally depends upon the solvent and the process which has been employed. As regards the rank of solvents, considered purely from the standpoint of absolute efficiency in extracting the fat, ether has the first place, then tetrachloride of carbon, then benzene, and then chloroform. The lime soaps present are dissolved best by tetrachloride of carbon or by chloroform. It is thus possible to select a solvent with reference to the nature of the required product. If the lime soaps are to be regarded as impurities, as their high percentage of ash seems to indicate they should be, the use of these two solvents is undesirable. As regards the yield of the bones, the following results were obtained on the large scale with benzene.

<table>
<thead>
<tr>
<th>Per cent. of grease obtained</th>
<th>Per cent. of grease left in the bone</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 7.5</td>
<td>1.53</td>
<td>9.03</td>
</tr>
<tr>
<td>2. 7.98</td>
<td>0.95</td>
<td>8.93</td>
</tr>
<tr>
<td>3. 7.97</td>
<td>1.64</td>
<td>9.61</td>
</tr>
<tr>
<td>4. 8.06</td>
<td>1.11</td>
<td>9.17</td>
</tr>
<tr>
<td>Average 7.88</td>
<td>1.31</td>
<td>9.185</td>
</tr>
</tbody>
</table>

Thus even benzene, the best solvent yet known for manufacturing work, gives results which are not by any means entirely satisfactory.

The detection of adulteration of bone-grease with leather grease, horse-fat, neat’s foot oil, all of which are occasionally added, is best effected by determining the iodine number in the usual way. That of pure bone grease varies between 44 and 62. All the greases used for the adulteration of bone grease have numbers which are considerably higher. That of horse fat is 79, and horse foot oil 74, of neat’s foot oil 68 to 74. The saponification number is perfectly useless for detecting these adulterations.—Chemiker Zeitung, Oils Colors and Dry-saltries.

**Composition, Properties and Application of the Waxes.**

The true waxes are a class of organic substances related to, and yet quite distinct from the fats. The fats are triglycerides of various fatty acids, whereas the waxes are combination of monatomic alcohol radicels with the fatty acids. The waxes are variable in their properties, mostly harder than the fats, but this is not an invariable distinction. The properties of each kind of wax will be given separately.

Waxes are derived from both animal and vegetable sources; also there are mineral products, such as paraffin, that are included as waxes in a commercial sense. These, together with adulterants, will be included in the following articles.

The following is the list of the true waxes that are known in commerce:

**Animal Waxes.**

- Beeswax.
- Spermaceeti.
- China wax.
- Wool fat.
- Sperm oil.

**Vegetable Waxes.**

- Carnauba wax.
- Palm wax.

There are a number of other waxes found in small quantities, but they are not of any importance; a short account, however, will be given of them.

Besides the true waxes there are several materials like them in use, and also a few materials used as adulterants which will need a description. These are:

- Japan wax.
- Stearin.
- Palmitin.
- Paraffin.
- Cerasin.
- Palmitic acid.
- Stearic acid.
- Tallow.
- Rosin.

**Beeswax.**

Beeswax is the produce of the honey-bee (Apis mellifica). It is used by these insects in the production of combs, in which honey is stored, and in which the eggs are laid and hatched.
Reamer was of opinion that bees fed upon the pollen of plants, and that the pollen was modified in the body, brought back to the mouth in the form of a paste, and then masticated into wax. This opinion was apparently borne out by the observation that bees fed upon sugar appeared to be incapable of producing wax. The researches of Duchet, Hunter, and Huber, however, proved that wax was not modified pollen, but was directly produced by the bees as an excretion. Huber states that the amount of wax produced by bees is in proportion to the amount of honey consumed, and that when they were fed upon a solution of sugar, more wax was produced than under normal conditions. It has been computed, though on what grounds is not stated, that 20 lbs. of honey are consumed in the production of 1 lb. of wax. Wax exudes in the liquid state from small pockets on the under-side of each of the four intermediate ventral segments of the abdomen. There are two of these pockets to each segment, one on either side of the carina or elevated central part. Soon after reaching the air the liquid thickens, and dries into flakes, and during the time comb-building is going on in a hive the bees hang in festoons until the wax is formed, when the bees remove the wax with their hind feet to their forelegs, and thence to their mouths, where it is mixed with saliva, and is then built into the comb.

The honey comb is a marvelous example of the building instinct, the first row of cells being pentagonal and the others perfectly hexagonal; the structure is that which gives the greatest strength with the least amount of material. Each comb is produced by a double layer of cells, back to back, with sufficient space between the combs for the bees to pass to and fro. The wax is secreted only by the worker bees, the queens and drones being destitute of the apparatus required in its production. Much heat is produced in the hive while comb-building is going on.

Beeswax is obtained by placing the comb in a warm place, and allowing the honey to drain out, or better, by submitting the combs to centrifugal action, which empties them much more quickly and efficiently. The wax is then melted with boiling water, and stirred with it. It soon rises as an oily layer, and on cooling is removed as a solid cake. This is then melted down by a gentle heat, and ladled into moulds.

Bee-keepers prepare an artificial comb, or, at any rate, a foundation of paraffin wax, on which the bees can work. This lessens the wax production, and hence the production of honey. The combs, when full of honey, are emptied by centrifugal action, and then replaced in the hives, so that tame bees produce scarcely any wax; that occurring in commerce is from wild bees.

Beeswax is obtained from all parts of the world, from Italy, Austria, N. Africa, Argentina, Japan, Jamaica, &c. That from Jamaica is most regular, and brings the highest price.

When beeswax is first made it is white, and is termed virgin wax; but, as it becomes older, it gradually darkens, becoming yellow, brown and black. This is partly due to chemical changes taking place in the wax, and partly to dirt, which is conveyed to it by the bees, and becomes incorporated with it. After beeswax is bleached it is of an ivory-white color, and to a certain extent translucent.

Commercial beeswax is very variable in color, even in one parcel, there being various shades of yellow and brown, and even black. It has a very pleasant odor of honey, but is tasteless. It is tenacious, and with difficulty broken by a blow from a hammer; it breaks with an irregular, almost conchoidal fracture, which is finely granular on its surface. Bleached beeswax has a peculiar odor, is harder and more brittle than the natural sort.

Beeswax is bleached by the combined action of moisture, air, and sunlight. The crude beeswax is melted down in large vats by steam; the melted wax is drawn off into a perforated box, which delivers it to a long perforated trough immediately over one end of a large tank of water. Below the trough there is a large drum revolving, partly immersed in the water of the tank, and as the thin streams of fluid wax fall into this they are solidified in the form of flattened ribbons, which are detached from the drum by the water, and carried to the further end of the tank, where they are removed by a fork. The greater part of the impurities in the wax settle to the bottom of the melting tank, from which they are removed from time to time, the remainder of the impurities being caught by the strainer box. The ribbons of wax are therefore practically pure.

The wax ribbons are taken in baskets to the bleaching ground—a large field in the open country. Here the wax is spread upon large wooden tables or frames covered with linen. Each table is about eight feet wide and forty feet long, and one hundred or more of these frames may be required, the beeswax being spread out in very shallow layers, and requiring a considerable time to bleach. The time of exposure necessarily depends upon the weather, but in a dry season six weeks or more.

After bleaching in this manner the beeswax is removed from the frames, and taken to the melting-room, where it is remelted, and cast into square slabs. To improve the appearance of these slabs they are again exposed to the sun on the bleaching ground for a week or two, and are then sufficiently bleached for ordinary purposes.

To quicken the operation of bleaching a little turpentine is sometimes mixed with the wax. It is also stated that tallow is used to counteract the brittleness of the bleached wax.
Beeswax may also be bleached by chemical means, for which purpose either bichromate and sulphuric acid or hydrogen peroxide may be employed. Chlorine cannot be used because it is taken up by constitution, and completely spoils the wax for most purposes. The operation of bleaching considerably modifies the properties of beeswax, and also alters its chemical composition.

Beeswax is undoubtedly the wax par excellence, being used for a great variety of purposes. It was originally used in candle-making, and to a small extent is still used for that purpose. It was also used as sealing-wax. It is now used in the preparation of furniture polishes, boot polishes, in varnishes for producing a matt surface, in lithographic inks, in cements, in ointments, etc. At one period beeswax was used as vehicle for paints, in the same way as linseed oil is now used. In the National Gallery are a set of encaustic paintings found by Mr. W. M. Flinders Petrie in excavations of the Hawara Cemetery at Fayum, Egypt. These were done with pigments mixed with melted beeswax.

Composition of Beeswax.—Many of the older writers state that beeswax consists of three substances, myricin, cerin, and cerolein, and the proportion of these is given as myricin 73, cerin 22, and cerolein 5 per cent. These were separated by alcohol. If beeswax be treated with boiling alcohol a portion remains dissolved; this is myricin. On cooling the alcoholic solution, most of the dis- small quantity which remains in solution in the cold small quantity which remains in solution n the cold alcohol is cerolein.

The principal constituent of beeswax is myricin or myricyl palmitate, which constitutes about 70 per cent. of the wax. There are also present cerotic acid—identical with cerin—about 14 per cent.; hydrocarbons, 13 per cent.; and smaller quantities of melissic acid, evel alcohol, and some unsaturated acids.

Cerolein is said to be obtained from beeswax by treating it with boiling alcohol, cooling to separate cerotic acid, and evaporating the solution. According to Lewy, it is a soft, oily substance, melting at 28.5°. It is very soluble in cold alcohol and ether, and, gave, on combustion, carbon, 78.71 per cent.; hydrogen, 12.51 per cent.; and oxygen (by diff.), 8.75 per cent.

Though the composition of beeswax varies only within narrow limits, as a rule it has not always a definite composition, several cases of abnormal specimens having occurred. For instance, Brodie stated that one sample contained 22 per cent. of cerotic acid, while some from wild bees in Wiltshire, and also a Ceylon beeswax, contained no cerotic acid.

The specific gravity of pure beeswax is from .956 to .975, and the melting-point 62° to 64° C.

Spermaceti (Cetaceum).

Spermaceti is obtained from the head cavities, and also from the blubber of the sperm whale (Physeter Macrocephalus); also, to a certain extent, from the blubber of the dolpin (Delphinus globiceps).

The spermaceti from the blubbers is held in solution in the oil which is expressed therefrom, and it is obtained in a crude state by cooling the oil, placing it in bags, and then pressing at a low, and afterwards at a higher, temperature, the spermaceti remaining in the bags after the oil has been passed out.

In the crude state the spermaceti contains a considerable quantity of oil, from which it is separated by treatment with dilute potash solution or by boiling alcohol. The spermaceti is then melted down by steam, and ladled into moulds.

Spermaceti is a pearly-white, crystalline wax, translucent, and glistening. It is very soft, and easily cleaved into thin laminae, and is also without odor or taste.

Spermaceti is scarcely soluble in cold alcohol, dissolves slightly in boiling alcohol, but, for the most part, it crystallises out of cooling. It is much more soluble in ether and in chloroform.

Spermaceti is used in the manufacture of candles especially those used for gas-testing; also as a constituent of ointments.

Composition of Spermaceti.—Spermaceti is usually stated to consist principally of cetyl palmitate (cinct), C_{16}H_{33} · C_{16}H_{33} · O_{2}, with smaller quantities of laurie, myristic, and stearic acids in combination with the alcohols, cetyl and oodecy! This is, however, not borne out by the chemical examination. The melting-point of spermaceti is 48° to 18° C., while that of pure cetyl palmitate is 55° C. The melting-point of the alcohols is the same as that of cetyl alcohol, i.e., 49° C.; but the melting-point of the acids is also 49° C., whereas that of palmitic acid is 62° C., so that the acids contained in spermaceti are not by any means palmitic principally. The saponification equivalent is 124 to 128, whereas the theoretical saponification equivalent is 117. The writer thinks that spermaceti ought to be further investigated. The specific gravity of spermaceti is .943 to .960.

Soap from the Tea Seed Oil.

BY H. H. MANN, E. SC., F. I. C.

On the 27th of June I received from the secretary of the Indian Tea Association samples of tea and seed oil and tea seed oil cake which had been sent, through Mr. H. St. J. Jackson by M. H. Drummond Deane of the Stagbrook Estate, South India, with a request that I should make an analysis of them and report to the committee. This I have done so far as is necessary for our purpose—and it is perhaps a convenient opportunity to lay before you my views as to the possible value and usefulness of both products, especially as a large amount of
seed is now produced, and must be utilized, if utilized at all, in some other way than for sowing.

The value of seed of this character almost entirely depends on the usefulness of the oil and on the possibility of getting good feeding or manural material from the residual cake. It was attempted in 1885 to put tea seed, as such, on the London market under the name “tanne.” Great interest, I understand, was manifested, but the seed found no buyer, and the price asked sank quickly to a level far below the cost of importation. At the present day the seed does not come into commerce at all except for the production of new bushes.

The following analysis by Mr. D. Hooper (South of India Observer), 1894) of tea and seed from the Nilgiris previously dried, shows the composition of the material:—

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Fixed oil</td>
<td>22.9</td>
</tr>
<tr>
<td>Albuminoids</td>
<td>8.5</td>
</tr>
<tr>
<td>Saponin</td>
<td>9.1</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>19.9</td>
</tr>
<tr>
<td>Starch</td>
<td>32.5</td>
</tr>
<tr>
<td>Fibre</td>
<td>3.8</td>
</tr>
<tr>
<td>Mineral matter</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>100.0</strong></td>
<td></td>
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</tbody>
</table>

Of these constituents, those of interest for our purpose are the fixed oil, the saponin, the albuminoids, i.e., the nitrogen and the mineral matter. Let us take these seriatim.

**THE FIXED OIL**

Is present in small amount compared with that in most other oil seeds such as linseed, cotton, or castor. I am bound to say, however, that many samples appeared to contain much more oil than the seeds quoted above, but I should consider Mr. Deane’s figure of 25 per cent. obtainable by hot pressure as an extreme one for practical working. If high quality oil is wished, the seeds will have to be pressed cold, not more than 20 per cent. may be anticipated. Even this, I fear, may be taken as higher than would on the average be obtained under commercial conditions.

The oil itself is clear, light yellow, liquid, non-drying oil, approaching olive oil in character, but which always has more or less acrid taste. The samples sent by Mr. Deane appear to be free from saponin, a poisonous substance (see below) which nearly always occurs in it, but in order to get this freedom great care has to be taken in pressing. Though when heated the poisonous properties of the saponin are destroyed, yet the small quantity which may be present would condemn it as an edible oil for use in Western countries. The Chinese, it appears, have long used it for cooking purposes and it might possibly be employed by the people of the tea districts in a similar manner if it were easily obtainable.

As a lamp oil it answers well, and would seem to be quite capable of local introduction for this purpose. I say local introduction because burning oils are at present rather at a discount in the markets of the world compared with their former position—kerosene and petroleum products having largely taken the market in the great centers which were formerly theirs. At the same time the fact that it is satisfactory for this purpose should not be forgotten.

The oil produces an excellent soap hard and white. For this purpose the presence of saponin would be no disadvantage, but would rather add to the lathering power of the soap. If the oil could be produced in quantity and a supply guaranteed at a rate which would compete with the other vegetable oils, there is no doubt an opening for it in this direction.

**THE SAPONIN.**

This poisonous constituent of the tea seed is all but entirely contained in the cake, after expression of the oil. It is a white solid sweetish to the taste at first, but rapidly becomes bitter and acrid in the mouth and it leaves a biting sensation in the throat for some time. It is exceedingly poisonous and its presence at once destroys any chance of using the cake or the seeds as a feeding stuff for animals.

**THE ALBUMINOIDS AND NITROGEN.**

To the nitrogen contained in the albuminoids the cake would owe the greatest part of its manural value. In this respect, however, it does not for one moment compare with most other oil cakes. Compare, for instance, the following figures representing the average amount of nitrogen in other manure cakes compared with that given by tea seed oil cake:

<table>
<thead>
<tr>
<th>Nitrogen per cent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mustard cake</td>
</tr>
<tr>
<td>Linseed cake</td>
</tr>
<tr>
<td>Castor cake</td>
</tr>
<tr>
<td>Decorticated cotton cake</td>
</tr>
<tr>
<td>Undecorticated cotton cake</td>
</tr>
<tr>
<td>Tea seed cake</td>
</tr>
</tbody>
</table>

Thus, if the castor cake were worth two rupees per maund in Calcutta, calculated on the basis of the nitrogen alone, the tea seed cake would only be worth about twelve annas per maund.

**THE MINERAL MATTER.**

In other points the tea seed cake is likewise for manurial purposes. Comparing again the following figures for mineral matter and phosphoric acid in several manure cakes, this will be clearly seen.

<table>
<thead>
<tr>
<th>Mineral Matter</th>
<th>Phosphoric Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>per cent.</td>
<td>per cent.</td>
</tr>
<tr>
<td>Mustard cake</td>
<td>8 to 10</td>
</tr>
<tr>
<td>Linseed cake</td>
<td>4 to 6</td>
</tr>
<tr>
<td>Castor cake</td>
<td>9 to 10</td>
</tr>
<tr>
<td>Cotton cake</td>
<td>7 to 8</td>
</tr>
<tr>
<td>Tea seed cake</td>
<td>3.3 to 4.07</td>
</tr>
</tbody>
</table>
Taking these various points into consideration, it will at once be seen that as a manure the cake produced by pressing tea seed is of very inferior character, and would hardly pay for carriage over very long distances for this purpose—nor can it compete in any market with cakes produced from other oil seeds. On the other hand, it is quite good enough to use locally, provided the net cost does not exceed eight or ten annas per maund on the garden.

It (the cake) is, however, supposed to have insectici-dal properties; and might be useful for this purpose. In the paper above quoted, Mr. Hooper suggests spraying the bushes with a decoction of the seeds, or dusting the plants with a powder made by grinding them up. Such a decoction is likely to be serviceable against red spider, but exactly of what value it is can only be determined by trial. Spread on the ground round the bushes the cake would be likely to keep away some types of caterpillar, and other pests which spread by creeping from bush to bush, or which make their home in the ground during the day. A strip covered with the cake between the tea and the jungle would probably keep out many of the pests which creep the surrounding land into the tea.

The utility of the cake itself as an efficient substitute for soap is very doubtful. Though it lathers well, on account of its saponin content, yet this does not necessarily mean that it has great cleaning properties. Nevertheless it has been used for many years in China instead of soap, and it would probably be of some value for this purpose. One more use is made of the cake in China. It is there stated to be very effective as a poison for fish.

On the whole, therefore, while I think there would be a market for the oil if it could be obtained in quantity and fairly cheap, it must, for the present, be a local one, and the material could hardly compete with oils already in general commerce, unless it be for the production of superior soaps. As a lamp oil it has distinct advantages which should recommend it for local consumption. The press cake is useless for feeding, and forms an inferior manure, though one quite good enough to apply to the land and also to cart for some distance, provided the cost on the garden does not exceed eight to twelve annas per maund.

Soap and Substitutes for Soap in Syria.

While toilet and shaving soaps are imported from abroad, the Syrian soap manufacturing industry is by no means unimportant. I refer particularly to the Nablous, Haifa and Tripoli soap factories. "Mount Carmel soap," manufactured by an American firm at Haifa, is in demand in the United States. Olive oil enters largely into the production of Syrian soap.

American importers will find in Syria an article which is extensively used for washing woollen stuffs, as it does not shrink them, to wit, the soapwort (Saponaria officinalis) root, which here takes the place of our wool soap, does the work equally well, and is incomparably cheaper. In my opinion, it would pay to import this root into the United States. Pressed into bales, it would form a product which could be conveniently transported. Letters on this subject may be addressed to H. Sabbag & Fils, Beirut, Syria. The root is also successfully used in washing fresh and fast-colored cotton fabrics, as it prevents their fading. The Arabie name for this useful root is "shursh-halawy."

The Arabs of the interior use the desert shrubs called "ushran," of the family of Salsoleaeceae, by burning them and extracting the soda from ashes. Indeed, the ash is almost pure soda. A solution of it is powerfully detergent. They also use lye, procured by lixiviating the ashes of wood and charcoal, for washing clothes.

Sesame oil is commonly employed by Arabs for "cleaning" face and body; also for prickly heat, eczema, and other diseases of the skin. It is known here as "serej." In a native journal, the process is described as follows:

"The oil is diluted with water and applied to the parts suffering from prickly heat, generally at the time of going to bed. It allays the irritation and dries and removes the pimples in two or three applications. This oil is held in high esteem among the Arabs who live in the interior, who are in the habit of anointing their skins with it when they feel at night fatigued and tired from their day's work, as it gives vigor and firmness to the limbs and body, and enables the workmen to get up fresh and strong next morning. Besides, during the winter it has some effect in protecting the body from the piercing cold, as the Bedouins often go about without any coat. The oil is used for such a purpose pure, without water, and is rubbed briskly into the skin. The people universally believe that it conduces to good health. When there is high fever and the body is aching, the skin of the patient, whether he is an adult or a baby, is anointed with sesame (gingelly) oil and the patient gets relief, the skin becoming soft and the temperature reduced. This remedy is resorted to even by patients under the treatment of European doctors here."

"The Arabs do not use soap, as it disfigures the body and inflames it in a tropical climate; but they use various other remedies made from the leaves of certain shrubs which are obtainable very cheaply in abundance as are efficacious as soap for removing grease, oil, and dirt, and refresh and cool the skin and render it clean and healthy. Some of these form a lather like soap, but exercise no injurious effect."—Report by U. S. Consul G. Bie Ravndal, at Beirut.
Oil Plants of the Hawaiian Islands.

A tour of the Hawaiian Islands was recently made by special agent Stubbs of the Department of Agriculture (U. S. A.), with the object of ascertaining and reporting upon their agricultural products, and upon those promising to form the basis of commercial industries. In his report he recommends the establishment of an experimental station in the islands to develop more fully the agricultural and industrial possibilities, which, he thinks, by the application of such methods as are used throughout the United States, may be enormously expanded. The following features of the report may be of interest to our readers:

Peanuts grow to perfection upon the islands, and are as easy to raise as ordinary vegetables. They yield from 20 to 60 bushels of nuts per acre, and two crops may be raised in a year. Besides being eaten, the nut yields an oil little if at all inferior to the best olive oil, and salad made from this oil will keep for several days longer than when made from olive oil. As peanut oil is used for lamp, kitchen, table, and in the manufacture of soap and chocolate, an extensive industry, if properly managed, may be build up in the growth of peanuts and the manufacture of oil therefrom.

The castor oil plant, Reginus communis Lin., has been introduced into Oahu by Mr. Koelling, and it grows well there. He has erected a mill for the manufacture of oil from the seed, and has made a good commercial article. This business is rapidly increasing.

Kukui, Aleurites moluccana Willd., is the prevailing tree in the lower zone, and may be recognized at a great distance by the paleness of its foliage. It is known in English as "candlenut tree," probably from the custom of the natives in stringing the nuts on sticks and burning them to light their houses. The oil is used as a lamp oil and to mix with paints. A black dye is obtained from the covering of the nut, and is used in tattooing.

Candles and Soap in West Africa.

Says the "Gold Coast Globe"—"Considering the great demand for candles and soap in the interior of West Africa, it is a matter of surprise to us that British manufacturers of these articles do not take greater pains to cultivate a very important branch of trade of this character. We have ourselves frequently purchased European (not British) made candles in the market of the interior of Nigeria and the Lagos hinterland, where, in fact, they appeared to be used to a certain extent as an article of currency. The demand for candles in particular amongst the European population, with the great influx now taking place, is attaining very large proportions, and there is an unlimited demand to be filled amongst the native population. We are also able to state from personal experience that there is a very large amount of business to be done in the cheaper varieties of fancy soaps, soap powder, and scented waters. At present, owing to the lack of English enterprise, these articles too often bear the marks of Continental manufacturers. Other articles for which there is now a great opening are lamps, for burning oil of every description, both the cheap and expensive. As bearing out our statements, we may refer to the manifest of the 'Cabenda,' published in our last week's issue. In this one boat alone there were conveyed no less than 1,058 boxes of candles and 3,204 boxes of soap; in addition there were 25 cases of hair oil and 1 case of perfumery."

Tea Seed Oil.

H. H. Mann, B.Sc., F.I.C., the scientific expert of the Indian Tea Association, has issued a report on tea-seed oil and cake. There has been for some time considerable discussion on the value of these products, but the controversy is now set at rest by the report, although, we may remark, the conclusion as to the cake was long ago anticipated by the late Mr. H. McAllum, of Hong Kong. Mr. Mann's investigations show that tea-seed oil is clear, light and yellow, but has always a more or less astringent taste. It cannot safely be used as an edible oil, owing to the presence of saponin, which is a constituent of the seed. For the same reason the tea-seed oil cake is decidedly dangerous as a food for cattle. As a manure it is far behind the other oil-seed cakes of commerce. The oil could be used as a lamp oil, and the cake might be useful as an insecticide. It was attempted in 1885 to put tea-seed, as such, on the London market under the name "Tanee," but the seeds found no buyer, and the price asked sank quickly to a level far below the cost of importation.

Rhimea Wax.

A product called "Vegetable Wax," is furnished by the "Rhimea" tree of Madagascar. It appears in the shape of small irregularly tabulated masses, and adheres to pieces of bark, of a brownish red, coming from the tree. Most of these masses are incrusted with woody and earthy particles, which give it a very unclean appearance; others have a smooth, but dull and greyish surface, column-like, resembling many resins, which harden in the open air whilst running over the surface of the trunks of trees. "Rhimea" wax is fusible at 60° C., completely soluble in boiling alcohol, incompletely soluble in cold alcohol (20 per cent. insoluble). It contains 11 per cent. of vegetable wax. Unlike beeswax, however, it resists decolorizing agents, such as peroxide of hydrogen, hypochlorites, and even weak nitric acid. It might be used as a basis for sealing and modeling wax. The bulk of it melts below 100° C., but a simple
means of separating from it the vegetable and earthy particles which stain it is required. At present the yield is only about 15 per cent. of pure product, but by means of a hydraulic press with plates heated to 90° C., the whole of the resin-wax might be obtained. The separation of the resin from the wax would next have to be undertaken. The wax fuses at 72° C., and hence might serve for candles, but the resin is too dark at present to be used in making varnish.—(Jour. Soc. Chem. Ind.)

In Praise of Candles.

So markedly is the candle going out of use that the dictionary of a few years hence will probably have to supplement its definition with an illustration. In the glow of electric light, gas, and paraffin, we are much disposed to pity our immediate forefathers who had to put up with candles. Yet we retain a strange respect for the candle in certain directions. When we wish to pay the highest reverence we fall back upon it. The death chamber is lighted with candles. So is the church altar. We cannot but be forced also to the conclusion that higher ideas have been thought out, and better matter written, by candle-light than have been, or probably ever will be, by that of gas or electricity.

Shakespeare could not possibly have written all his plays by daylight. Indeed, it is more than probable that the touch of Bohemianism in his composition—as in that of his watered-down literary descendants of to-day—preferred night to day for turning out its best work in. Hamlet’s soliloquy upon the existing value of things, Portia’s tribute to mercy, and the advice to Polonius to Laertes as to the best way of conducting himself in life were probably written between the snuffings of a candle. In particular can one imagine the decisive announcing, and the contemptuous tossing away of the scrap of burnt wick, at the close of the passage hypothetically disposing of “Caesar’s imperial day.” It is possible, certainly, that he and the other great writers, who are themselves by this beyond even the clay stage of molecular transformation, may have written by the light of lamps. But it is not likely. The lamp of those days was not the bright one that we are familiar with. This does not date back more than forty years at the furthest, when paraffin first came over from America to be burnt in it. The animal and vegetable oils in previous use at their best were not up to much, and their best before French improvement in lamp construction at the close of the eighteenth century must have been far poorer still. Candles were handier and more useful. Sir Rodger de Coverley, after seating himself at the upper end of the high table at Squire’s Coffee Room included a wax candle with the clean pipe, paper of tobacco, dish of coffee, and the “Supplement,” called for. And was it not at play, when the house was full, and the candles lighted, that the good knight stood up to look around him?

Who made the first candle no one can say. Like the ladder, it is perhaps, too simple to have been designedly made by one man straight off. It gently evolved itself, like all truly great and useful things. A fire of wood was the first source of artificial light as of heat. It is quite certain, though, that no one read or wrote by it, but more likely flaked flints for spear and axe heads, threaded shells for bracelets, and transformed skins into shoes, leggings and tunics. A flaring splinter, withdrawn for the purpose of searching a dark corner of the hut would offer any easy and a natural first step towards the evolution of the candle. The observant individual in the squatting circle could not fail to have noted that certain kinds of wood gave more light in burning than others. Further action of the slowly convoluting brain would lead to the extraction of the resin and wax as the light increasing elements, and their more scientific use. There is no lack of such candle material in any part of the world to assist this natural assumption of origin and progress. Going to China—as we generally do—for the earliest gleams of civilization in most directions, many of its trees are coasted with vegetable wax, easy of collection by the aid of slight heat. It is inconceivable that such a people as the Chinese did not early use it in the making of candles. Possibly they were the first chandlers, as they were the first printers, and the first of pretty well everything else that in the gross have meant civilization. Or inventive honors may have to be divided with their neighbors, the Japanese, who have an ample store of similar wax in the roots of some of their trees.

If the march of civilization has been to the geographical reverse, the western world in its “wax palm”—the Palmade-Cera of the first Spanish visitors—offered quite as good natural material for candlemaking to its aboriginal inhabitants.

It is just as possible that the first candle was a tallow dip, a toasting scrap of fat on a pointed stick, melting, and catching fire, conveying the needful suggestion. Whatever the first material may have been, thin dry sticks coated with it, in all human probability, represented the first candles. This is supported by the historical fact that Anglo-Saxons use splinters of wood as wick. The resulting candles were rude and smoky, it is true, but they were candles, and meant progress. They added to the comfort of life and its working, waking length. They also gave a strong fillip to the evolution of man’s mental side. It was now possible for him to sit down in comfort after dark, and as he leisurely sharpened his hunting weapons, go over the campaign of the day, and from turning things over, arrange a better for the morrow. In short, he had an inducement to think. In pre-candle days he went to bed. Men with brains
never go to bed early. Candles and brains must thus have been closely co-related. The candle helped the brain, and the brain in turn improved the candle. Cotton rovings took the place of sticks, rushes, and pith, as wick, and the wick was properly gauged to its coating of fat or wax. Dipping gave way to moulding, and combinations of different kinds of wax were made that led up to the perfect candles, by the light of which, clustered in handsome chandeliers, Mr. Pickwick and our grandfathers and grandmothers danced in the Assembly Rooms at Bath and elsewhere. It is rather strange that petroleum, which later so effectually ousted the candle, should have supplied the hard paraffin that was essential in the composition of a perfect candle. The old wax candle softened too readily with the heat, and although paraffin was too hard by itself, mixed with a due proportion of wax, it formed an ideal mixture.

Let us not in our haste congratulate ourselves too vainly upon the extinction of the candle. In many places it is doubtful whether its mild light would not be better than the fierce ones which have superseded it. In station yards, on pier-heads, and in the street, where too much light cannot be got, the latter are undoubtedly the best. Whether they are the best to those sitting up reading, thinking and writing at night is questionable. They give no restful corners in the room such as a couple of wax candles do. The strained eyes lifted from the page have but uniformly bright spaces to rest upon, and find no relief. When candles were in use fewer people wore spectacles. Further, the burning out of the candle was a wholesome hint that gas and the electric light never give, that it was time to go to bed.—“Globe.”

**The Cocoanut Palm.**

is, according to the “Monthly Bulletin of the Bureau of the American Republics,” found in practically all tropical regions, in many places furnishing the principal article of food for the support of the inhabitants. The space devoted to the culture of this most useful tree is estimated to cover 3,000,000 acres. Of this territory, 1,000,000 acres are situated in South America; 250,000 in Central America, and 35,000 in the West Indies. The total number of trees is estimated to equal about 300,000,000, and the yield of cocoanuts between 5,000,000,000 and 6,000,000,000. The culture of the cocoanut has greatly increased in recent years. About 500 of the nuts are required to produce 100 pounds of cocoanut oil, and about 240 for 100 pounds of copra, a preparation of the dried kernel. The residue obtained in the preparation of oil is employed for fodder and as a fertilizer. Large quantities of the kernels are also cut in shreds and dried for use in baking and confectionery. About 40,000,000 nuts are annually employed for this purpose. The hulls of the nuts yield fibres which are utilized for various purposes.

**Portuguese Olive Oil.**

Olive oil of a somewhat coarse and roughly made quality is exported to a certain extent to Brazil. It is quite conceivable, however, that before long Portuguese oil may compete with that coming from Italy for table use. At present it cannot even compete here with the Italian oil used in the sardine packing trade, the latter, owing to the drawback allowed, being bought by the packers free of duty, and most of the tunned sardines are exported. The greater part of the oil made for home consumption and among classes whose taste is not very refined, would be totally unfit for export to the United Kingdom, but some farmers in the North (and more still, I believe, in the South) are profiting by the teachings of the Italian experts, who came out in the employment of the Portuguese Government for the purpose of giving practical tuition in the art of oil-making. Those farmers who are reaping the benefit of this measure are, as yet, not numerous, as routine dies hard. Among other changes being gradually introduced, there is one which, if it does not affect the quality of the oil very sensibly, benefits the olive-bearing trees—namely, the substitution of picking the olives by hand for the old-fashioned system of beating them down from the trees by means of rods.—British Consular Report.

**Soap, Oil and Candle Industry at Salonica.**

Soaps.—The annual importation of Marseilles soaps at Salonica is estimated at 200,000 francs. The sales, instead of lessening, as might seem probable in consequence of the local manufacture, may, as we are assured by competent persons, be considerably extended.

The local soaps, produced principally at Metelin and in Crete, owe their extremely low prices to the introduction of a large quantity of tallow. If the French manufacturers should produce a similar quality, so as to compete with the prices of the local soaps, they would secure a large market at Salonica and in Macedonia. This we cannot too strongly commend to their attention.

The products employed for the manufacture of the local soaps are tallow (396 tons), coming principally from Marseilles and in less quantities from Tries and from Italy; of the soda (total importation, 533 t. 18 s.) 326 tons is imported from England and 182 tons from Antwerp.

Seed oils (total importation, 558 tons, valued at 418,000 francs) come entirely from Marseilles. Italy furnishes almost all of the sulphated oils—1,042 tons, valued at 782,000 francs, out of a total of 1,104 tons, valued at 828,000 francs. The remainder is divided between France and Germany.

Candles.—The sale of French candles at Salonica is insignificant, scarcely a ton out of 219 tons. Holland (114 tons) and Italy (60 tons) are the principal providers. To judge by the figures of importation of French
candles at other places in the Levant, it must be possible to increase this figure greatly.

Olive Oils.—French oils of good brands find a sure market at Salonica, where, however, they are sought for by a limited class of consumers. But we cannot insist too much on the necessity of shipping to Turkey only absolutely pure olive oils. Those containing cottonseed, peanut or sesame oil are rigorously barred at the Salonica custom house. The slightest trace of cottonseed oil is sufficient for confiscation, or at best a return to the consignor. This has often occurred, according to importers, when the olive oils have only been transported in barrels which formerly contained cottonseed oil.

Competent persons have notified the French consulate at Salonica that the importation of fresh butters might be an important movement. Unfortunately, French exporters forward only salted or half-salted butters, and the local consumption calls only for absolutely fresh butter. The merchants of Salonica are therefore obliged to have recourse to Italy, where processes are in use for preserving fresh butter in boxes. Samples should be forwarded to those who have expressed a desire to receive them.—Les Corps Gids Industriels.

QUESTIONS AND ANSWERS

In this column we shall print questions of general interest submitted by subscribers and invite replies to the same from our readers, which will be printed in the next issue of this paper.

Question 1. We have a party willing to put up a new soap plant in this town; he is particular to get in all the latest improvements, but does not care to build too large. Have you cuts showing interior of an up-to-date soap factory? If we remember rightly, we have seen such in the Soap Journal.

Question 2. Please give address of a firm handling lead tubes such as are used for rubber cement.

Question 3. Please give us name and address of the party who was some time ago mentioned in the Soap Journal as an expert on drying.

Question 4. I have made a white (cold) soap from cocoanut and tallow, perfumed with myrbane, but find that the soap turns yellow; when not perfumed with myrbanes it does not turn yellow; but others make such a soap that will keep its white color. Should be thankful for information as to where I am at fault.

ANSWERS.

We invite replies to the foregoing, but meantime would say—

To Question 1: The Soap Journal did contain such a plan, but that was ten years ago and therefore scarcely "up to date"; besides, we have no back numbers of it left that we can supply. The Hersey Mfg. Co. of South Boston, Mass., we think, have such a plan in their catalogue of soap machinery. You will also find much useful information on this point in "American Soaps".

To Question 2: Collapsible tubes are made by A. H. Wirz, 913 Cherry St., Philadelphia, Pa.

To Question 3: We do not recall an expert on drying being mentioned in this paper and, for want of the date, cannot look it up. You might apply to The Garden City Fan Co., of Chicago, or the B. F. Sturtevant Co., of Boston, for information connected with drying by combined heat and machinery.

To Question 4: We await replies from our readers.

To German-American: From data given we cannot form an opinion as to the cause of the white crystals on your soap. The simplest way to remedy the trouble you complain of is to find out through an analysis the nature of those white crystals; when you know this it will be easy enough to take steps for their prevention.—M.

The Game Not Worth the Candle.

The popular saying that "the game is not worth the candle," which has even been quoted by Corneille, is thus explained by Les Corps Girs:

Formerly the lighting up of the house was at the expense of the domestics. When friends were invited to a game, they placed a piece of money into the candleholder, and when the game had been for a little money the gain sometimes was not sufficient to cover the cost of the light. Hence the saying that the game was not worth the candle.

"And that is all that remains to be said on account of the candle! It has lived! It is dead! You are right, friend Pierrot!"

Around the Soap Factories.

Ottumwa, Iowa, is figuring on having a soap factory started within its limits.

A dogfish oil factory is to be erected by Mr. Sowoda, a Japanese gentleman, at Shidgate, B. C.

A company for the manufacture of cedar oil has been gotten under way at Grand Rapids, Mich.

The Anglo-American Borax Co. has been incorporated at Aberdeen, S. D., with a capital stock of $500,000.

We have before us a recent report on municipal subjects made at the end of his third year of mayorality by Lieutenant-Colonel A. E. Nelson, of Grahamstown, Cape Colony. The report interests us in the first place because Mayor Nelson is a soap manufacturer and old-time subscriber of the Soap Journal. It is also interest-
ing as showing many details of conditions in South Africa (Grahawstown being the leading stock market in South Africa). At one time in the Boer war the enemy had approached within a few miles of the city’s boundaries and the citizens had to man the trenches dug for protection to save the city from being taken. Lieutenant-Colonel Nelson is commander of one of the two battalions stationed at Grahawstown. The latter city has been fortunate in comparison with Johannesburg, whence—instead of reports of prosperity—we are receiving back old copies of the Soap Journal sent to subscribers, but no longer deliverable because the parties addressed are not found.

The Chicago city fathers are once more after the rendering plants, an ordinance having been presented to the council restricting the area in which fat rendering may be carried on.

The soap factory operated by the firm of P. C. Tomson & Co., at Philadelphia, has been destroyed by fire.

J. Lederer & Co. will manufacture soap in New Haven, Conn. Lederer & Wolfe have been in the business for a number of years.

P. R. Dreyer succeeds the firm of J. C. Dichl & Dreyer of New York, which has been dissolved.

Anton Heuseler, Milwaukee, was convicted of counterfeiting the labels of the manufacturer of Johan Maria Farina Cologne in this city October 23, and fined $44.73 and costs. The complainant in the case were Schieffelin & Co., of New York, the American agents of the manufacturer. The labels used by Heuseler were printed by a local printing house, and by order of the district attorney these were destroyed along with the goods, upon which they were used, as also the plates from which the labels were printed. Heuseler was convicted on a similar charge in November, 1899.

Tiffin, Ohio, is to have a soap factory to be operated by the Ehrenfried Soap Co.

Scholze Bros. & Co., at Chattanooga, Tenn., are reported as erecting a new slaughter house. "Turn about is fair play."

The olive growers of California will meet on the 6th of this month to arrange for common interests in the matter of marketing olive oil.


A large deposit of Fuller’s earth is said to have been discovered near Denver, Colo.

We read in the National Provisioner that Swift & Co. made a delivery of soap in New York City the other day, which required a procession of fourteen teams. After parading the streets of the city the procession disbanded each wagon going on to its respective destination.

Mr. W. M. Gossage, soap manufacturer of Widnes (England), has been requested by the town council to accept the mayoralty for the coming year, to which he consented. His father was the first mayor of the borough.

Mr. Chas. J. Cross, of London, the prime mover and one of the chief organizers of the Soapmakers’ Association of England, and for thirty-five years its honorary secretary, some time ago decided to withdraw from that office in order to let a younger man take the position. The association has throughout these years been deemed one of great usefulness, largely due to Mr. Cross’ efforts and on his withdrawal a meeting was called, in the course of which the retiring secretary was presented with a cabinet of silver spoons and forks and a very handsome silver loving cup, suitably inscribed in recognition of “grateful appreciation of his very valuable services as secretary, cheerfully given for over thirty years.” The testimonial was subscribed to by thirty firms, many of whose names are familiar the world over.

We take a personal pleasure in recording this occurrence, as we have had repeatedly the benefit of Mr. Cross’ helpful kindness of disposition to which we owe, among other advantages, quite a number of subscriptions to the Soap Journal in England.

We hear that a considerable shipment (1,000 boxes) of soap has been consigned by the Procter & Gamble Co. to Manila.

The Brooklyn Glycerine Mfg. Co., through a fire starting in the boiler room, sustained a damage last month estimated at over $25,000.

Franklin, Pa., now boasts of a large modern brick soap factory which has been erected and equipped during the past summer by the Sibley Soap Co. It is situated on French Creek, opposite the Galena Oil Co., and in size and appearance is a creditable addition to the city’s many industries.

Crofts & Reed, of Chicago, are building a large addition to their works, and will soon have it ready for occupancy.
PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.

685,084. Soap cutting and spreading machine. Frederick N. Arnold, Jr., St. Louis, Mo.
685,011. Washing-rubber. Louis C. Gerken, New York, N. Y.

TRADEMARKS.

37,228. Washing-powder. John W. Hussey, New York, N. Y. Essential feature.—The word “Bealearner” and a ring.
37,256. Toilet articles, essences, oils, waters, powders and soaps. A. Raymond & Cie, Paris, France. Essential feature.—The words “Violettes du Czar.”
37,257. Toilet extracts, essences, oils, waters, powders and soaps. A. Raymond & Cie, Paris, France. Essential feature.—The word “Oriza.”
37,271. Eau-de-Cologne, soaps, waters and lotions for toilet purposes. Naamloze Vennootschap Eau de Cologne Fabrique Voorheen J. C. Boldoot, Amsterdam, Netherlands. Essential feature.—A prominent inner border enclosing a panel and an outer broad ornamental border composed of the representation of a vine with the representations of swans.
37,272. Eau-de-cologne, soaps, waters and lotions for toilet purposes. Naamloze Vennootschap Eau de Cologne Fabrique Voorheen J. C. Boldoot, Amsterdam, Netherlands. Essential feature.—The representation of a cathedral, with its dome shown in finished and unfinished condition, respectively, associated with a view of the city of Cologne and the representation of a woman and chemical appliances and a woman gathering flowers.
37,273. Toilet and laundry soap. The Cudahy Pack ing Co., Chicago, III., and South Omaha, Neb. Essential feature.—The word “Cudoma.”

The Markets.

Tallow.—New York markets, city in hhd, 5c, with 6c asked; country, 5c@6c, as to quality. Western markets, prime packers' 61c@62c; No. 1 fair runners', 51c.

Grease.—New York, A white, 60c@61c B white, 51c yellow, 45c@5c; bone and horse, 5c@51c. In the West A white, 51c, B white, 51c, yellow, 42c.

Cotton Oil.—Has advanced in the South, where large sales, notably to western packers, caused a feeling of excitement. New York, prime yellow, 35c, with 36c asked for December delivery; white yellow, 38c@39c; white, 38c.

Corn Oil.—51c@51c, as to quantity; 51c asked for car lots.

Cocanut Oil.—Ceylon firmer, 7c@7c; Cochin, 8c@8c.

Olive Foots.—Sales reported at 51c for spot.
Palm Oil.—Firmer; 51c for red and 51c for Lagos; palm kernel oil, 61c.

Saponified Red Oil.—6c@61c.

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Onto 364

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The attention of our readers is called to the column of

“WANTED” AND “FOR SALE”

advertisements on another page. Manufacturing firms looking for intelligent up-to-date help, or who have second-hand machinery they wish to dispose of, and practical men experienced in any branch of manufacturing chemistry looking for employment, can mutually profit by using this column.

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Our special thanks are due to the writer of “The Invention of a New Soap Brand” for having refrained from the old allusion to “What’s in a name?” or making puns about “brand-new brands” and other flippant introductions which mar so many newspaper articles.

The little item in our last issue, regarding the many different tastes of our subscribers whom we are endeavoring to please in the selection of our reading matter, instead of settling the argument, has had rather the opposite effect, for last month’s mail has once more brought us a number of suggestions from subscribers. As these indicate to us the actual desires of readers, they are always welcome and will have the fullest consideration possible. It must be understood, however, that these suggestions are sometimes diametrically opposed to each other. Thus, a few months ago, a valued reader suggested that we did not “devote enough space to the soapmakers’ association,” while last month another subscriber wrote that, “associations are all right, too much becomes tiresome” and desires to give special attention to the manufacture and chemistry of soap. Opposed to the latter is a third letter, requesting us to see to it that the less learned, older readers, might find a little more in the paper to interest them.

As stated, we are pleased to learn of the wishes of our readers and shall aim—as nearly as we can manage—to satisfy all.

Our esteemed contemporary, Oils, Colors and Dry-salteries (England) contains a query, saying: “The names of the manufacturers of the “Kitchen” brand of soap are wanted by a foreign firm.”

Presumably it is an English make that the enquirer is endeavoring to trace, but, as this is not necessarily so, we would say that in this country there are listed: “Kitchen” and “Kitchen Mineral,” made by the Capital Soap Co., Sacramento, Cal.; “Kitchen and Hand,” by Chas. F. Bates & Co., Boston; “Kitchen Castle,” by Jas. S. Kirk & Co., Chicago; “Kitchen Crystal,” was registered in the name of Benj. Brooke & Co., of Philadelphia; “Kitchen Gem” by the Seattle (Wash.) Soap Co. In addition there is in Australia a soap firm of Kitchen & Son, whose brands may be the ones referred to.
A new edition of our complete brand list is now in the hands of the binders, and by the time this paper reaches our subscribers it will be ready for delivery (at the same price at which former editions were sold, i. e. $3.00 postpaid, payable with the order). New brands are accumulating at a rate which makes it feasible to publish a new edition only once in several years, the list being kept "up-to-date" in the interval by the supplement regularly published in the Soap Journal. We have been practically forced to bring out this new edition at this time by the very urgent demand for it on the part of a number of soap manufacturers and by the increasing number of requests to look up in our office brands for such of our readers as failed to obtain one of our lists published in 1899. In view of the foregoing we desire to impress upon all readers the fact that—not being able to tell in advance how many copies of the list will be sold—we cannot print and bind more than what seems to us a reasonable number of copies, and those who put off obtaining a copy until they are greatly in need of it, may find that by that time our edition will have been exhausted.

As those who have the 1899 edition (the last one) of this list may want to know how much this new edition differs from it, we take this opportunity to say that a number of discontinued brands have been taken off the list, but new ones have been added to such an extent that the new edition contains between 600 and 700 more brands than did the list of 1899.

Out of 140 pages of the last edition, 134 pages have undergone more or less extensive changes, numbering as many as 20, 25 and even 30 changes on a single page. The total number of brands listed is considerably above the 5,000 mark.

Ever since the list of 1899 appeared, this brand list has again been kept corrected every month—we might say every day almost—and we feel certain that it is as correct as any such list can be made. For the past few months we have made a special effort to secure additions and corrections, and altogether the list now represents over twelve years of work, equalled probably in hardly any similar undertaking.

And don't forget to send in any of your new brands hereafter, to be published in our supplement to the complete list.

It is almost incredible that in these days a patent should be granted in England (even if the patentee is an Egyptian) for a soap made as follows: "Suitable proportions of cotton oil and flour are mixed together, alkali is added and the whole mixture left to rest. There may be also added silicate, alum, tallow, coccus nut oil and a suitable perfume." Who would have thought it?

One good turn deserves another. When you read in The Soap Journal this or that article contributed by a subscriber, on a subject which interests you, it may be a graceful act if you write us a few complimentary remarks about such articles, and it may be natural that you should want to urge us to print more articles from the same writers. But, from our past experience, we think it proper to state that we are indebted for these articles to nothing on earth except the good will of the writers, and—one good turn deserves another. A reader who finds the contributions of others useful should feel it incumbent upon him to reciprocate in kind. In this way only can the interest of writers be maintained permanently.

Between holidays, strikes, break-down in composing room, fire in print shop, late arrival of important news, extra work in getting out brand list, overwork in bindery, and sundry other delays, The Soap Journal has been repeatedly prevented from appearing promptly on the first day of the month. We are hard at work to overcome these conditions in future and—have strong hopes of succeeding.

We learn with pleasure that the Hersey Mfg. Co., of Boston, has received an order for quite a little machinery to fit out a plant in Europe to make soap after American methods. We do not feel at liberty to give further details at this time, but cannot help rejoicing that American methods should enter European soap factories even as they have other industries. American soap-making machines have been shipped to Europe before this, but an outfit for making soap after our methods entirely has not previously been sent there, so far as we know.

It is scarcely necessary to add that a copy of "American Soaps" and subscription to the Soap Journal were among the articles deemed useful by the enterprising firm across the water.

Although late, in so far as newspaper work under ordinary circumstances demands greater promptness, we cannot refrain from making mention here of the decease of Mr. Anthony Van Hagen. The death of this veteran soap maker occurred some time ago, in Philadelphia, but his previous withdrawal from active work and the retired manner in which he lived thereafter, conspired to keep the fact of his demise from becoming more widely known at the time. There are undoubtedly many in the business to-day who have not known Mr. Van Hagen and who may even see his name mentioned for the first time on this occasion. But there are also those in the soap manufacturing business (who have been identified with it for many years) to whom the name
means a great deal, who admired and loved the man, and who will sadly miss him. Our acquaintance with him extended only to a correspondence at a great distance (he was then in Mexico), in which he proved himself a gentleman of unusual accomplishments, and it is from mutual friends that we learned some further details of his life. Forty years ago he was a leader in all that was concerned with soap making; he is credited not only with certain patents regarding the manufacture of soap, but with having been the inventor of certain further improvements in soap making which were not patented but endured so well that they are in universal use to this very day, although few may stop nowadays to wonder who first thought of these. By those who knew him more intimately he is referred to as an intellectual giant who left the mark of his genius on the art of soap making as we have known it for almost half a century. He had a long, active and useful life that entitled him to greater honors than were his portion in his declining days. It is these facts that now impel us to write these lines, although circumstances conspired to delay even this feeble tribute to one whose name should always remain honored by the trade in this country.

The Separation of Potassium

from mixtures of alkalies may, according to C. Reinhold (Pharm. Zeit.), be effected by means of sodium picrate. Potassium picrate is relatively very insoluble in water, dissolved in the proportion of 1 to 160. The picrates of ammonium, caesium and rubidium are also only moderately soluble in water; and these bases interfere with the picrate test for potassium. This does not, however, destroy the value of the test for ammonia may be removed in the usual way while caesium and rubidium are of rare occurrence. If sodium is present in the mixture in the form of carbonate, this must be converted into the chloride by the addition of hydrochloric acid before applying the picrate test. The reaction is accurate within about .5 per cent. K.

Unsettled Settled Soap.

The answers to an inquiry which appeared in the September Journal show that nigre is sometimes found in closed or mixed with settled soap, and that some of the theories advanced in explanation of this abnormal and undesirable condition are rather vague indeed. We are not aware to what extent and how frequently this trouble occurs, but are inclined to believe that, aside from mere traces of lye and nigre which may be detected in all settled soaps, and which are due to the action of physical forces beyond our control, as will be explained further on, the finding of any considerable or large quantity of nigre mixed with the soap, is due to accident and may be traced direct to some external factor; for instance, to steam or water forcing its way into the kettle through a leaky valve, and thus keeping the nigre in a state of commotion. This has happened to us, and is the extent of our actual experience with nigre in considerable quantity mixed with settled soap. As will be seen, this case just cited was due to direct opposition of an external physical force to the efforts of the nigre to go to the bottom in obedience to the laws of gravity. There may be other causes for nigre refusing to separate and precipitate properly; causes due to faulty operations and manipulations in saponifying the stock, and particularly in the operation of finishing the soap, but we believe such cases are very rare, and in the treatment of this subject we will confine ourselves to tangible and comprehensible causes and effects based upon physical laws alone, leaving the abstruse, evanescent and mystical to minds of broader scope and deeper penetration.

Our experience with nigre in settled soap being limited to one case which was traced to a leaky valve, we apologize to the reader for presuming to write upon a matter we know so little about; however, the importance of the subject, relating as it were, to a contingency which may and does arise in the manufacture of our national soap, coupled with an earnest desire to expel that ambitions and overbearing nigre if possible and put him where he belongs, may, we hope, be accepted as a satisfactory excuse. Our deductions and conclusions are of necessity, and for reasons stated, derived from observations and experiment, principally from observation of the phenomena attending a beautiful little experiment, entirely practical and pertinent to the subject under consideration, which we will now explain and hope many of the readers may repeat, assuring them that the entertaining and instructive features of same will amply repay them for the time devoted to it.

Take a 16-oz. glass beaker, one of the deep variety, which will measure about three inches in diameter and four and one-half inches in depth; pour into this 100 grams water, color to a deep claret with one-half gram darkest caramel (burnt sugar) and add 200 grams of any convenient vegetable oil, preferably castor oil, which, owing to its high specific gravity, comes nearest to the specific gravity of settled soap. The reader will observe that our beaker is just about the shape of a soap kettle, whilst the oil and the colored water underneath answer very well our purpose in lieu of a batch of settled soap with its nigre; and the beauty of it all, is that the entire outfit is perfectly transparent, and every action within this transparent soap kettle is clearly visible during and after the operation of boiling, and may be repeated and studied at leisure. Having charged the beaker, place it over a Bunsen burner, bring the contents to a gentle boil and
observe the beautiful phenomena that will be presented to the view, during the boiling, and particularly after the flame is turned off. First, after this, the colored water will continue to boil actively for a minute or two, ascending to the top of the oil in large and small globules; after this action has ceased, the many bubbles on surface of the water will gradually burst, emitting a white vapor or mist, which, rising slowly in the oil, dissipates before it reaches the surface, very like the mist arising from a body of water on a cold morning. In a few minutes this action is over, and is now succeeded by a display of tiny hot-air bubbles, ascending and descending for an hour or more with gradually decreasing speed and frequency, reminding the observer of a display of pyrotechnics or a fall of leonides. Sometimes bubbles partly filled with the colored water will ascend and remain at the surface, or attach themselves to the sides of the beaker, or a thin pellicle, due very likely to albuminous matter in the oil, will cover the water, and by the action of the heat underneath, will rise and extend up into the oil in the form of miniature icebergs capped with silvered beads. These and many more ever-changing little things of beauty, will interest and entertain the observant experimenter and lead to deductions eminently applicable to the actions that take place in the soap kettle. He will note that, by boiling in a vessel two liquids of unequal specific gravity, the heavier will of course go to the bottom, but by the action of heat applied, it is ejected upward and mingled with the lighter body. After turning off the flame, the action of the heat enclosed in the liquids, continues to impart motion to same for a long time, exemplifying the axiom “heat is motion.” Even after we can detect no further motion of the contents of the beaker, because of the absence of bubbles, it is reasonable to suppose that motion continues in lesser degree until the increasing viscosity of the oil puts a stop to it; but even then, the endeavor inherent in all compound substances to separate into their constituent parts (crystallize) takes place, and molecular motion continues, although imperceptible to our senses. We can deduce with certainty from this little inexpensive experiment that small bodies of lye and nigre are impelled upward by the heat in the soap kettle many hours after the steam has been shut off, and more or less of these will be finally arrested in the thickening soap and found inclosed therein. These are the traces of lye and nigre mentioned in the beginning. We can also infer with the same certainty that soap in the most favorable condition for precipitation of the nigre, will contain the fewest traces of same, and that the greater the specific gravity of the nigre, the quicker will it separate from the soap and go to the bottom. Finally, we will find by making a number of these experiments under variable conditions, that by longer boiling, the albumen which is present in a greater or lesser degree in all fats, will be coagulated and thrown off, resulting in a clear product, whilst if the boiling is of but short duration, it may become turbid and remain so. These and many more facts and probabilities will be suggested to the experimenter, and Dr. Gathmann will be pleased to hear the reports and publish them in the Journal for the benefit of the soap-making fraternity.

In conclusion we wish to refer to the accompanying cut, which is a half-tone one-half the actual size of a sample of settled soap obtained from one of a series of experimental batches made last summer (when cocoanut oil was obtainable at a favorable price) for the purpose of determining to what extent this oil might be employed advantageously in the manufacture of settled laundry soap containing rosin. For this particular batch we used 30 pounds tallow, 10 pounds cocoanut oil and 16 pounds rosin boiled and pitched in the regular way, and left soap in kettle to chill. The density of the clear lye under the nigre was 11½ deg., the alkaline strength being equal to about 2 deg. This soap, like all the rest of the series, took the filling (35 deg. carb. soda sol.) readily, but was deficient in firmness. A small percent of common salt added to the filling, improved the hardness at the expense of threatened dissociation. The sample represented by the illustration was cut from the kettle in a way to show the full depth of the soap and nigre, which is attached to it. The sample was shaved down smooth with a straight-edge after cutting with wire, in order to bring out clear and sharp the mottled appearance of the surface, which the photographic reproduction has done to a surprising degree, having, as it seems, exaggerated the faintest lye and nigre spots to a remarkable conspicuousness. We regret that owing to the darkness of the picture, due to the photographer’s desire to emphasize the spots and lines and shades on surface, the
picture looks like a bar of tar soap, whilst in the original, the soap is of a pale straw color, and the nigre below, which is sharply defined, is a dark chocolate color. The light spots near the top are particles of foam which failed to reach the surface before the soap chilled, and the spots just above the nigre line, are those produced by particles of lye and nigre that failed to reach the lower stratum in their downward course. The light spots at bottom of the nigre are crystals of common salt. We wish to call particular attention to the mottling in body of sample, which has the usual striated form, running up and down in the sample. After observing the action in beaker before described, it is plain that the motion of the soap due to the heat it contained, continued to a period when crystallization had already begun, which in consequence was interfered with, resulting in a mixture or intermixture of the crystalline and amorphous parts of the soap, giving to it that particular form known as mottle. This property of soap, to crystallize at a high temperature, and while still quite fluid, may be taken advantage of in directing the mottle to assume regular and even artistic forms. Thus, the Germans make a “Mandel-seife” (almond soap), a boiled-down soap, through which, after it has been dipped into the frames, a rod is drawn lengthwise and crosswise of the frame, with a twist of the arm in passing along, producing a peculiar form of mottling, which, when the soap is cut, might be compared to the form of almonds, by a very liberal stretch of the imagination. However, we have caused the mottle to form regular and well-defined figures by placing a wire screen, held in an iron frame, in the bottom of the soap frame, and after the frame is filled, drawing the screen up through the soap by the handles attached to its frame. This operation will even produce a faint mottle, corresponding to design of the screen and resembling the “water-marks” in writing paper, when performed in ordinary settled soap filled in the regular way. Apologizing for this digression from the subject-proper, and hoping the foregoing lines may shed some light on this dark question, we look forward with pleasure to a further discussion of this interesting topic in these columns.

A. & C. MELZER.

Evansville, Ind., Dec. 26, 1901.

The Invention of a New Soap Brand.

Written especially for the American Soap Journal.

In bringing out a new soap, the naming of the newborn aspirant for popularity is always a matter of deep concern, not rarely of superlative importance, and sometimes actually the principal point about the whole coming-out celebration. It is even conceivable that now and then the new name may have been the only novelty about the “new” soap. If for these reasons the finding of a suitable name is a serious problem confronting every maker of soap from time to time, it has not been rendered easier by the enormous and ever-increasing list of names already appropriated. Time and again the perplexed soap manufacturer thinks of a pretty, enticing, gorgeous, fetching and altogether appropriate name, only to find out, on consulting the list of old names, that he has been forestalled by some other, earlier explorer of this wilderness. This is so emphatically true that the finding of a new and suitable name has really become a positive difficulty, as will be testified to by many a manufacturer, and as further shown by the circumstances that every now and then the Soap Journal has been appealed to for a list of available names from which the correspondents might make a selection.

Under these circumstances the thought suggests itself that the search for a new brand might with advantage be conducted in a systematic manner, just as Columbus went about discovering a new country. Instead of jumping at haphazard, now here and now there, arriving nowhere in particular, the seeker after a new name is apt to reach a useful result much more promptly if he start out along definite lines and according to a well-arranged plan; that is, barring a sudden inspiration which may flash upon him quite unexpectedly and deliver over to him in a moment the coveted prize that so far eluded his most painstaking search. Having no sure method of catching the inspiration, and as the latter may not be depended upon anyway, the writer has devised the following guide through the intricacies of this labyrinth, hoping to have produced something really capable of assisting in tracking down the useful names that have not yet been caught and brought into service.

As a preliminary explanation I would remark that the following plan is based on a careful study of the about 5,000 brands already in use (as collected in the list published as a supplement to the Soap Journal), the idea followed being that the brands chosen in the course of years and years, many at a time when almost all the words in the dictionary were still open to all, are best calculated to show what sort of a name is generally deemed desirable. It is along these desirable lines that we must look for our undiscovered names.

Just when for the first time a certain soap was distinguished by being sold under a distinctive brand, the writer does not profess to know or care; suffice it to point out that for over twenty-five years hundreds of sharp-witted minds have thought and thought, in order to select the most suitable designations for their soaps, and it is reasonable to assume that no avenue leading to desirable names has been left quite unexplored, so that in order to find new words there can be no way as good — always barring the aforesaid inspiration — as to follow up the divergent tracks of our predecessors. Let us then study the map which shows the roads, so to speak, by which previous brands have been secured; in other
words, let us classify all the known brands into certain groups and by their study find our way to a systematic search for new ones. If you don't think this method a good one, all you have to do is to studiously avoid any brand that might come under any of the classifications noted further on, and thus evolve something entirely original. You can use this guide either to follow or to avoid certain well-worn paths, and thus make it useful either way.

And now for the geography of our hunting grounds. As stated, we propose to classify all known brands into certain groups; thus we shall find a group containing the names of animals, and in it we shall find the soap brands: alligator, badger, bear, bee, black bear, black crow, blue goose, buffalo, bull, bull-dog, busy bee, butterfly, etc., etc. If such names take your fancy, it will not be difficult to find the name of some animal or other that is not yet used; if you don't fancy such names you can pass by this group and take up another. And that is the milk of the oceamun. Whether you prefer something witty in the name, or something mysterious, or wish to allude to some ingredient (supposed or real) in your soap, or wish to tickle the fancy or prejudice of a certain class of consumers, or to slily insinuate the magic virtues of your soap, or whatever may be your idea of an eligible brand, you will find in the following classification representatives of all these kinds and many more.

Like everything else of this world, this classification has its imperfections, but they are not serious. For one thing some brands fit into more than one of the groups into which we divide all, as for instance, the name "All Around Borax" belongs in the group "Pointing to Uses" on account of the words "All Around," and also into the group "Suggesting Special Ingredients" on account of the word "Borax." Such combinations you can also adopt, if you like. Similarly the name "Buffalo" is grouped under geographical names as well as under animal names. On the other hand, certain brands proved unclassifiable, simply because the name conveys no meaning whatever that the writer is aware of, as for instance the words: Atata, Bozena; these have been placed by themselves into the last group of our classification.

In every invention, whether of a machine, a process, or a new name, one of the prime requisites in an early part of the proceeding, is to know what has been previously invented in the same line, in order to avoid inventing an old thing over again or inventing something that is less perfect than what already exists; for that reason the writer should have been glad to name under each of the following groups all the brands on the market belonging into that group, as that would have enhanced the usefulness of this article. But with over 5,000 brands in the field, many of which would have to

be named in more than one group (vide remarks on "Buffalo" above), this is out of the question, for it would fill several issues of the Soap Journal. So I must refer for that purpose to the complete list of brands published separately by this Journal.

But to illustrate just what each group includes, and the approximate extent to which each has already been laid under tribute to raise our present large crop of soap brands the worker has very carefully gone over all those thus classifying over 1,000 brands—sufficient for nearly all purposes—and has named below all these brands in their respective groups.

And now for our classification.—First of all we have brands that attempt to designate more or less clearly the character of the soap, and others that make no such attempt. The latter either consist of some geographical or some botanical word, or they have names appealing to certain sentiments of the prospective buyer, or they are arbitrary, fancy appellations, or, lastly, they are "unclassifiable." These are our five grand divisions, each of which may be further subdivided, i.e.

**Grand Divisions:**

A: Brands Designating Character of Soap.

a) As to Ingredients:
- Group 1: As to fat.
- Group 2: As to perfume (See also botanical names in group 16.)
- Group 3: As to special ingredients.

b) As to general quality:
- Group 4: Suggesting good quality.
- Group 5: Suggesting superior quality.
- Group 6: Suggesting special physical character.
- Group 7: Suggesting hygienic or cosmetic value.
- Group 8: Suggesting effective action.

c) As to cheapness, selling qualities, etc.; Group 9.

d) As to special applicability for certain purposes; Group 10:

e) As to origin. (See also group 14.)
- Group 11: Names in English.
- Group 12: Words from foreign languages. (See also group 25.)
- Group 13: Referring to maker or inventor.

B: Geographical & Botanical Names.

a) Geographical Names.
- Group 14: Suggesting origin from certain locality. (See also group 11.)
Group 15: Not suggesting the origin of soap.

b) Botanical Names. Group 16.

C: Words Appealing to Certain Sentiments.

Group 17: Complimentary to women.
Group 18: Appealing to tender sentiments.
Group 19: Referring to condition or occupation of consumer.

(For brands appealing to nationality or to local patriotism, see groups 11, 12, 14, 15.)

D: Arbitrary and Fancy Names.

Group 20: Names from history, fiction, mythology, the stage.
Group 21: Animal names.
Group 22: Inanimate objects.
Group 23: Familiar expressions, plays on words, etc.
Group 24: Scientific and pseudo-scientific words.
Group 25: Words from foreign languages. (See also group 12.)

Group 26: Alluding to current events.

E: Unclassifiable. Group 27.

* * * * *

It now remains only to give in the following the examples before-mentioned, comprising all the known brands which begin with the letters A, B, and C. They do not make very interesting reading by themselves, but will be quite useful when you start gunning after a new brand; it might be suggested, therefore, that the list be preserved by the reader for future emergencies. (The abbreviation "i. v. c." is used to signify that the brand named is used "in various combinations" not specially enumerated, as "Almoni" Cream, "Almond" and Roses, "Almond" Glycerine, etc.)

Group 1. Brands designating fats used in soap: Alderney Cream; Almond, i. v. c.; American Olive; American Turtle Oil; Amole Cream; Butter of Almonds and Roses; Cacao Butter; Camphorated Cream; Caustic Petash; Whale Oil; Celery Cream; Chicago Beef Tallow; Coal Oil; Cocoa i. v. c.; Cocos Nuss Oel Seife; Cream i. v. c.

Group 2. Brands designating perfume used. These brands are contained almost without exception in group 16, to which the reader is referred. The only exception is the brand Civit Oil, which belongs properly into group 2.

Group 3. Brands designating special ingredients: A-1 Tar; All Around Borax; Almond Meal; Alum; American Honey; Oatmeal; American Wax; Ammonia; Ammonia-Borax; Ammonia Turpentine; Ammonia Compound; Ammoniated i. v. c.; Ammonia with Arica; Amole, i. v. c.; Anco Tar; Angora Borax; Arica; Anti-Freckle Buttermilk; Antiseptic Cinchonia; Anvil Pumice; Arabian Glycerine; Arica; Asbestos; Asbestos; Balm of Gilead; Balsam i. v. c.; Bath Borax; Bay Rum; Bee Honey; Besson Wax; Benzine; Benzo-Derma; Benzoin; Benzole; Black Crow Tar; Black Kid Pine Tar; Blue Borax; Blue Grass Buttermilk; Bora-Ammonia; Borax; Borax; Borax; Borax; Tar; Bran Mash; Bromine; Brown Wax; Bull Dog Tar; Butter-milk i. v. c.; California Citrus; Calif Tar; Camphor; Camphor Ice; Canada Tar; Carbol; Carboulacene; Car-bolic i. v. c.; Carbolne; Carbolized Iodoform; Carolina Tar; Cascarilla; Ceraleam Tar; Chloridine; Chlorine; Clabber; Clipper Glycerine; Cold Cream; Congress Sand; Corn Meal; Corn Milk; Crystal Salicine; Cucumber i. v. c.

Group 4. Suggesting good quality: A-1 Tar; Absolutely Pure; Active; Advance; Al-dine; All Right; Alto; Ambrosial; American Standard; A No. 1 Chemical Olive; Aurora; Bijou; Bon-Bon; Bon Ton; Boomer; Bouncer; Brilliant; Carara; Capital; Capoul's Favorite; Celebrated i. v. c.; Charm; Charmant; Cheerful; Cherub; Choice; Cinch; City Talk; Clearwhite; Comfort; Common Sense; Confidence; Cosmopolitan; Cosy; Cracker Jack.

Group 5. Suggesting Superiority: A Better; Above All; Acme i. v. c.; Admiral; Advance; Alpha; American Peerless; American Queen; American Standard; America's Favorite; Apex; Banner; Barber's Favorite; Barbers' Own Shaving; Beacon; Beat M All; Bell Cow; Best; Best American; Best-Best; Best Country; Best Extra; Best of All; Best on Earth, etc., etc.; Big Boss; Big Chief; Big Gun; Big King; Blue Boss; Boss; Capitano; Captain; Cardinal; Celebrated Champion; Challenge i. v. c.; Champion; Champion of the West; Chief; Climax; Commodore; Commander; Corona; Creme de la Creme; Criterion; Crown; Crown of All.

Group 6. Suggesting some special physical character: Agate i. v. c.; Alabaster; Alba; Albino; Almond Floating; Amber; American Mottled; Anchored; Aromatic; Assorted Ovals; Assorted Panel; Artistic; Bevel Edge; Big Foamy; Blue Soap; Brush; Carara; Cocoa Floating; Columbian Transparent.

Group 7. Suggesting Cosmetic and Hygienic Value: Almond Meal Complexion; Anti-Freckle; Aristo Complexion; Babeskin; Baby; Balsam Complexion; Beauty; Beauty Balm; Belle's Hygeia; Benzo-Derma; Blush; Boncuti; Buttermilk Facial; Buttermilk Skin; Ciras-sian Complexion; Complexion Bath; Cream Complexion; Cucumber Facial; Cura Regia; Cuti Complexion; Cutieura; Cutiearina; Cuti-Medico.

Group 8. Suggesting Effective Action: Active; Already; Amazon; American Bleacher; Anti-Rub; Anti-Washboard; Argand; Auto; Blecleaner; Blancho; Blanco; Bleacher; Blitzen; Blizzard; Busy Bee; Cannon Ball; Celebrated Champion; Chinaman's Secret; Clark's Wonder; Cleanall; Cleaneasy; Cleaner Right;
Cleanola; Cleanora; Clean-Quick; Clean Sweep; Clean Up; Clean Well; Clean Work; Clearene; Clearwhite; Cleenzene; Clothes Cleaner; Clothes Wringer; Comfort; Cracker Jack; Cyclone.

Group 9. Referring to Cheapsness and Selling Qualities: Bargain; Bath Size; Big i. v. e.; Bananza; Boomer; Bouneer; Centennial Poor Man's Soap; Cents and Sense; C. O. D.; Coin; Colonial Chunk; Colossal.

Group 10. Pointing to Distinct Applications: Albi Denta; Alkali Water; All Around Borax; American Bleacher; American Laundry; Ammoniated Bath; Ammoniated Laundry; Animal; Animal's Friend; Anti-Freekle; Arabian Bath; Aristo Complexion; Arnica Tooth; Babeskin; Baby; Balsam Cream Shaving; Barbers' Bath Borax; Bath King; Bath Queen; Bath Size; Bay Rum Shaving; Belfast Toilet; Belt; Bleacher; Blue Ribbon Toilet; Brush; Buttermilk Facial; Calico; Cambric; Car Cleaner; Carpet; Castle Toilet; Cherubine Bath; Chichio Shaving; Chinese Laundry; Circassian Complexion; Clipper Harness; Clipper Shaving; Clothes Cleaner; Club Bath; Cocoa Hotel; Coldwater; Colliery; Complexion Bath; Cotton Softener; Cream Shaving; Cream Tooth; Cream Toilet; Crystal Seaturing; Cudahy's Domestic; Cuti i. v. e.

Group 11. Pointing to Origin (in English Language). [Compare also groups 12, 13, 14, 15]: America; American i. v. e.; America's Own; Beneficine; Bohemian Family; Bohemian-Polish; Cafeinricine; Cairo Family; Cairo Mottled German; California i. v. e.; Canton; Cape May; Carolina Tar; Cashmere; Castile i. v. e.; Castile; Ceylon; Chinese; Chinese Rice; Cinemaita.

Group 12. Foreign Words Pointing to Foreign Origin: Amaryles du Japon; Aneome de France; Cald Mille Faithe; Ceske Jadrove; Ceske Mydlo; Ces-Polskie; Chechhskta Midla; Cocos Nuss Oel Soda Seife.

Group 13. Indicating Maker or Inventor: Almalga; Andrews'; A. N. Hoxic's; Armour's; Aumale's; Barrow's Oleene; Benoh's Favorite; Belle's Hygeia; Bentley's; Bernett's Best Oleine; Blom's German Motted; Bogue's; Bonner; Brooke's Crystal; Brown's Tar; Bryant's Washing Compound; Buchanan's No. 111; Burke's Magic; Carmel; C. C. Co.; Central's; Clark's Wonder; Coltage's; Conway Bros. Best Borax; Castillia, Jr.; Cudahy's Soap.

Group 14. Geographical Names Suggesting Origin of Soap or Certain Ingredients: [See also group 11]. Amarylles du Japon; America; American i. v. e.; American Castile; Anemone de France; Arabian; Aurora Belle; Austrian; Belle of Detroit; Belle of La Crosse; Bells of Florida; Buff City; Bohemian i. v. e.; Boston i. v. e.; Bouquet de Paris; Brussels White; Buckeye; Buffalo; Butte; Cairo; California i. v. e.; Canada Tar; Canton; Carolina Tar; Cashmere; Castile i. v. e.; Celebrated German; Ceylon Castile; Charleston; Chicago i. v. e.; Cincinnati i. v. e.; Circassian; Cologne; Colorado Star; Congo; Cream City.

Group 15. Geographical Names Hardly Intended to Indicate Origin: Abingdon; Adirondack; Aix la Chapelle; Albion; Acoma; Alhambra; Alpine i. v. e.; Amazon; Anglo-American; Anglo-Saxon; Angora; Arctic; Argyle; Bay City; Beach's Northwest; Beatrice; Belfast; Belgravia; Bell Rock i. v. e.; Bengal Castle; Bermuda; Bermuda Star; Blue African; Blue Bells of Scotland; Blue Grass Belle; Blue Danube; Blue India; Blue Indiana; Blue Mexican; Blue Mountain; Bluff City; Brighten Family; Brown Windsor; Caledonia; Cape May; Ceylon Red Letter; Chautanqua; Chesapeake; Clyde; Colonial; Columbia; Cuba; Cuban.

Group 16. Botanical Names. [See also groups 1, 2, 3]: Aeon; Alfa; Almond i. v. e.; Alpine Rose; Althea; Amaranth; Ambretta; American Beauty; American Lily; American Olive; Amole i. v. e.; Amoline; Anemone de France; Angelica; An's. Arbutus; Arnica; Aurora Tulip; Azalea; Balsam i. v. e.; Bay Leaf; Bitter Sweet; Bonny Heather; Bouquet i. v. e.; Buttermup; Caette; Caetus; Calendula; Calif Golden Poppy; Calif Poppy; Calif Violet; Calla; Calla Lily; Cardinal Rose; Carnation Pink; Cassia Bouquet; Cassicilla; Cedar; Ceres; Cherry Blossom; Chestnut; Cinnamon; Citron; Citronella; Clover Blossom; Clover Leaf; Coco; Cooa i. v. e.; Colombine; Con Oil; Cotton; Cotton i. v. e.; Countess Olive; Crab Apple; Crushed Heliotrope; etc.; Crystal Orange; Cucuumber i. v. e.; Curly Maple.

Group 17. Complimentary to Women: A. B. C. of the Prudent Housewife; American Girl; American Housekeeper; American Housewife; American Queen; American Venus; Bay Queen; Belle; Belle; Belle of Detroit; Belle of La Crosse; Blue Grass Belle; Circus Queen; Colonial Dame; Czarina.

Group 18. Appealing to Tender Sentiments: Amoroso; Aunt Becky; Aunt Mary; Aunt Sally's; Baby Ruth; Baurn Baby; Billet-Donx; Blush; Bridal Bouquet; Bridal Gift; Bridal Rose; Bridal Veil; Cara Mia.

Group 19. Appealing to Condition or Occupation of Buyer: Alliance and Wheel; American Grocer; A. O. C. W.; Amalgamated; American Housekeeper; American Housewife; Anti-Trust; Arny and Navy; Artisan; Bachelot; Boston Drummer; Brotherhood; Colliery; Corn Huskers; Creole.

Group 20. Names from History, Fiction, Mythology, the Stage, etc.: Achilles; Admiral Dewey; Ajax; Aladdin; Algonquin; Alvin; Amazon; Anita; Apollo; Arion; Arkansas Traveler; Astrea; Atlas; Aunt Becky; Avalon; Baby Ruth; Beatrice; Betsy Ross; Bismarck; Black Hawk; Black Prince; Boaz; Bob Lee; Bob White;
Boeabelli; Bo-pee; Bouquet Evangeline; Bouquet Martha Washington; Bre'er Fox; Brother Benjamin's; Brother Jonathan; Brownie; Buffalo Bill; Carlo; Cinderella; Cleopatra; Clio; Clarinelle; Coal Oil Johnny; Columbus; Corinne; Cupid.

**Group 21. Animal Names:** Alligator; Animal; Badger; Bear; Bee; Bee Hive; Bell Cow; Big Eagle; Big Elephant; Big Ox; Big Tiger; Black Bear; Black Cat; Black Crow; Black Hawk; Blue Goose; Blue Jay; Buffalo; Bull; Bull Dog; Busy Bee; Butterfly; Calif Grizzly; Coon; Coral; Coral Gem; Cricket; Crocodile; Cuckoo.

**Group 22. Inanimate Objects:** A. B. C.; Aerorn; Adamant; Agate; Alabaster; Alphabet; Amber; American Star; Black Diamond; Anchor; Anvil; Areoade; Argus; Ark; Arrow; Auction; Badger; Balloon; Banjo; Banner; Basket; Battle Ax; Battleship Maine; Beacon; Bee Hive; Bell; Belt Line; Big Five Tin Tag; Big Four; Big Sun; Big Dime; Big Nickel; Big Bubble; Big Spring; Billet-Doux; Black Seal; Blue Bell; Blue Chip; Blue Cross; Blue Ribbon; Blue Seal; Books; Boot Jack; Borax Spoon; Bronze Metal; Broom; Bright Star; Bucket; Bull's Eye; Bullion; Bun; Cable; Cabinet; Cake Walk; Calif-Diamond; Calif-Nugget; Calumet; Cameo; Candle; Candy; Cannon Ball; Capitol; Caprice; Caramel; Cascade; Casino; Census; Centaur; Century; Ceylon Red Letter; Chain; Christmas; Circus; City; Clipper; Club; Cluster; Coal; Coin; Coliseum; Colorado Star; Comet; Commonwealth; Congress; Corn Palace; Cornet; Coronet; Cottage; Counting House; Country Club; Country Talk; Coupon Bar; Crash; Crazy Work; Crescent; Crest; Cross Tie; Crow Bar; Crown; Crown Sermon; Cruiser; Crystal i. v. e.; Cup Cake; Cyclone.

**Group 23. Familiar Expressions, Play on Words, etc.** A. O. U. W. (All of Us Wash); All Right; Any Day; Black Kid Pine Tar; Blue Monday; Bouncing Bct; By Jingo; Chum; Chump; Cui Bono; Cudomia; Cen-10-eye-al; Cents and Sense.

**Group 24. Scientific and Pseudo-Scientific Names:** Albi-Denta; Amylos Aseptin; Argolone; Boilime; Boraxoid; Boraxine; Borasso; Camphorine; Chalkine; Charelion; Chloridine; Cloverine; Coaline; Coali; Colo; Coraline; Creameine; Creamo; Crystal Salleine; Crystola; Curapella; Cureau; Cuti; Cutieura; Cutieurine; Cuti-Medico.

**Group 25. Words from Foreign Languages.** [See also group 19]: A la Corbeille Fleurie; A Laggodo; Aledale; Alpha; Aluta; Amaryles du Japon; Amoroso; Argenta; Auto; Bijou; Billet-Doux; Bonami; Boneuti; Bon-Bon; Bon Ton; Boudoir; Bouquet Caprice; Bouquet des Champs; Bouquet de Noel; Bouquet de Paris; Brisa de las Pampas; Cald Mille Faithe; Cara Mia; Ceske Jadrovo; Ceske Mydlo; Ces-Polische; Charmante; Chechelska Mydla; Chic; Coves Nuss Oel; Soda Seife; Coloir de Rose; Coquette; Creme de la Creme; Crown Seife; Cui Bono.

**Group 26. Alluding to Recent Events:** Admiral Dewey; Centennial.

**Group 27. Unclassifiable:** A. A. of I. & S. W.; A. H. G.; Alamo; Albine; Aldrego; Aloha; Althene; Anco Tar; Armand; Arrowene; Atata; "B" Soap; Bozenna; Bristo; Bunola; C. & C.; C. & O.; Califia; Caravana; Carmenia; Casco; Cascade; Chispas; Clarus; Coalola; Coino; Copper.

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**ASSOCIATION NOTES.**

The Southern Soap Manufacturers' Association met in Washington, D. C., on Dec. 9, Mr. E. H. Ferguson, of Louisville, presiding. The chief action taken was the passing of a vote to abolish the practice of giving free boxes of soap with a given number of boxes sold. The next important step was the recommendation to the American Association of the adoption of discount terms on the basis of 30 days, or 2 per cent. for cash in 10 days.

**On the day following, Dec. 10, the Eastern Soap Manufacturers' Association met in the same place, presided over by Mr. Edmund Reardon, of Boston. The action taken was identical with that of the Southern association as just stated.**

**The Western Association met about the same time in Kansas City, Mr. Wm. Peet, of that city, presiding, and adopted the same resolution regarding the free box offers.**

This is how the Modern Grocer receives the news of the abolition of the free box deals:

"It does not seem possible or probable that the soap manufacturers will be able to enter into any compact or agreement that will hold the selling agents of the manufacturers in line. We would recommend to the soap manufacturers of the country that in addition to their ability to formulate a successful agreement of this kind that they straightway get the same copyrighted or patented and dispose of it to manufacturers of limited priced articles and sell to them on a royalty.

"The soap men are not alone in their misery—there are others and these 'same others' have had troubles of their own in 'making good,' their plans to sell at uniform prices under all conditions to all people."
A CANADIAN SOAP FACTORY.

When, the other day, we observed in a Canadian magazine an illustrated article referring to the wave of progress that has come over Canada, and describing the erection, among other thriving factories, of the Sunlight Soap Works by Lever Bros., Toronto, it occurred to us that such illustrations of a prominent factory in our neighboring country would prove interesting to our readers, and through the courtesy of the firm we are enabled to present herewith four photographs taken. These photographs represent respectively a view of the business office, a view of the works across the Don, one of the shipping sheds, and lastly a picture of the dining accommodations with cooking by electricity. (Views of the laboratory and of the glycerine plant, which we had wished to print, we had to forego, as they were needed for other purposes at present.)

We regret that space will not permit us to reproduce entirely the very readable article in our Canadian con-
At this factory is made, besides the Sunlight soaps, a carbolic soap known under the brand of "Life Buoy" and Lever's "Dry Soap."

The site belonging to the factory includes 23 acres of land, and the building and plant are valued at $300,000.

The St. Louis Chemical Company has been incorporated at Albany, N. Y., to manufacture bleaching powder, caustic soda and by-products. Capital, $200,000. Incorporators: John Faulkner, Niagara Falls; Archibald E. Darragh and David E. Harrison, of St. Louis, Mich.

The latter includes machinery for printing and making card-board boxes and for printing and lock-cornering wooden boxes, as also an electric light plant. The office building, unique in its imposing exterior, contains on the floor above the offices the kitchen for cooking the meals for employees, and also the dining halls.
On a Law to Compel Publication of Soap Analysis on Wrappers, Etc.

A friend of the Soap Journal, for the purpose stated further on, sends up a newspaper clipping relating to a bill presented to Congress by the National Live Stock Association, in the interest of wool growers. According to this bill, if it becomes a law, manufacturers of fabrics that resemble woolen goods, but not actually consisting wholly of new or unused sheep's wool, shall be required to so mark, label or tag such goods that they may be readily distinguished from genuine wools; such marks to be so attached that they cannot be removed except by design and to accurately state in plain letters the constituent fibres or substances of which the fabric is composed and the relative per cent. of each. Provisions are further made that clothiers, tailors, imported goods, etc., come under the same law.

In his letters our correspondent says: "Such a law is wanted for soap also. Don't you think an article on a law to compel all soap manufacturers to place the analysis of their soap on all cakes or boxes, as is done with fertilizers and ground feed for horses, cattle or fowls, will interest the readers of your paper? This analysis should show and name any adulterations found, including water and amount of free alkali. This will be done some day, to protect buyers as well as consumers."

* * * * *

The first and chief question involved in this subject, from our standpoint, is what the manufacturers of soap think of such a proposition. Those who make soaps only that are not adulterated in any way would naturally be in favor of anything exposing the nature of competing adulterated soaps; those who make nothing but the latter kind would be as unconditionally opposed to it. But the rank and file—the great majority—of manufacturers, we believe, make a number of grades each; that is to say, they make the best possible, purest soap for sale to those who appreciate a good article and are willing to pay reasonably for it, and they make filled soaps for sale to those who think soap is soap and look only at the size of the cake and the number of pennies required to buy it. We are assured that these manufacturers do not make the latter grades from choice, but because the buyer of cheap goods compels them to it; as the buyer, however, could not carry the point unless competing soap manufacturers were willing to make adulterated goods if one manufacturer should refuse, it would be more correct to say that competition is responsible for the existence of filled soaps. This competition will always remain, and even if soap manufacturers now in business should refuse to make adulterated soaps, the wholesale dealers, who have their own special adulterated soaps made to order, the department stores, the bar-

gain specialists, etc., etc., would quickly find means to fill their wants in adulterated goods.

Whether or not a law could be devised to protect the ignorant buyer; whether, if devised, it could be passed and enforced; whether such passage and enforcement is desired by manufacturers; these are questions we should not like to undertake to settle off-hand. We have examples, as in the fertilizer business, where such a law was passed and proved a real benefit. We have other examples where it was opposed and failed to pass (as in the patent-medicine business), much to the detriment of consumers. Just where the soap business stands in this respect would prove a fertile field for discussion. Indeed, if we did not fear it would prove only another stumbling block to unanimity, we might suggest that the Soap Manufacturers' Association might follow up this question with advantage.

In the meantime it would not be a bad idea if manufacturers would voluntarily adopt the plan now followed in isolated cases, of stating in their advertising matter the percentage of fatty acid contained in their soaps. For their poorer soaps, to be sure, this plan would not meet with approval.

If any reader has any suggestions to make in this connection, let him take the floor.

"Boiled Down" Articles From Foreign Exchanges.

Specially Appropriated and Boiled Down for The American Soap Journal.

From Oils, Colors and Drysalteries, London.

Soap manufacturers tendering soap for contracts sold on guarantee of a certain fatty acid percentage ought to protect themselves more than they do by having competent men make an analysis of their samples. If the soap-makers have to bind themselves under penalties enforceable by legal process, they on their side are entitled to a guarantee that the nature of their products shall be correctly reported to the prospective customer.

The soap boiler will also do well to examine his raw materials, for unless his alkalis are what their maker says they are, he will be very seriously handicapped, and it goes without saying that he cannot make soap which he can guarantee to contain a high percentage of fatty acid unless his fats contain enough of them. Bone-grease should contain not less than 93 per cent. of fatty acid, while good oleine should contain 99 per cent., or 98 per cent. as a minimum.

From Chamber's Journal.

The distilled essential oil of almonds, which when diluted supplies the popular flavoring for sweets and confectionery known as "ratafia," contains in its strongest form a sufficient percentage of hydrocyanic acid to make
it highly dangerous. A young man who was executing an order by pouring some of it from a large bottle to a smaller, noticed that he had not put the label quite straight on the smaller bottle, and took it off again. Before replacing the label he licked it to make sure of its sticking property; but, whilst pouring, he had inadvertently let a drop or two trickle on the outside of the bottle where he had affixed the label. Then, when he touched the label with his tongue, he felt as if something shot along that member, and also a jump of his heart, so he rushed to a tap, which was fortunately close at hand, and put his tongue under the running water. Never, as long as he lived, he said, would he forget that poisoning sensation.

That death-dealing fluid, sulphuric acid, is in daily use with the druggist, and he must exercise extreme caution in handling it. Frequently he has to dilute the acid, a process which, if heedlessly performed, may cause damage to the surroundings the heat evolved in the mixing often resulting in the cracking of the bottle. An unskilled helper might readily cause an accident of this kind; but fortunately for all concerned, chemists are not wont to entrust dangerous work to inexperienced assistants without due caution, as they are too well aware of the serious consequences which may ensue. Young students in school laboratories occasionally pay the penalty for carelessness in handling bottles of strong corrosive acids, with the result that they get marked for life. It requires constant supervision on the part of the laboratory instructor to prevent such occurrences.

From Seifensieder Zeitung, Augsburg.

A half-boiled filled rosin soap may be produced as follows:

- 500 lbs. palmkernel oil.
- 100 lbs. palm oil.
- 180 lbs. rosin.

are melted together; scraps from former batches may be melted in the hot stock. Heat to 70 deg. R. (190 deg. F.).

In another kettle prepare

- 430 lbs. 38 deg. soda lye,
- 240 lbs. 38 deg. silicate of soda,
- 35 lbs. 30 deg. potash solution.

Heat the latter to 60 deg. R. (167 deg. F.) and crutch into the stock; under occasional stirring the combination will set in after 1½ to 2 hours; frame and crutch in the frame till cooled to 50 deg. R. (144 deg. F.). Sometimes it takes longer than stated above to effect saponification. No settling of the silicate will occur in the frame if directions are followed.

The Potassium Salts Industry of Germany.

By E. Mackay-Heriot.

The discovery of natural potassium salts in large quantities in Germany has given rise to a new and flourishing industry. Fifty years ago these salts, which were only used in small quantities in the applied chemistry, have since obtained a fast footing in innumerable branches of the world's commerce, and especially as an artificial fertilizer. In these days, when the products of farming are imported on a large scale, the potassium, together with the phosphorus and nitrogen of the earth, is rapidly exhausted. These elements are necessary, and must be given back to the earth. Thus the natural potassium salts can be successfully used as a fertilizer.

Deposits of the above salts have only been found in paying quantities in Germany (with the exception of a small Tertiary occurrence in Kalusz, in Galicia). These discoveries have given rise to great speculation. At the end of 1899 about 180 companies had been formed to prospect for potassium salts; out of these about twenty have reached the stage of shaft sinking, and about the same number were putting potassium salts on the market, the latter including the Prussian and Anhalt State mines.

Mining Laws.—The mining laws in Germany concerning the ownership of salt properties vary in the different States. In old Prussia, he who first demonstrates a payable deposit to the Government inspector can claim a mining field of 2,189,000 square meters, and not only the rock salt (halite) but also the accompanying salts (in this case the potassium salts) belong to the claimant.

In Hanover the latter salts belong to the landowner; whereas in Brunswick and other States of the German Empire, including the free towns of Hamburg, Lubeck and Bremen, they are Government monopoly.

Origin of Salt Deposits.—Several theories have been set up to explain the occurrence of these large salt areas, but modern geology teaches that the salts were originally precipitated from the ocean water. It is very unlikely that they resulted from other salt formations after these had been dissolved, because the footwall of the German deposits has generally been found to be anhydrite (CaSO₄), and limestone (CaCO₃), which fact can hardly otherwise be explained than by assuming the ocean to be the source. One authority says: "We are indebted to the sea for all the salt water we have."

If we look close at the North German salt areas, the depths of which are sometimes several hundred meters, we come to the conclusion that one filling of a basin could not have been responsible for such immense layers, for if, as Oehsenius says, a sea basin of 720 meters depth were to evaporate, it would only precipitate twelve meters of salt. On this account the ocean cannot be taken as the direct origin. It is much more likely to
have been an inland sea standing in intermediate or continuous communication with the ocean. This sea would be either temporarily disconnected from the ocean by a bar, or the bar would let just enough salt water pass through which could be evaporated by the tropical heat of the then Upper Permian era.

In the first case the bar would be closed either by raising or sinking actions, or by heaping up of masses, such as sand. All these obstructions might in time be washed away, and thus permit a new filling of the sea basin. This process could often be repeated. Ochsenius says:

"An inland sea, with a corresponding bar (which existed from the beginning, or was built later on), a dry and sufficiently warm climate, and a surrounding country with a scarcity of pure water, and the conditions of all larger salt deposits are fulfilled."

The more insoluble carbonate and sulphate of calcium were first precipitated in the form of limestone and gypsum then the following rock salt, and later on the more soluble potassium and magnesium salts.

Location of Boundaries.—The location of boundaries of the German salt areas has given rise to differences of opinion.

Ochsenius says that the immense salt beds of North Germany could not otherwise have been deposited than on the bottom of a North German sea basin, whatever boundaries the latter may have had. Pasermann shares the same idea that this huge salt area belongs to one great basin. Another well-known authority classifies the German salt occurrences into four geological basins: The basins of Saxony, Hanover, Thuringen and Eichsfeld. The Saxony sea basin had as its shares the Paleozoic rocks of the Harz Mountains, and those of the Madgeburg district. The sea basin of Hanover includes the Grand Duchy of Mecklenburg-Schwerin, the Duchy of Brunswick and, the political province of Hanover. The shores of this basin are difficult to locate on account of great disturbances which they have undergone. The Thuringer basin had the Paleozoic rocks of the Thuringer wald and elder rocks to the west as its shores. The Eichsfeld basin, which took up the district between the Harz Mountains and the Thuringer wald, had the West Harz and the Thuringer wald for its shores.

Types of Occurrence.—The North German salt deposits may be classified into two types as regards occurrence: The Stassfurt and the Hanover type. The Stassfurt type, which is marked by its regularity of occurrence, has but one layer of potassium salts. The succession of geological strata is as follows: The lower new red sandstone (Lower Trias) is the hanging wall to the salt formation, then follow anhydrite, salzthon (saliferous clay), potassium salts, rock salt, so-called "older rock salt." Sometimes a layer of younger rock salt is met with between the anhydrite and the new red sandstone.

As examples of this type may be given the Stassfurt and the "Eichsfelt basin" occurrences. The Hanover type differs chiefly from the Stassfurt type in that in the former deposits several layers for nests of potassium salt are found, and often differing one from another in regard to composition. The occurrences of the Hanover type are generally greatly distributed. This evidently accounts for the very rich deposits of sylvite which have been met with, for sylvite or chloride of potassium, which is a secondary salt, is not unfrequently found in connection with clefs. Up to now the Hanover type of occurrences has been little prospected otherwise than by drill holes, therefore a perfect description of the same cannot yet be given. As examples of this type may be named the deposits near the towns of Hanover, Hildesheim, Kreiensen and many more.

All paying deposits of potassium salts in Germany have been found in the upper permian formation.

Rock Salt.—The rock salt of this formation varies greatly in pureness, color and structure. Sometimes it is mixed with anhydrite, kieserite, salzthon (saliferous clay), polyhalite, etc., and may be red, yellow, gray or transparent and glass-like, it has also been found blue at Stassfurt. This color is said to come from carbonated hydroflaen gas. Its structures are sometimes fine grained and sometimes coarse grained, seldom fibrous.

The fibrous rock salt is found in the "salzthon." The composition, color or structure of the rock salt give no indication of the occurrence of potassium salts in depths below. The rock salt, which occurs above the potassium salts is called "older rock salt." These terms hold good for deposits of the Stassfurt type, whereas in those of the Hanover type such a classification can seldom if ever, be made.

Anhydrite.—Like the rock salt the anhydrite varies in thickness from a fraction of a meter to fifty or more meters. It has a bluish color and has sometimes a marble-like structure, but where partly altered to gypsum it becomes grayish. Its impurities are, as a rule, rock salt, salzthon and potassium salts. Anhydrite by altering to gypsum increase its volume. This fact must not be underrated as regard its ultimate effect upon a salt mine. For instance, the earthquakes which occurred in Mansfeld are said to have resulted from the above, and may be explained in short, as follows: The water which was pumped at the pump shaft had 15 per cent. or more of salt. Therefore, it is certain enough that the water had access to the salt formation which lies between the lake and the pump shaft. The salt formation was already proved by the shaft of a copper mine. Before the pumping at the shaft and lake began, this water served as a counter-balance to the hanging wall, but as soon as it was pumped out the anhydrite, which had increased its volume, broke and fell into the washed-out cavities,
and thus produced the earthquakes. It may also be said that a virgin salt field of the Stassfurt type is free from the danger of water, but the longer the field has been mined the greater is the danger from water. The theory is backed up by the Stassfurt mines. The flooding of the Anhalt and Prussian state mines at Stassfurt was evidently due to a sinking of the hanging wall, caused by long years of excavation underground. The sinking of the hanging wall again caused fractures in the "salzthorn," and this was a means of letting water into the salt formation. The water probably did not break through the safety pillars, but entered the salt formation from above.

A very important factor for the future of a salt mine is the so-called "salzthorn." This stratum is generally the direct hanging wall to the very soluble potassium salts, and on account of its waterproof properties has been a means of their preservation. "Salzthorn," as its name denotes, is an argillaceous substance, containing variable quantities of rock and potassium salts and anhydrite. It is tough, and sometimes hard, but exposed to the atmosphere it disintegrates in a short time. Like anhydrite, the width of this layer varies greatly from a few centimeters to thirty meters or more.

The natural potassium and magnesia salts may be divided into two groups, as primary and as secondary salts. The most commercially important of the former are carnallite, kieserite and boracite; and those of the latter group, kainit, sylvite, sylvite and hartsalz. Carnallite (KCl, MgCl₂, 6H₂O) is most common of all the potassium salts. It is used in the crude state as a fertilizer, and in the refined state as chloride of potassium, also as a fertilizer, or for the preparation of many commercially important salts. Kieserite (MgSO₄·6H₂O) is used in the manufacture of bitter salt and various other chemical preparations. Boracite 2(Mg₃B₄O₁₅)·X·MgCl₂ is found in small quantities in potash salts. It has a yellowish color and is used in the manufacture of borax.

Kainit (K₂SO₄·MgSO₄·MgCl₂·6H₂O) is a very valuable salt. It can be used in the crude state as a fertilizer. It contains a lower percentage of chloride and a higher percentage of potassium than carnallite. Kainit is of much less frequent occurrence than carnallite.

Sylvite (KCl), as its chemical formula shows, is a very valuable salt. It has been chiefly found in the Hanover type of occurrences, which have been, for the most part, exploited only by deep borings; thus the commercial importance of sylvite is not yet known. In some mines it has been found to occur in nests or pockets. Syline, a composition of sylvite and rock salt, is used in the crude state as a fertilizer. It is, like kainit, a secondary product of carnallite.

A name often given to a certain class of potassium salts is "hartsalz." Hartsalz is a composition of rock salt, kieserite and sylvite. It is also used in the crude state as a fertilizer.

Many more mineral salts than are here given have been found in the German salt deposits, which are of little or no commercial importance. Mineralogical descriptions of the different salts are omitted from this article, as these may be found in various mineralogies.

Salts as Fertilizers.—Of special importance are the potassium salts in the refined state as fertilizers, because by concentrating the percentage of potassium the salts are much more suitable for export. The following refined salts must here be mentioned: Chloride of potassium, potassium-magnesium sulphate and sulphate of potash. The choice of these three salts depends on the nature of the plant for which the fertilizer is wanted. Potassium-magnesium sulphate could be used where chlorides ought to be more or less avoided. Should chlorides be avoided altogether, then sulphate of potash should be chosen.

From the crude potassium salts one main preparation is made, namely, chloride of potassium (KCl), which is also found in nature under the name of sylvite, and from this is manufactured many salts which play an important part in the chemical industry. Among the latter may here be mentioned: Saltpeter (KNO₃), prepared after the following formula: NaNO₃ KCl NaCl KNO₃. It is used in the manufacture of gunpowder, for preserving meat and for other purposes.

Carbonate of potassium (K₂CO₃) is made either from chloride of potassium or from sulphate of potash by a similar process to that of Le Blanc. It has many uses, such as in the fabrication of green bottles, soap, etc.

Caustic potash (KOH) used to be manufactured in large quantities, but it has been of late largely supplanted by caustic soda. Caustic potash can be prepared by an electrolytic method. It is used in chemical laboratories, in coloring and in making soap.

Chlorate of potash (KClO₃) is used in the fireworks industry for oxidation and in medicine.

Chromate of potash (K₂CrO₄) is prepared from chrome iron ore, carbonate of potassium and nitre.

Bichromate of potash can be prepared from chrome iron ore by the aid of lime, sulphuric acid and carbonate of potassium. Bichromate and chromate potassium are used in the manufacturing of chrome colors, in photography and other chemical laboratories.

Cyanide of potash (KCy) can be prepared by bringing ammonia into contact with glowing carbonate of potassium and coal powder. It is used in gold extraction and in gold and silver plating.

Permanganate of potash (K₂MnO₄) is used as an antiseptic and for oxidizing; potassium silicate as a safeguard against fire.
Magnesia Salts.—Of the crude magnesia salts, kieserite is the most important. It is first refined and then for the most part, employed in the manufacture of bitter salt (MgSO₄·7H₂O).

Chloride of magnesia (MgCl₂), which is obtained from the end solutions of the chloride of potassium fabrication, is used in the preparation of hydro-chloric acid and in deep boring, when drilling in the salt formation.

Glauber’s salt (Na₂SO₄) is prepared by the aid of sulphate of magnesia (MgSO₄·7H₂O) and chloride of sodium. It is used as a medicine, also in the manufacture of glass.

Chloride of lime, also a product of the Stassfurt potassium industry, is used for disinfecting, for bleaching and for other chemical purposes.

As by-products of this industry may be mentioned bromine and rubidium salts.—Engineering and Mining Journal.

New Comestible Fat Extracted From Cocoa of Coprah Oil by the Ruffin Process.

Numerous processes have been proposed for the purpose of deodorizing cocoa oil and of rendering it comestible, but the obstacle always met with is the inconvenience caused by its melting at a comparatively low temperature, 23 deg. C. This tends to provent its use, for it is almost impossible to preserve it in a solid state, and consequently to transport it, especially in summer. To remedy this inconvenience M. Ruffin utilizes the property possessed by cocoa oil, as well as certain other fatty bodies, of not solidifying in mass and in a homogeneous way, but on the contrary, of congealing at different points according to the different degrees of temperature.

Acting on this principle, and after observing the different phases of the congelation, M. Ruffin has ascertained that at a temperature of about 23 deg. C., the fusing point of ordinary cocoa oil, a portion thickens within the mass, and that this matter, separated by pressure from the liquid part, possesses all the characteristics of a stearin separated from its oleic. The matter thus separated melts only at a temperature above 31 deg. C., and does not begin to congeal except at 28 deg. C. It is therefore more suitable than cocoa oil for alimentation, perfumery, pharmacy, etc.

To prepare this new product the cocoa oil is heated up to its fusing point, then allowed to thicken at a constant temperature of about 23 deg. C., during about 48 hours. The longer the time the better is the yield. Then the condensed mass is subjected to the action of presses, similar to those employed in the candle manufacture, but making use of less force, for it is not necessary to exceed 150 kilograms per square centimeter. Dry and compact cakes are obtained, representing about 45 per cent of the original mass. All that remains is to remelt these cakes and purify them.

The new product, when purified, is flowed into appropriate moulds, and given any desired form, without other precautions before shipment, while ordinary cocoa butter can be shipped only in hermetically sealed boxes.

The liquid oil extracted by pressure has lost none of its practical properties, except that it contains almost the total amount of the free fatty acids which give the cocoa and coprah oils their odor, sui. generis, as well as the fatty acid glycerides, volatile or soluble, such as capron, caprylic, butyric acid, etc., glycerines much more likely to become oxidized and to grow rancid than other glycerides, giving rise to disagreeable odors and biting taste.

The process of purification consists of two distinct phases: the removal of the insoluble fatty acids and the removal of the soluble fatty acids. The purification may therefore be accomplished, either before the extraction of the new solid product from the cocoa oil, or after its extraction. The latter method is preferable, because it presents this advantage, that the greater part of the free fatty acids and of the soluble glycerides, having passed into the liquid state, the work of purification is much simplified.

It follows that every method of purification for cocoa oil is likewise suitable for the new product. To remove the insoluble fatty acids different processes have been attempted with more or less success; in general a base such as calcined magnesia or powdered lime is made use of. Lime has great economical advantages (rapidity of the work and cheapness of the article) and the result is made much more complete than with any other base, but its use has been much restricted for oils of low quality, containing a large quantity of fatty acids. It forms an emulsion or magma quite hydrated, so that it is almost impossible to effect a separation by the filter press. The separation requires much time and strong pressure and is never complete; the lime cakes containing too large a quantity of oil. The lime can be separated by prolonged boiling, but there is a risk of changing the oil by heat, and a taste is communicated as disagreeable of its kind as that of the fatty acids.

It is thus seen that if lime is the most energetic agent for the removal of the fatty acids, it presents the inconvenience of giving rise to an emulsion or magma almost impossible to get rid of. Now M. Ruffin has ascertained that it is the addition of water, indispensable for the neutralization, which determines this emulsion. He has, therefore, sought to remove this water in a radical way, without raising the temperature, and he has succeeded by the following method:

After having treated with lime the new product or the cocoa oil, according to the plans adopted for the operation, and after having sufficiently worked it together, be
introduces the mixture into a vacuum evaporator like those employed in sugar manufacture, with this difference, that the apparatus is furnished with an agitator, and that it is heated preferably on the outside. When the vacuum is well arranged, the evaporation is rapidly produced at from 20 to 25 deg. C., and the operation is thus finished. But to promote it, the temperature can be raised to any point that will not tend to the injury of the oil. The water is vaporized perfectly and methodically, so that at the end of a few minutes the lime soap can be observed in the form of small granules, which fall to the bottom of the apparatus and separate from the oil. If the operation is extended to complete dryness, the lime soap is separated and precipitated in the form of sediment. The separation is then so complete that it is not necessary to pass the oil through the filter press for the purpose of the following operations, but in practice it is preferable to stop when the lime commences to crystallize in small grains and proceed to the filtration, which can be accomplished without difficulty. All that is now necessary is to remove the salts of the soluble fatty acids. For this purpose one of the ordinary processes is employed.—La Revue des Produits Chimiques.

Eau de Cologne.

Many different claims have been made to the discovery of this renowned perfume. Some say that the invention is due to an Italian, Johann Maria Farina, who was born in 1685, at Santa Maria Maggiore. He set up in business as a perfumer in Cologne, having learnt the trade in Italy, where it was then already very highly developed, and first made Eau de Cologne in 1709. He bequeathed the recipe to his successors, who still trade under the well-known title of Johann Maria Farina, gegenüber dem Julichsplatz. Others maintain that Eau de Cologne was not invented in Cologne at all, but that a certain Paul de Feminis made it in Milan, and sold the perfume in Cologne in 1690. Feminis left the secret to his nephew, Johann Farina, who used the name Milan in the style of the firm.

It is certain that Eau de Cologne was eagerly sought after as early as the middle of the eighteenth century, and there were naturally other makers in the field. People named Farina were brought from Italy, where the name is common, and given sleeping partnerships in perfumery firms, so that their name could be used. The result has been no end of protracted and costly law suits, but the encroachers upon the trade generally carried their point, and some of them, producing a really high class article, have become very prosperous. No one knows who makes the original Eau de Cologne. Three firms claim to, viz.: Johann Maria Farina, gegenüber dem Julichsplatz; Johann Maria Farina, No. 4 Julichsplatz; and Farina zur Stadt Mailand. All that can be said is, that all three make an equally good article. The first of the three is said to have the largest turnover.

The composition of Eau de Cologne, in its main features, is no longer a secret. It receives its high quality from the exact nature of the perfumes used than from the use of absolutely the best procurable spirit in its manufacture, and in its being kept in stock for a long time, years, if possible, before being sold. This second condition excludes concerns of small capital from interfering in the trade. It is remarkable that persons habituated to any one of the great brands of Eau de Cologne can rarely be got to take another. This is particularly the case with invalids.

In the last ten years a novelty has been introduced into the Eau de Cologne manufacture by the invention of the so-called Blumen-eaux de Cologne. These combine the simple fragrance of Eau de Cologne with a distinct odour of some one particular flower. At present, however, the three great firms keep aloof from this manufacture, and it is difficult to say to what degree of popularity the Blumen-eaux will remain. They are made with synthetic perfumes, which are anathema to the old Farina houses, each of which makes its own brand from the original recipe. The following are some recipes which can be confidently recommended:—

**Superior Eau de Cologne.**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spirit</td>
<td>3,000 ozs.</td>
</tr>
<tr>
<td>Neroli bigarade</td>
<td>10 ozs.</td>
</tr>
<tr>
<td>Rosemary oil</td>
<td>5 ozs.</td>
</tr>
<tr>
<td>Lemon oil</td>
<td>15 ozs.</td>
</tr>
<tr>
<td>Bergamot oil</td>
<td>5 ozs.</td>
</tr>
<tr>
<td>Pomegranate-skin oil</td>
<td>15 ozs.</td>
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</table>

**Princes' Eau de Cologne.**

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<tbody>
<tr>
<td>Spirit</td>
<td>3,000 ozs.</td>
</tr>
<tr>
<td>Rosemary oil</td>
<td>3 ozs.</td>
</tr>
<tr>
<td>Mitcham lavender oil</td>
<td>10 ozs.</td>
</tr>
<tr>
<td>Bergamot oil</td>
<td>50 ozs.</td>
</tr>
<tr>
<td>Lemon oil</td>
<td>50 ozs.</td>
</tr>
<tr>
<td>Birarade neroli oil</td>
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</table>

**Eau de Cologne I.**

<table>
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<tbody>
<tr>
<td>Spirit</td>
<td>3,000 ozs.</td>
</tr>
<tr>
<td>Petit-grain oil</td>
<td>6 ozs.</td>
</tr>
<tr>
<td>Bigarade neroli oil</td>
<td>2 ozs.</td>
</tr>
<tr>
<td>Lavender oil</td>
<td>2 ozs.</td>
</tr>
<tr>
<td>Rosemary oil</td>
<td>5 ozs.</td>
</tr>
<tr>
<td>Bergamot oil</td>
<td>12 ozs.</td>
</tr>
<tr>
<td>Lemon oil</td>
<td>12 ozs.</td>
</tr>
<tr>
<td>Geranium oil</td>
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**Eau de Cologne II.**

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<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spirit</td>
<td>3,000 ozs.</td>
</tr>
<tr>
<td>Bergamot oil</td>
<td>30 ozs.</td>
</tr>
<tr>
<td>Lemon oil</td>
<td>30 ozs.</td>
</tr>
<tr>
<td>Lavender oil</td>
<td>2 ozs.</td>
</tr>
<tr>
<td>Rosemary oil</td>
<td>10 ozs.</td>
</tr>
<tr>
<td>White Thyme oil</td>
<td>5 ozs.</td>
</tr>
<tr>
<td>Bigarade Neroli oil</td>
<td>2½ ozs.</td>
</tr>
</tbody>
</table>
**Eau de Cologne, with Artificial Perfumes.**

Spirit .................................................. 3,000 ozs.
Mitcham Lavender oil .......................... 15 "
Schimmel’s Neroli .................................. 12 "
Heine’s Orange Blossom ......................... 22 "
Germanium oil ........................................ 5 "
Lemon oil ............................................... 30 "
Bergamot oil .......................................... 15 "

**Blumen-Eau. Basis.**

Spirit .................................................. 3,000 ozs.
Bergamot oil .......................................... 40 "
Lemon oil ............................................... 30 "
Schimmel’s Neroli .................................. 10 "
Lavender oil .......................................... 5 "
Petit grain oil ....................................... 2 "
White thyme oil ..................................... 5 "

To every 1,000 ozs. of this, add the ingredients for the several varieties, A—F, inclusive, as below:—

**A. Rose-Water.**

Rosewood oil ........................................ 10 ozs.
Rose geranium oil ................................ 10 "
Heine’s Rose-blossom ............................... 2 "

**B. Elderflower.**

Terpinoel ............................................. 25 ozs.
Schimmel’s Jasmine ................................ 8 "

**C. Lily of the Valley.**

Linlloe oil ........................................... 20 ozs.
Schimmel’s Jasmine ................................ 8 "
Lily Blossom oil, Heiko. ......................... ¹⁄₂ to 1 oz.

**D. Mignonette.**

Schimmel’s Mignonette-Geranium ................ 10 oz.
Mignonette oil, Heiko ................................ 2 "

**E. Vinegar (especially for southern climates and export.)**

Acetic acid ........................................... 30 oz
Acetic ether ........................................... 20 "
Water .................................................. 100 "

**F. Ice Water.**

Menthol .............................................. 20 ozs., or according to requirements.

A cheap form of Eau de Cologne may be made from the following recipe. After standing a month it should be mixed with china clay and white of egg, and filtered. 90 per cent. spirit .................................. 1,000 ozs.
Bergamot oil .......................................... 6 "
Lemon oil ............................................... 15 "
Rosemary oil ......................................... 1 "
Lavender oil .......................................... 2½ "
Water .................................................. 1,000 "

**Green Olive-Oil Soap.**

The best neutral soaps for textile purposes are those made from olive oil; but as the first runnings of this oil are too expensive, attempts have been made to utilize the so-called sulphur oils, extracted from the waste pulp by means of carbon disulphide. These oils, however, in their commercial state, are very dark in color, sometimes contain water and portions of the substance of the olive, and, by reason of their content of carbon disulphide, exhibit a disagreeable odor, which justifies the disfavor in which they are generally held. To utilize this class of olive oil for soap making, the first thing to be done is to select the least impure grades, and then to convert them into soap by means calculated to eliminate their residual impurities. This can be done in the following manner: If, for example, there are two tons of sulphur oil to be worked up into soap, about 31 cwt. of 20 deg. B. caustic soda lye are placed in a pan along with 2 cwt. of common salt. The addition of salt to the lye is to facilitate the rapid combination of the oil and soda, and at the same time to prevent the mass becoming too pasty, since that condition would prevent the elimination of the impurities. The pan is then heated, and the oil run in by degrees, with continued stirring, care being taken to keep the temperature of the contents from sinking too low. The formation of lumps in the mass must also be prevented. When the oil is fresh, the greater part will saponify with ease and only a little remains unsaponified. The pan is then left alone, well covered up all night; the highly discolored lye, which is charged with impurities, falls to the bottom, and above it is a layer of dark-colored soap, surmounted in turn by the separated mass of pure, pale soap. The lye and its contained impurities are then drawn off. To complete the saponification, 6 cwt. of 25 deg. B. soda lye are stirred in, and the whole is warmed, about 2 cwt. of water being then added to wash the soap. After boiling until the mass has the consistency of clear glue, an addition of 24 deg. B. brine is given, and boiling is continued until the soap has separated out completely. The product will be of a pale color, with fairly colorless lyes.

Should, however, the lye be strongly discolored and the soap insufficiently pure, the mass must be left for a couple of hours, and then boiled up again with a weaker brine until the lye comes right. The whole is then left until the next morning, whereupon the lye is run off, the hot water added and stirred up until the mass is of the consistency of pale glue. The soap is now finished, and should be left for two days in the covered pan, at the expiration of which time the soap is cooled down quickly by placing it in small shallow frames in order to prevent the formation of marbling.—Corps Gras Industries.
Dry Washing.

It is a familiar boast of English people that we are above all others a washing nation, says The Lancet. Soap-and-water is a standing dish in Great Britain, but so little were we disposed to credit the habitual cleanliness of foreigners that a piece of soap in the valise was till recently the habitual companion of an Englishman on his travels. Nowadays, such an item is scarcely a necessary part of the traveler’s impediments, though there are still fair-sized hotels on the Continent where soap may be searched for in vain in the bedrooms, while the smallest inn in this country would blush to the roof at such a deficiency. All kinds of theories have been raised to account for this national tendency to ablution and most diverse qualities have been attributed to its possession. The familiarity of islanders with water, and the use of it occasioned by the national custom that led the ancient Britons to paint their bodies, are solemnly urged as the foundation of the English proneness to washing; and the fresh complexions and smooth skins of young Englishmen are held to replace the more dusky and hirsute countenances of the Latin races because of their closer and more frequent acquaintance with the articles of the washstand. With fanciful theories we have naturally no concern, and we believe that clear ruddy checks are national inheritance for the same, if equally indiscernable, reasons as a tendency to roam or a dull car for music. If, however, we do not attempt to explain the presence of a widespread habit and leave it to idle imaginations to determine why Englishmen wash, it is nevertheless our concern that such habits should be for the general welfare and should not be carried to injurious excess. It is quite obvious that even in England there are people who wash too little. It is not so generally recognized that some people wash too much. The skin is not well adapted to frequent applications of water accompanied by even the least irritating of soaps. A tendency arises to maceration of the superficial part of the epidermis, which is too frequently removed and occasions probably too rapid a proliferation of the cells of the Malpighian layer. There is no doubt that many cases of roughness of the skin of the face come from the frequent applications of water. It is a good thing to rub the face with a soft, clean, dry towel two or three times a day. If, in addition, water is used in the morning and at night the skin will be kept in a sounder, smoother and healthier state than if, as is often the case, soap and water are used three or four times a day. Men are not often offenders in this respect, most men sparing little time for the refinements of the toilet. Women and children, whose skins are the most easily affected by superficial ablation, are the very persons in whom such excess is too common. They should be taught that there are dry methods of cleanliness as well as wet ones.

Is Washing An Art.

When the leave begin to fall we know that winter is at hand, and when we read “directions for washing” in some of our leading journals, we feel we are in the height of the gooseberry season. We have read somewhere in history of a man named Adam, who went down to the river to bathe some thousands of years ago. If “directions for washing” had been nailed on an apple tree in proximity to the river, the gentleman in question might have found them useful, but on us the advice is wasted.

One has been somewhat reluctant to read these articles, and has usually glanced at the finish to see whose soap is being puffed, but in vain; on the contrary, we find that they are boycotting that once-considered indispensable toilet adjunct. We always thought washing was instinctive in the animal kingdom. Even a cat knows well how to wash itself. What four drops of eau de Cologne to a teacupful of water is going to do for us in smoky London is difficult to say. Still, if it does no other good it stimulates trade, even if only to a homeopathic extent. After all, if one is clean it matters little in what manner that “next to Godliness” condition is attained. There are very few fatal washing cases on record. The only one we have to hand is that of an old woman, who had to submit to the operation on becoming an inmate of a workhouse. She had not been washed for 22 years. “If you wash me it will kill me,” she said, and it did.

According to the writer of the particular article before us, the following should be the orthodox method of procedure:

“A warm bath, a superfatted white soap, a soft loofah, or a soft Turkey glove, one of the round-headed, convex-bristled bath-brushes, and a big, open sponge. Two teaspoonfuls of one of the many water-softeners or ammonia in the water; go to work hard, but don’t touch your face.”—British and Colonial Druggist.

Scent.

It should be remembered that the basis of all perfumes is an essential oil of some kind, derived either naturally from flowers or artificially by a synthetic process, says The Lancet. In either case the essential oil is a powerful antiseptic and possesses disinfecting properties not less in degree than those of carbolic acid itself. As is well known, the essential oils absorb atmospheric oxygen, forming an unstable compound easily lending oxygen for the work of purification. Pine oil, eucalyptus oil, and turpentine act readily in this manner—a fact which probably accounts for the salubrity of the air of pine forests and eucalyptus woods. The use of scent by many women is excessive, and by men is looked upon as effeminate—a prejudice that we confess to shar-
Soap in Zanzibar.

In Zanzibar soap of the common mottled variety comes from both the United Kingdom and Germany, but the product of the latter country is in most request, owing to its being more malleable and less liable to break or flake when pressed with the fingers. The natives of Zanzibar have their own ideas also regarding the size and shape of the bars and these ideas must be respected by those looking for their trade.

Converting Salt Cake Into Caustic Soda.

A cheap and expeditious method of converting salt cake into caustic soda has been devised by Mr. A. Brand, of London. The process consists of treating the black ash resulting from the first process of the furnace product with a quantity of carbonate of lime, and if necessary carbon is also added in limited amount. The mixture is then submitted to a high temperature. The carbonate by this means is converted into oxide of lime, and the carbonate of soda in the black ash into oxide of soda, while any sulphide of soda that may be present is also converted into oxide of soda. When the furnace product is lixiviated in hot water, there results a strong solution of caustic soda. A further hot water bath will remove the remainder of the caustic soda from the furnace product, and the solution that is left constitutes the liquid for lixiviating the next quantity of furnace product.

Russian Peppermint.

The culture of peppermint introduced into the Tula district about forty-five years ago, but subsequently allowed to partially die out, has been revived during the past five years. (Pharm. Zeit.) The mint, the curly variety preferred, is grown in rich garden mold, enriched with horse manure and deeply ploughed. The plants are grown from cuttings, which are set out during the latter part of May or early June. The crop is harvested in August, the plants being allowed to wither before being subjected to distillation. The distilling apparatus is, in many cases, very primitive. Ten poonds of peppermint yield about one-half pound of oil, while this quantity of curly mint yields one and a quarter to one and a half pounds. The quality of the oil depends upon the nature of the soil and the method employed in distillation.

Cold Cream.

A cold cream which will not go rancid is made with the following formula:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>White wax</td>
<td>2 av. ozs.</td>
</tr>
<tr>
<td>Paraffin oil, white</td>
<td>8 av. ozs.</td>
</tr>
<tr>
<td>Rosewater</td>
<td>3 fl. ozs.</td>
</tr>
<tr>
<td>Borax</td>
<td>60 grs.</td>
</tr>
</tbody>
</table>

Dissolve the wax in the oil at a temperature of not exceeding 14 degrees F. In another vessel dissolve the borax in the rosewater raised to a temperature to correspond to that of the melted fats. Pour the aqueous solution into the oil in a continuous stream, stir gently for two minutes, and pour into jars before entirely cold. Thus prepared, cold cream is snowy white, smooth and glossy, of pleasant odor, does not spoil, retains its consistency in hot weather, and is fully as grateful, when applied to the skin, as is the staple article.

In The Dim Past.

Weary Walker—I don't know o' nothin' w'at makes yer madder dan ter git soap in yer eyes w'en yer takin' a bath an' de towel's outer—

Dusty Rhodes—Gee whizz! You got a great memory!—Philadelphia Press.

An effort is being made to organize a company to operate an ozocerite mine located in Utah. We were given to understand that it was a recent discovery in this country, but recall have made reference to such a deposit many years ago.

Vosberg & Co., Chicago, III., capital $5,000, has been incorporated to manufacture soaps, etc., by E. A. Vosburg, N. G. Vosburg and W. R. Kirk.
Soap Made In The Argentine.

The British consul reports from Buenos Ayres:

The production of soap is said to reach 35,000 to 45,000 tons per annum, and is made possible, of course, by the prohibitive import duty. The cost of making the soap in the Argentine is said to be only $6 per 50 kilos. The formula given for the manufacture is (to make about 5,000 kilos of common soap) — 1,000 kilos tallow, 1,000 kilos rosin, 800 kilos tallow, 100 kilos caustic soda 72, 250 kilos soda ash 52, 50 kilos palm oil, water 2 S.

In regard to candles, the Consul writes: "Stearine candles": Packets of 220 grammes cost 15 cents per kilo; packets of 390 grammes cost 27.5 cents per kilo; packets of 520 grammes cost 39 cents per kilo; 390 grammes, 29 cents per kilo, less 5 per cent. Import duty on candles is 10 cents per kilo. Stearine is also made here, and is sold at $66.70 paper per 100 kilos, less 5 per cent. Manufacturers calculate to make a profit of 15 per cent. on this article.

A Laboratory Companion.

"The Laboratory Companion to Fats and Oil Industries" is the apt title of a book by Dr. Jasewkowitsch, and just published by The Macmillan Co., London and New York. A copy of the book is before us for review. As it consists almost altogether of reference tables for lightening the work in the laboratory, it is impossible to review the work in the customary manner, but we can conscientiously say several good things of it. Thus we can say that it contains some tables the practical usefulness of which we can appreciate from having been obliged many a time and oft to laboriously find by calculation what these tables reveal at a glance—to say nothing of the lessened chances of error. Then again they contain data which, while too complicated to remember long, are often difficult to find in literature when wanted.

The author, whose fortune it has been to do a great amount of laboratory work in connection with these industries, calculated many of these tables originally for his own convenience, and has added thereto others from other recognized authorities in these lines of work, besides calculating a number of additional tables for the special purposes of this book, so that in the 140 pages of tables there is condensed a very large mass of information. The table of contents alone occupies over four pages.

We believe the book destined to become a useful manual in nearly all laboratories connected with the fat and oil industries.

Powdered Soap.

A patent has been issued in Germany for an improved method for powdered soap. The soap is liquefied by the addition of a little water and the application of heat. This fluid mass is then subjected to high pressure and through a proper outlet forced into a chamber where it is broken up into minute particles through the sudden release of pressure. The solvent quickly evaporates, leaving the particles of soap in the form of a dry cloud, which eventually settles.

California Olive Oil.

California olive growers are preparing to harvest their crop. In every orchard in the state the trees are loaded with the fruit, and the acreage devoted to the cultivation of olives is much larger this year than ever before. In recent years the yearly crop of olives seldom ran over 2,000 barrels, or, taking seven barrels to the ton, about 286 tons. The growers who sell their olives as they come from the trees have formerly received $60 per ton for their product, or about 3 cents per pound. It costs 1 cent per pound to pick the fruit, thus allowing the growers $40 a ton for the olives. This year the total crop of the state will reach 800 tons, or 5,600 barrels, an increase of 5,600 barrels over last year. The price this year has dropped 33 1-3 per cent. Olives now bring only $40 a ton as they come from the tree, half of which goes to the pickers, thus allowing the growers only $20 a ton.

QUESTIONS AND ANSWERS

In this column we shall print questions of general interest submitted by subscribers and invite replies to the same from our readers, which will be printed in the next issue of this paper.

QUESTION 5: F. H. Writes from Russian Poland: I am a soap maker understanding my business and having experience from several large factories in Germany and Poland. Owing to the crisis it is difficult to find a position, and I would ask your opinion if it is not advisable for me to go to America to look for a position as soap maker, or assistant to such a one. I am informed that the salary paid soap makers abroad is much higher than here in Europe, and as you are familiar with the conditions, I should thank you for your advice.

QUESTION 6: Please give a reply to the following: The contention is made that a formula is a synopsis of raw materials whose base is elementary, either chemical or natural, without any proprietary right, so that component parts are articles for commercial competition; and that the formula possesses a value by itself, apart
from money-making power from sale of the product. A
recipe is a combination of materials to effect a composi-
tion whose component parts may or may not be of a pro-
prietary character; the valuation of the result is based
entirely on its selling power as created by commercial in-
fluences.

I cannot give you the actual circumstances, but will
give an example of the controversy near enough for you
to form an opinion and reply intelligently: Take a har-
ness soap, with a base of yellow soap (bought from an
outside source) and other ingredients, and with the pos-
sible placing of a proprietary name thereon and selling
the goods as a bona-fide formulated soap is a fake as re-
gards formula, and is a recipe pure and simple; the in-
telligence in compounding it is no greater than a house-
wife exercises in making bread. Whereas in the making
of the base yellow soap a true formula was used, which
required a specific knowledge to effect that chemical
combination, while in the making of the harness soap
the operation was largely mechanical and the combina-
tion was due to natural affinity of the materials used
and required no cultivated knowledge.

It is further contended that these goods as made
with a yellow soap are, as a matter of fact, subservient
to the pleasure of the makers of said yellow soap as a
commercial commodity, in that they have the power to
discontinue the use of the proprietary goods.

Finally, that any one who would make capital of or
sell such a combination before described as a formula
is a fraud and swindler.

Question 7: Is it unusual for a person starting in
business, without a partner, adopting a firm style such
as "Colonial Soap Co., John Jones, Proprietor"? The
reason why I ask is because several firms answering my
letters have asked who the Co. is, when the letter-head
shows I am proprietor. If I have chosen something out
of the ordinary, I did not know it.

Question 8: What is the comparative alkaline
strength between caustic soda, sal soda and soda ash?

Answers.

To Question 4: Cold-made white cocanut oil soap
may turn yellow because of incomplete saponification,
with subsequent rancidity. This may be due to lack of
lye or to faulty methods. Exposure to light and sun
turns such soap yellow with special readiness. The en-
quirer should note from the odor whether the soap is
rancid or on the point of turning so. As a remedy try
using the best oil, clarifying it first, and be sure to use
enough lye.—R. E.

To Question 4: If your soap turns yellow when
perfumed with oil of myrbane, but remains white when
this oil is not used, then the fault clearly lies in the
quality of the myrbane employed. If no other perfume
will answer your purpose, then use a better quality of
myrbane, or artificial oil of bitter almonds, free from
chlorine.

To Question 5: As a matter of principle we shall
never advise a given individual to come to this country
nor to stay at home; it is too serious a matter to advise
in lightly. But for the benefit of our correspondent and
others thinking like him (and there are quite a few),
we have a few general remarks to offer which will not
fail to be useful to those who will take them into serious
consideration. First of all, it is a serious error for for-
egners to believe that higher salaries for soap makers
in this country are in any way due to scarcity of men
to fill positions that may offer; there are at any and all
times some able soap makers out of work in this coun-
try, and some find themselves obliged at times to work
very cheaply in order to have work at all. (See also
the advertisements for position in this paper.)

In the next place, many of our foreign friends have
the unhappy conceit to believe that they are possessed of
a knowledge of soap making quite unknown in this coun-
try, and that will make their services particularly des-
sirable here; in fact, they are apt to think themselves
quite superior when at home, only to find themselves
on their arrival here either very much out of place and
need to learn their business over again, or hopelessly
incorrigible and useless. In either event, they will have
a hard road to travel.

Thirdly, while business in this country is reported
generally prosperous, and while there are certain soap
makers (not too many) in smug places, the average soap
maker in this country has not had much personal contact
with the general prosperity, owing to conditions peculiar
to the soap business which our foreign readers are fami-
lar with by this time.

Fourthly, foreign soap makers should consider that
they have to compete, in looking for work here, with
men who are familiar with the firms, the customs, the
methods of manufacture and the language of the coun-
try, so that they have many difficulties to overcome in
a very unequal contest, before they can—even at the very
best—ever hope to have a secure position as a soap
maker. On the other hand, in leaving their own home,
they give up similar advantages and connections, which
they perhaps do not value sufficiently at the time, but
which they can never fail to sadly miss when arriving
here.

Finally, to sum up, while we do not want to interfere
with the plans any soap maker may decide upon for him-
self, in whatever country he may reside, we feel that it
is within the province of a trade journal to picture the
conditions as they really are, both for the sake of the
soap makers out of work here and for the guidance of
those anxious to come here to swell the number of those
out of work.—Editor A. S. J.
To Question 6: In attempting to answer this question we fear there is danger, while answering on the basis of the example quoted, of not really covering the actual case; in other words, the character of the question is so general that the reply may not fit the exact circumstances of the actual controversy. We may add that we do not know (and do not need to know) which side of the controversy our correspondent is on. If we take the definitions of a "formula" and a "recipe" as given in the question, it does not follow that the "recipe" necessarily has no value as such. The seller of either a formula or a recipe sells information which he possesses to a party who does not have such information; and the real value of such information, whether we call it formula or recipe, depends on the exclusiveness of such information, on its practical utility, and on the buyer's circumstances; in short, each case is a law by itself and cannot be illustrated by another case. If a "formula" for a soap is sold, it will call for caustic soda, which requires still more special knowledge to make than does the soap itself, but which the soap maker must buy; similarly, if directions for a harness soap are sold which call for yellow soap as a raw material, such directions may contain sufficient expert information on harness soap to raise them to the dignity of a "formula" as defined above. If, however, unlike in the case of caustic soda, the yellow soap directed to be employed may not be any commercial yellow soap, but must be a special proprietary brand to make the harness soap formula work out properly, then indeed the value of the directions sold is more or less depreciated, according to the circumstances under which the yellow soap may be obtained. Our correspondent defines a formula and a recipe as two very distinct things, but when dealing with such transactions in actual practice, we think no such clear distinction ordinarily exist in fact, and, as said before, each case is a law by itself.

P S. We wrote the above reply in a letter, but our correspondent insists that as between a formula and recipe the law would recognize a distinct difference, even though the dictionary may not show a clear distinction; he therefore desires us to lay the matter before our readers and request an expression of views.—Editor A. S. J.

To Question 7: The adoption of the word "Company" in a firm name, when the firm is owned by only one man, is not usual at any rate. Looking over a large number of letters in our files, we find only two "companies" that give a single individual's name as proprietor, and of these we know one firm at least to have been, in the past, an incorporated company, which subsequently passed into the hands of a single individual, who retained the old firm-name, merely adding his own name as proprietor on all his stationary.—Editor A. S. J.

To Question 8: Practically the exact comparative strengths will, of course, depend on the purity of the several samples, and as these vary the following reply is based on chemically pure alkalies. The figures given must be modified to allow for impurities.

Eighty parts of pure caustic soda correspond in alkaline effect to 286 parts of pure sal soda or 106 parts pure soda ash or 168 parts bicarbonate of soda.

Similarly, in regard to potash, 112 parts caustic potash equal in alkaline strength 165 parts of the carbonate or 200 parts of the bicarbonate.

Answers In Brief.

J. S. K. & Co.; L. E.; N. & W.: We have telegraphed you our replies.

M. P. Co., of Wash.: There are many examples in business where good fees are paid, not for a large amount of work, but because the recipient of the fee "knows how." But in this case we also happen to "know how" and decline to accept your invitation to pay you $95 for a few figures which we can get where you also would get them, and on the same terms, i.e., for the asking.

F. H., of Ill.: The firm you enquire for started business (after a fashion) four months ago, failed to pay the soap maker from the start, and has now gone and nobody knows where.

G. L., of Wis.: So far as we are aware, the domestic fuller's earth is used chiefly in the refining of mineral oils, while for cottonseed and other fatty oils the imported article is still most in use. A deposit recently found in South Dakota is claimed to be equal to the imported, but we have no means of judging this at present.

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. HENDERSON, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.

Issue of Dec. 3, 1901.


Issue of Dec. 10, 1901.

688,281. Washing-machine Luther C. Baird, Odell, Ill.


688,381. Washing-machine Thomas E. Blanchard, Rifle, Colo.

688,461. Washtub. Anthony Ferbr, assignor to S. Shepard & Company, Buffalo, N. Y.

TRADE-MARKS.

37,358. Eau-de-colognes, soaps, waters and lotions for toilet purposes. Naamloze Vennootschap Eau de Cologne Fabriek Voorheen J. C. Boldoot, Amsterdam, Netherlands. Essentials feature: Concentric circles, the inner one of which has cross-lines, with a star located in one of the sectors and the initials "J. M. F." located in the remaining sectors defined by said cross-lines.


37,360. Toilet soaps. Klepka & Peltz, Carlsbad, Austria-Hungary. Essential features: A landscape scene consisting of a precipitous elevation surmounted by a cross, a chalet, a row of coniferous trees, a fence and a coniferous tree, and a space in the foreground extending up into the middle ground.


37,451. Eau-de-colognes, soaps, waters and lotions for toilet purposes. Naamloze Vennootschap Eau de Cologne Fabriek, Voorheen J. C. Boldoot, Amsterdam, Netherlands. Essentials feature: A portal enclosed by a border with the coat of arms of said corporation having the lion and kneeling figure, the circle with crossed lines and letters "J. M. F.", and star in the sectors defined by the crossed lines appearing in the upper part of the border, and the representation of the Cologne cathedral as it appeared in unfinished condition appearing in the lower part of the panel.

LABELS.

8,789. Title: "Blue Grass Belle." For soap. Remmers Soap Co., Cincinnati, Ohio.

8,820. Title: "Loundrine." (For a Washington-Tablet.) Bachelor & Beedy, San Francisco, Cal.

8,821. Title: "Lever's Dry Soap." (For Soap.) Lever Brothers, Limited, Port Sunlight, England.


8,838. Title: "Gold Brick Scouring Soap." (For Scouring Soap.) Perry N. Nelson, Chicago, Ill.

8,841. Title: "Acton." (For Perfume.) Acton A. Le Fevre, Lancaster, Pa.

**Around the Soap Factories.**

*News items sent us by our readers will find prompt attention in this column.*

The U. S. Manufacturing Co., which started to make soap powder in Chicago recently, is reported by the postoffice to have moved away without leaving a new address.

The Paterson-Downing Company of New York City has been incorporated, to manufacture rosin, turpentine, etc. Capital, $50,000. Directors: R. W. Paterson, E. S. Nash and G. M. Boardman, of New York City.

The Board of Supervisors of San Francisco have granted the Mission Soap & Candle Works permission to erect and maintain a storage tank, having a capacity not exceeding 10,000 gallons of crude oil.

Incorporated: The Sorosis Soap Company, of New York City. Capital, $100,000. Directors: Henry Roeper, of Cincinnati; O. P. Blackburn, of Brooklyn, and F. H. Doland, of Bayonne, N. J.

A plant for manufacturing eucalyptus oil has been started by parties at Santa Ana, Cal.

The main building of the Michigan Alkalai Co.'s sodaash plant No. 1, at Wyandotte, Mich., has been completely burned. The building was 800 feet by 250. The plant was being run night and day, and there were 100 men at work in the building when the fire was discovered. All of them escaped uninjured. Seven hundred men are temporarily thrown out of employment by the fire. The loss is estimated at upwards of $300,000, not quite covered by the insurance.

Papers of incorporation have been filed at Springfield, Ill., by the United Soap Co., Chicago. Capital stock, $10,000. Incorporators: A A. Woolsey, H. Hanchett, M. S. Smith.

The Oregon Potash Co. has filed articles of incorporation in Nevada. The company has a capital stock of $10,000, and will make Reno its principal place of business.

The following circular has been sent out and explains itself:

Joseph S. Elkinton, senior partner of the firm of Joseph S. & Thomas Elkinton, also trading as Philadelphia Quartz Co., has this day withdrawn from the said firm, having sold his entire interest to the estate of Thomas Elkinton, deceased.

The business will be continued under the firm names of Joseph S. & Thomas Elkinton, and of the Philadel-
The Markets.

Tallow.—City tallow is quoted in New York at 6@6½c, for hds; 6½@6½ in tierces; country tallow 5½@6½, as to quality. Chicago reports sales of prime packers at the unusual figure of 7 cents and stocks small. No. 1 packers’, 6@6½c; No. 2, 5½@6c; city renderers’, 6½@6½c.

Grease.—A white, 6½@6½c; B white, 6@6½c; yellow, 5¼; bone and house, 5½@5½c.

Cottonseed Oil.—The market is somewhat dull, owing largely to the holidays. Prime yellow, 4½c.

Corn Oil.—Unchanged at 5½@5½c.

Cocaanut Oil.—Ceylon firm at 7½@8c, 7½c asked for January delivery; Cochín sales reported at 8½c, 8½c asked for January arrivals.

Olive Fruits.—5½@5½c.

Palm Oil.—5½@5½c for prime red oil; 6c for Lagos: palm kernel, 6½@6½c.

Red Oil.—Saponified, 6½@6½c.

Latest Additions to Our Brand List.

329 J. P. Rev., Toledo, Ohio.
341 Monahan Antiseptic Co., Chicago.
328 Mission Soap & Candle Works, San Francisco.

American Green Oil S. 341
American Green Oil Toilet Soap 341
Angora Borax 342
Boccelli Emo. F. Jones
Chem. Co., N. Y.
Bridal Veil Borax 342
Brown’s Original Pine Tar
Brown Soap Co., Dayton, O
Brown’s Medicated Tar,
Brown Soap Co., Dayton, C. C. 5¢
Chiapa 342
Cadmium 306
East India Medicated 334
Egyptian Violets 115
Emolina 306
Evangeline 16
Export 28
Firm Friend 342
Forex 340
Get-There 320
Gold Medal Glycerine 334
Gulf 5½
Good Health Laundry 5¢
Ho-Ae 340
Housekeeper 342
Ingleside 342
King Code’s 341
King Dodo 120
Lawing, A. Geissert, Phila.
Listerol, Alma F. Wooster,
Norwalk, Ohio.
Lotus 237
M. & M. Cocoa 342
M. S. & C.W. 342
Maiden Queen 342
Maid of the Mist 115
Major Dom 16
Marvel 306
Miners & Mechanics’ 342

Mission W. J. Harvey, Los Angeles, Cal.
Mission 342
Mission Bleaching 342
Mission Borax 342
Mission Globe 342
Mission Savo 342
Mound 11
Monahan’s Antiseptic Green
Oil Soap 341
Mountain Lily 342
Napfreteen 342
Naphthalene 342
340 Nip 300
Nugget, Alden Spear’s Sons Co., Boston.
Otto of Carnation 334
Otto of Violets 334
Palmade 342
Persian Rose 115
Persian Violets 115
Rosedale 342
Rose of Egypt 115
Rose of Persia 115
Stanley’s Turkish Lin’dry 342
Radomaker 342
Supercram Shaving 342
Superb peipee Transparent Sham
poo 358
Tartaric Tar 82
Transarosa 282
Tuck 340
Turkish Laundry 342
Union Maid Machinery,’
Brown Soap Co., Dayton,
Vegetol 330
Velox 340
Velox 16
Vestal Jura 16
Vestal Rose 16
Vestal Violet 16
Violette des Amour 331
Wawona 342
White Rose of York 342
White Tar 32

An Australian subscriber to the Soap Journal and purchaser of the work "American Soaps," writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file, in black and white.
Perfumes and... Their Preparation.
A Comprehensive Treatise on Perfumery
By G. W. Askinson, Perfumer.
Price, $3.00

Containing directions for making Handkerchief Perfumes, Sachets, Fumigating Pastils; Preparations for the care of the skin, the mouth, the hair; Hair Dyes, and other Toilet Articles. With a detailed description of Aromatic Substances; their nature, tests of purity, and wholesale manufacture.
300 pages, 8 vo., 32 illustrations.

Sent, postpaid, on receipt of price,
AMERICAN SOAP JOURNAL, Milwaukee, Wis.

THE SPERRY FILTER PRESS
SUPERIOR IN EFFICIENCY AND CONSTRUCTION.
The Patent Plate saves cloths, produces a dryer cake, and is altogether better than the old form. WRITE FOR INFORMATION.

D. R. SPERRY & CO.,
Manufacturers of Vacuum Pans, Steam Jacket Kettles, Caldrons, Etc.
BATAVIA, ILL.

WRITE US ABOUT SOAP MAKERS SUPPLIES OF ALL KINDS

Our Market Advices are interesting—write for them. Cheerfully furnished without charge. Don't forget our construction, equipment and supply department. Ask us for figures before making any changes.

THE BEST ON EARTH INDURINE ASK US ABOUT IT.

DRUGS, OILS AND PAINTS,
Rooms 644 and 646 The Bourse,
PHILADELPHIA.
A Monthly Journal devoted to the interests of the Drugs, Oil, Paint and Chemical Trades.
The most practical trade publication issued in America.
Subscription Price, $2.00 per annum.
Sample Copies Free. Advertising Rates on Application.

Are Your SOAP BRANDS on our Records?
NO CHARGE! WORTH MORE!

In writing to any of our advertisers please mention the AMERICAN SOAP JRL. & MFG. CHEMIST.
THE PREPARATION OF

Caustic Lye
from Soda Ash, by means of

STRUNZ PATENT LYE APPARATUS
AND CONVERTING KETTLES

reduces the process to a very simple and profitable operation. The expense for labor, fuel, and lime being less than by any other process now available, for the following reasons:

The entire process is completed in a single operation.

No Driving Machinery. No Vacuum Pumps.
No Air Pumps to operate by my method.

F. B. STRUNZ,
708-716 BINGHAM ST., PITTSBURGH, PA.
Advertisements under this head will be inserted at the following rates, strictly payable with the order in every case:

**SITUATION WANTED:** $1.00 the first time, and 50 cents for each subsequent insertion.

**HELP WANTED:** $2.00 the first time, and $1.00 for each subsequent insertion.

**FACTORIES AND MACHINERY FOR SALE OR WANTED:** $2.00 the first time, and $1.00 for each subsequent insertion.

These rates are for ads, up to five lines in length; additional lines more in proportion.

In answering any of these advertisements never send original documents, testimonials, etc., especially when the advertisers’ identity is not disclosed.

Don’t waste time asking us for the names of parties advertising in this column without giving their address, as they will not be revealed.

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**FOR SALE.**

For Sale. One 1,800 lbs. Dopp Crotcher, never been used. A bargain. Address, John W. Stine, 806 N. Carey Street, Baltimore, Md.

For Sale. Complete outfit of Machinery to equip an up-to-date Soap Plant. Fine opportunity for the right man to secure a bargain. Owner must remove buildings by January 1st, 1902. For particulars address, Flachs & Company, Quincy, Ill.


**SITUATION WANTED.**

Situation Wanted by an up-to-date soap-maker; makes all kinds of laundry and milled toilet soaps; expert in making the best possible soap of cottonseed oil or soap stock, or any other brand on the market; 35 years’ experience, good habits and the best of references. Address M. R., care of American Soap Journal, Milwaukee, Wis.

Situation Wanted: A practical soap-maker wants a position; can make all kinds of laundry and filled soaps—also export soaps, cold-made and chip soaps—also English experts, mottled and pale or brown soaps, potash soaps and castle, floating and sand soaps; can take charge of factory if required. Address Practical, care of American Soap Journal, Milwaukee, Wis.

**SITUATION WANTED.**


Position Wanted: By a practical soap maker of long years’ experience in all kinds of laundry, family, castle and mill soaps, chips, powders, floating and potash soaps, by any process and from any stock that soap can be made of. Address Doner, care of Francisca, 151 Allen St., New York City.

Position Wanted: By a thoroughly competent, expert soap maker; contract expired Dec. 1. Will advise and instruct new soap companies; will refit or modernize old factories; will visit factories and illustrate the making of the finest and most beautiful soaps on the market, such as snow white, floating, white and colored castle, transparent, very light-colored settled soap from “K” resin; elegant cold-made borax soap, etc., etc. Satisfaction or no pay. Address CONFIDENTIAL, care of American Soap Jour al.

Situation Wanted: By soap maker and chemist; 30 years’ experience as soap maker (laundry and toilet) in all branches, oil refining and in so chemistry; expert perfumer. Address D. C., care of American Soap Journal, Milwaukee, Wis.

Position Wanted: A soap maker who “don’t know it all,” but who is earning $2,000 per annum at present, will be open for an engagement about May 1, 1902. Would like to correspond with parties who can appreciate good work and square dealing and who are willing to pay for what they get. Being a first-class chemist, can do any analysis in the factory, in oils or soap, and thoroughly understands the extraction and recovery of glycerine from spent lyes, etc. Address L. C. H., care of American Soap Journal.

The latest complete edition of our

**LIST OF SOAP BRANDS**

was published on Jan. 1, 1902. All new brands and changes that have been reported since that date are contained in the “Supplementary List” published on another page of this paper.
The attention of our readers is called to the column of

"WANTED" AND "FOR SALE"

advertisements on another page. Manufacturing firms looking for intelligent up-to-date help, or who have second-hand machinery they wish to dispose of, and practical men experienced in any branch of manufacturing chemistry looking for employment, can mutually profit by using this column.

American Soaps.

The revised and considerably enlarged new issue of the well-known work "American Soaps" is finished and now ready for delivery. (For a description of the book in its present form see circular mailed on request).

The increased number of pages in this book is due chiefly to new practical material collected from many sources during the years which elapsed since the appearance of the first edition, and will, no doubt, add greatly to the usefulness of the work.

The first edition of "American Soaps" having been so favorably received, that a copy of it may at present be found in almost every soap factory in any English-speaking country, care has been taken in the new edition to adhere largely to the original plan, simply adding such material as the changes of time or the collection of new information suggested.

In offering this new work to the trade we confidently bespeak for it the same favorable reception which was accorded the original edition in so large a measure.

A copy of this new edition will be sent, express prepaid, to any address in the world, on receipt of $15.00. Address:

American Soap Journal,
322 Windsor Place, Milwaukee, Wis., U.S.A.
COMPLETE

List of Soap Brands

Used in the United States as reported up to January 1, 1902.

This list (in book form) containing over 5,000 brands of soap, with names of makers, has appeared in a new edition (January 1st, 1902) and is kept constantly complete by means of the supplement to the list appearing monthly in the American Soap Journal.

(This list includes registered and unregistered brands.)

Sent to any address, post paid, on receipt of remittance.

$3.00

Address: AMERICAN SOAP JOURNAL, Milwaukee, Wis.

Manufacturers of Soap Machinery
Established 1859

We make frames, pumps, cutters, presses, rollers, slabbers, and we can supply machinery of every kind that is required in a soap factory.

Cartons and Folding Boxes

Soap Wrappers—Alkali Proof

59 Erie St., Chicago.

Samples and estimates furnished

Readers in search of Supplies or Machinery, etc., not advertised in this paper, are invited to write us for information which we shall endeavor to supply.
"Don't ye never prophesy, unless ye know," was the advice of an American humorist. When we predicted last month that the binder would have our brand list ready in a few days, we did not know, first we did not we did not know that the printed sheets in the binder's possession contained an omission which had to be rectified by reprinting one of the forms; and then we did not know that by the time this form would be printed the binderies of this city would be laid idle by a general strike.

As a result of these two things, that both came to pass, we were obliged in the end to have the books sent to Chicago to get them bound at all. No one can regret this more than we did, as it not only necessitated many lengthy explanations but also reduced our stock of these lists, since in particularly urgent cases we supplied unbound copies to be followed later by the finished book.

We now have a goodly supply of bound copies on hand and, barring fire, war, earthquakes and other acts of providence, hope to be able to fill orders without un-toward accidents.

While writing the above, the strike has not as yet spread to the printers who, however, are threatening to go out in sympathy with the binders. If that should occur we may have to get this paper printed in Chicago also, in which event we cannot foresee all the possible complications and delays. If therefore this paper should in the last minute be lacking in any way, please sympathize with us instead of making it warm for us.

On January 2, a letter was mailed us from Ireland by a soap manufacturer in Cork; it was deficient in address, bearing only the words:

The Publisher:

"THE AMERICAN SOAP JOURNAL."

United States.

It arrived in New York according to stamp on envelope, on January 13, at 5 p. m. It was there provided with the mark "Milwaukee, Wis.," and arrived at the Milwaukee post office on January 15, at 6 p. m., just 48 hours after arriving in this country.

This promptness in delivery under the circumstances and the facility of the post office department for supplying missing addresses deserve to be mentioned, specially since occasionally we have to find fault with the same post office for losing copies of our paper.
It is with regret that we notice that the illustration which accompanied last month's article on "Unsettled Settled Soap" was very far from doing the subject justice, so that it indeed but poorly served its purpose. The original photograph, though taken with great care and attention, did not come up to the specimen of soap which it represented. Then the half-tone—admirable though such reproductions are for many purposes—could not reproduce all the delicate shadings of the photograph, but the proof furnished by the engraver (taken on enameled paper made for just such purposes, and taken by hand) made it appear that the cut would still answer a useful purpose. Printed on a rapidly working printing press, on unenameled paper, there was necessarily another degree of fading out of the details, so that the final result was rather a disappointment.

We have, however, a copy of the original photograph, which we shall be pleased to show visitors.

A subscriber who desires to have the 1901 issues of the Soap Journal bound, is short the April issue. We will pay 25 cents for a copy of the same if in good condition.

Our excellent exchange, Les Corps Gras Industriels, comments on the increasing quantity of soap exported from Germany to the United States under French labels, and, more than that, claims to have absolute knowledge that soaps, made in Germany, are being imported into this country, "bearing the most justly reputed Parisian trade-marks." It suggests in this connection that the Chambre syndicale of perfumers at Paris send an agent to the United States to investigate and follow it up with the appropriate judicial proceedings.

The Seifensieder Zeitung at Aueburg takes occasion to warn German firms against a continuance of such "unfair competition" and refers to the recent punishment of a Berlin merchant who had sold a cosmetic preparation made in Berlin under the trade-mark of a Parisian firm.

Having thus heard from representative organs of soap manufacturers in both France and Germany, we cannot pass this subject by without a few remarks on our part also, for the American soap manufacturer is also affected by such transactions. It is bad enough to have bona-fide French soap imported into this country; it is worse to have a counterfeit article come under a make-believe French label, and still worse to have such labels actually counterfeit reputable trade-marks. Our courts have quite recently been called upon to stop and have stopped the counterfeiting of a foreign soap brand within our own borders, and will be equally prompt in stopping the importation of such goods as our contemporary complains of. Our soap manufacturers would gladly afford all possible assistance to any authorized representative of the French manufacturers who might come here for investigation.

We may as well mention, in passing, however, that we have quite an assortment of orthographically and grammatically more or less weird "French" soap brands of our own (which do not counterfeit any real brands though), which the gentlemanly representative of the French manufacturers will be expected to find very nice (on the ground of "what are you going to do about it?")

Changes Affecting Soap in Australia.
(Reported to Soap Journal by Special Correspondence.)

ADELAIDE, December 12th, 1901.—The new Australian tariff, which is now being passed through the Federal legislature, has been described by the Premier of Australia as a compromise tariff, and this is a good description.

A number of industries have sprung up under the various colonial protective tariffs, which may easily vanish again if the Australian ports were thrown open under a purely free-trade law. At the time of the elections the question of free trade or protection was practically the only issue, and the result was that, while the lower house was returned with a majority of protectionists, the senate has a strong majority of free traders, some of whom would go straight for the British tariff, and others who temper their zeal for free trade with a feeling of responsibility towards those who, under the old conditions, had invested in manufacturing businesses now being placed in peril.

When the tariff was brought in, a howl of indignation went through the States, some complaining because the duties were not high enough, and others because they were too high. This was followed by an attempt to throw out the Ministry, on account of their tariff proposals, which failed, and upon going into committee, it became evident that very material reductions in the original rates proposed, would have to be submitted to. And it would seem that the average of the tariff, excluding tobacco and narcotics, will be about 15 per cent. on manufactured articles, while the free list of raw products is made as large as possible, by the fact that every article not specified as not carrying a duty will be free.

The duties which may interest our readers most are toilet soaps, including weight of package, 4d per lb, washing soaps 3d per lb, candles 1d per lb, and soap powders ½d per lb.

Kerosene carries a heavy duty for revenue purposes only. The original proposal was 3d per gallon, but it seems likely to be reduced before the tariff is finally settled to 2½.

The excise on alcohol has been increased so materially by the new tariff, that the use of spirits for transparent soaps is pretty effectually precluded, unless manufacturers wish to make soap for honor and glory only.
Unclassifiable Soap Brands.

Editor American Soap Journal.

Dear Sir: After reading with much interest the article on inventing soap brands which you published in the January Soap Journal, I do not want to make light of a really serious subject, and the writer of said article surely deserves credit for it. But I can't help telling you a story that I recall in connection with reading the names in the class "unclassifiable":

A visitor was shown through a large building occupied by the main office of a large railway system; having seen very elegant offices, and very large offices, and very busy offices, in various parts of the building, he was conducted to a certain securely bolted door and invited to look through a little peep-hole. He saw a padded cell with a table, writing material, and chair, on which was seated a man with disheveled hair and wild appearance. The guide explained that the occupant of this "office" got a salary of $5,000 a year. The visitor stood aghast, and then enquired to know what a crazy man could do to earn $5,000 a year. "He invents the names of the sleeping cars on our line," explained the guide.

With compliments of the season, and wishing the Soap Journal ever increasing success, I am,

Yours truly, J. G. Kuehn.

New York, Jan. 20, 1902.

Soap Making in Mexico.

(Continued from the December Soap Journal.)

The belts had not been tightened for three years, and the boilers not cleaned in the same length of time; the whole outfit was out of proportion to the result accomplished. I was informed that there was machinery for manufacturing cotton oil or castor oil; now everybody who knows an oil mill will see from the following, that there was only a very inadequate cotton oil mill.

The seed was carried in sacks of about 75 lbs, by men from the storehouse, about 50 feet to the elevator (which stopped regularly by slipping on the pulley whenever a sack was dumped on at once). The elevator carried the seed to an octagon screen which worked all right, cleaning the seed from dirt and small stones on one end, and on the side from stones larger than the seeds, and in front discharged the seed and a few stones and pieces of metal that are of the same size as the seed; it discharged into a blower meant to blow the seed over magnets and then over an empty space, whereby the last impurities were supposed to be separated from the seed. But as a matter of fact, the machine was put too near the elevator into which the seed was blown, so that owing to the small space, the seed and impurities all went together. This elevator discharged to a linter, but as a stone would spoil the saws or break the ribs, two men were stationed here to hand-pick the seeds. From here the seed went by a chute to the huller—P. S. if nothing stopped the machinery and the seed was not blocked, which was liable to happen on account of too little pitch. The huller was out of order, and about 10 per cent. of the seed went through without being hulled, and so were lost in the separator as they followed the hulls out to the boilers by way of a conveyer—which worked only when a man (stationed on top of the box, so as to hold the broken sides of the box down and to keep the conveyer wheels from slipping) kept the belt on the pulley with a stick—the pulley not being in line. From the separator the seed fell down to the mill, where again another man had to stand, as the mill elevator was too small to carry off the meal as fast as it came from the mill; this man taking some of the meal out and later on—when the rest of the machinery was idle—taking it up with the elevator to the floor above, where it was shoveled by a man into the heater. Here it was cooked, or rather stewed, for all the meal was overcooked and made a coal-black, ill-smelling oil. From the heater the meal fell down to a small carriage of a capacity to take enough meal for one presscake; this carriage discharged the meal on a cloth on the shaper, a machine which was intended to press the meal with one blow into the form of a press cake. But in place of one there were required two or three blows each time. The live steam pipe, as well as the exhaust steam pipe, were more or less filled with a rubber-like substance, due to oiling with cottonseed oil, instead of lubricating oil. From the shaper, the meal was transferred to the presses, where it should be exposed to a pressure of 3,500 lbs per square inch; but I found that the hydraulic pump could not furnish over 2,400 lbs, because the spring governing the overflow was too loose.

To people here in the United States, this description of an oil mill will seem to be imaginary, but every word of it is correct, and any number of further details I have not mentioned.

The fuel was Meskito wood, transported on donkeys a distance of 12 kilometers—about 9 miles—each donkey carrying 300 lbs.

The men received from 37½ to 75 cents Mexican money per day, which is surely cheap; but you need three or four of them to do as much work as does one man here, and then they need constant watching, as they are never to be relied on. Thus I repeatedly saw them smoke their everlasting cigarettes around the linter and once they set the cotton on fire in this way; as luck would have it, I just came into the room in time to grab the burning roll of cotton and throw it out of the window.

(To be continued.)
The Requirements of Toilet Soaps.

(Copyrighted by Geo. A. Schmidt, Chicago, Ill.)

The very first thing necessary to make good serviceable soaps, is proper ideas about what is needed about the real purposes and objects of soaps. Old fashioned fancies in regard to the cleaning qualities of the products of soapmakers are not sufficient in this progressive age. We must go deeper into the subject. We must understand that mankind, in order to be able to resist the overgrowing demands of civilization upon our energies, to keep us well and strong, needs not only proper food, rest and the various things recommended by physicians, but something else besides which has not been heretofore recognized in all its importance. The failure to get satisfactory results from following the beaten paths of hygiene, proves conclusively that something has been wanting, and we will endeavor to show what it is.

"Time" is usually blamed for the deterioration, the destruction, of everything, ourselves included, but that it is not "time" but something else, is demonstrated by the fact that we succeed in preserving things by certain processes, and the methods we employ and those used by nature. The fact is, that decay usually commences from the surface. Nature, therefore, provides her creations with a protective covering, the rind, bark, shell, skin, etc., all of which have certain properties, which resist the attacks of "outside influences" for some time.

It is but recently that science has discovered what these "outside influences" really are. The smallest living organisms are getting the best of us big fellows, and we must use more common sense if we desire to come out victorious from the unavoidable struggle. Let us see what some of our most popular writers have to say on the subject. Here is an extract from a recent editorial printed in one of our big Chicago dailies. It reads thus:

"An intensely interesting feature of the struggle between man and the microscopic animal life that pursues him is this:

We are protected against these miserable little demons of the world of disease, not by our own muscle or great strength, but by other little living creatures which dwell in our bodies in hundreds of millions. The blood in our veins, the mucous membrane, with which we are lined throughout, afford a resting place for endless millions of living creatures, beneficent in their nature.

These energetic little inhabitants of our bodies, notably the little leucocytes, which dwell in millions in the blood, do our fighting for us.

While we are in good condition, and the swarming, healthy animal life inside of us is prosperous, happy, strong and able to fight, we can keep at bay the disease-breeding animals that attack us from without.

When our vitality is lowered by accident, or false living, or age, the little animal armies inside of us become feeble in proportion, attacks from the outside succeed, and we leave this mortal flesh to begin over again.

You should use your brains to help the army within, that is trying to help you. "You should keep clean."

Upon reflection, you will come to the conclusion, that it is our skin which forms the dividing line between health and disease, which keeps the external minute, but deadly foes, from overcoming those powers within us which keep us well and vigorous. We reproduce below, an article from the Boston periodical, The Young's Companion, which throws light upon the same question from another standpoint.

Prevention of Skin Diseases.

"Among the most common diseases of the skin are acne and eczema, one of which is known to be, and the other probably is, the result of the presence of a microbe on or in the skin. This microbe is a vegetable growth, although a very minute one, and like other noxious weeds, when once it has been planted and has begun to grow, it is often extremely difficult to dislodge it.

"Every farmer knows that it is easier to keep a field clean by constant care, than to clear it after it has once been overgrown with weeds. It is the same with the skin. It is easier to keep the skin in health, and to arrest a commencing disease, than to cure a disease once it has become firmly established.

"If it were generally understood that the presence of a few pimples constitutes a true skin disease, which, if neglected, will probably grow worse, few persons would suffer from the disfigurement of acne.

"The skin is much like the system in general: if it is in good condition it will repel the assaults of disease, but if neglected, it becomes less resistant, and soon offers a favorable soil for the growth of noxious germs.

"The skin is one of the so-called excretory organs, and if the other organs of similar function—the kidneys and the bowels—do not perform their work properly, an undue proportion of the waste products of the body must be got rid of through the pores of the skin. This throws work upon the integument which it is not accustomed to perform, and it soon becomes diseased in consequence."

These quotations (to which might be added many more) from sources which certainly have no business interest to make people anxious about proper skin culture, ought to open the eyes of every thinking person, to the very great importance of assisting nature in her efforts to keep under control, to destroy and remove these germs, or whatever you way wish to call what is constantly at work to destroy us and our surroundings in their endeavors to exist themselves. It is here, as everywhere in nature, the struggle for "a survival of the fittest", and we must fit ourselves to survive, by
learning more about the important question of proper skin culture. We will not here consider the vast improvement in appearances due to proper cleanliness, that is superficial and consequently well understood. Our object lies deeper, we want to show by examples how things are preserved by certain processes, in order to prove how we can preserve ourselves. If we learn to comprehend the principles according to which perishable articles are preserved, we can better understand how to preserve ourselves. Here are a few examples.

We use salt, spices and other preservatives to keep food from spoiling too quickly; cold is also a good preservative, as our cold storage houses testify; and the opposite, heat, is for some purposes even better. Boiling destroys the germs which cause putrefaction, and if we keep them away by sealing hermetically the packages which contain the sterilized food, it will keep unchanged for a long time. Many other processes testify to the power mind has over matter.

Metal surfaces are preserved by polishing them, but we must keep on doing that, we must keep them perfectly clean, if we do not want to cover them with paint or varnish. While this way of sealing up and burying germs, etc., by means of paint, as far as wooden, stone, metal, etc., surfaces are concerned, is a good one, it would be dangerous to attempt it with our bodies.

Our skin, as we have seen above, performs many functions necessary to life, and is too delicate to stand such heroic treatment. Even the modified “painting” resorted to by some ladies, is injurious; it will not do to block up the pores by paints, powders or cosmetics. Neither is it wise to simply kill the germs by poisons, often contained even in expensive cosmetics and toilet preparations.

Lister, the English surgeon, who first made operations possible that were deemed impossible before antiseptics were known, and many others after him have proven to the world that a better skin culture is sorely needed. Many more diseases enter our system through the skin than is generally known, and the variety of malignant germs seem to increase continually, or rather, we learn to know more as our studies advance. Happily, with increasing knowledge, we are able to heal and prevent diseases which proved very destructive formerly. The achievements of Pasteur, the French scientist, of Dr. Robert Koch of tuberculosis fame, and others, are proof of this.

The peculiar nature of “things” which gather on our skin, make complete removal, to a place where they can do no further harm, the only safe and satisfactory way to proceed.

But our forefathers have existed and grown old without knowing anything about this subject; why should we bother ourselves? ask the superficial ones. Simply because civilization progresses, and, with it, increases the demands made upon our energies. We only need to open our eyes and look around us, and we will observe how the same natural laws hold good all over the world. Savage tribes succumb to the influences of civilized life, unless they adopt proper ways of living. Forest trees and plants disappear when settlements grow; a different vegetation, requiring different soil cultivation, springs up near cities. Wild animals, with no other duties to perform than to exist, manage to get along without any care; no grooming is necessary, until we expect from the horse, that it works for us; its endurance increases with the care we bestow upon it; our fastest race horses now receive a much more rational skin culture than most people do.

In ordinary cases, and with persons whose health and vigor are unimpaired and where the demands of modern civilization upon the energies of individuals are proportionate to their strength, ordinary methods, the washing with common soap and water, may seem sufficient, but the many sallow complexions, the increase of skin blemishes of many kinds, show plainly that a more suitable and thorough way of skin cultivation is needed even by robust persons.

We repeat, it is with the human skin as with land, on the latter grow innocent grasses which do not extract a great deal of nourishing substances from the earth, while in other places there are plants which will exhaust even the most fertile soil, so that no useful crops can be raised as long as they predominate. Canadian thistles, etc., etc., in modified forms, are found on the human skin as well as on farms.

For many centuries it has been an acknowledged fact that baths have a decidedly beneficial influence on peoples’ health. It was noticed, however, that water alone was not sufficient, and so baths were given in many forms, hot and cold, as local or complete applications, as mineral, mud, etc., etc., baths, as washings and wrappings, sprays, douches, etc. In times gone by, external applications were only empirical, now we can see our way clearly and know exactly how to proceed in order to remove from the skin whatever does not belong there.

The use of soaps as a help for dissolving, loosening and enveloping undesired “things” and making them easy to be rinsed away, has been known for a long time. While decided improvements were made in almost all branches of human knowledge, no decided improvements in the efficiency of soaps has been made, for nearly a century.

This tardiness of real improvements in soaps is largely due to the fact that the public in general, even soap manufacturers, did not realize the importance of the duties of suppliers of means for rational skin culture, and for the promotion of sanitary cleanliness.

The usefulness of good, well made soaps can be increased a thousandfold if people will get rid of the er-
ronous idea, fostered by quacks, as if soaps were simple articles to be used indiscriminately. The fact is that the action of soaps takes place according to well defined natural laws which, owing to their complicated nature, are understood by very few, yet it only needs the close application of common sense to understand why the average piece of soap cannot properly clean so uneven a surface as the human skin. The same resembles the bark of trees in many ways, and offers fully as many, or more, opportunities for "things" to cling to and hide in, from which rough surface mixtures of everything in existence should be removed completely. As portions of the conglomerate possess properties like burrs and other seeds of plants, which adhere tenaciously to clothing, etc., and also tar and paint-like substances, the solvents used must be able to tackle every variety of "waste matter". If we look at the human skin through a microscope, we notice millions of channels which open in "the furrows", intersecting our skin in every direction, and which secrete waste matter, which often dries up and clogs these minute sewers of our bodies. Everybody has felt what follows such stoppages, although few know what caused the feeling of depression and ill health, when "the pores" are stopped up, when we "caught cold", etc. Can you imagine for a moment that a few passes with your hand, moistened with a watery solution of soap made by men who do not know any more about the subject we endeavor to explain, than the man in the moon—do you think that much good can be accomplished by the superficial methods of washing, now in vogue?

As familiar simple examples best illustrate complicated ideas, let us compare the human system, the circulation of the blood through the arteries and veins, to the water supply and sewers of our great cities; the water mains and supply pipes are like the arteries, they bring clean water (as the arteries bring pure blood from the lungs), the drain pipes carry away waste matter (as the veins lead the impure blood from the system to the lungs to be re-oxidized through contact with the oxygen of the atmosphere which we breathe). In such places where the minute arteries verge into smallest veins, are the points of greatest resistance to the pumping action of the heart. It answers our purpose best to deal solely with the innumerable smallest blood vessels, located nearest the skin; here similar things happen as do in our homes, where both systems, the supply and the drainage, meet. Here, stoppages and interruptions are most likely to happen, here are the narrowest passages. If there is a fish in the water supply, it will not clog up the mains, and ground coffee, tea leaves, grease, etc., lodge in the smaller house drains, and not elsewhere in the sewerage system.

If, from any cause, there are impurities in the blood, where will the trouble begin and where ought remedies to be applied? It is not difficult to imagine that the heart, the pumping engine which keeps the circulation in motion, must suffer it the smallest passages, those located nearest the skin, are clogged, and that, where they are located, we must assist nature to carry out her intentions, by means of a proper cultivation of our skin.

If the following subject appears unpleasant to contemplate, remember that the most learned and talented scientists, highly educated, intelligent engineers, and others in the highest paths of life, devote their life's work to devise, build and maintain proper sewerage and drainage systems in our cities. While we may sometimes leave unpleasant subjects to others, our health demands urgently that everybody give his personal attention to matters which cannot be neglected without serious consequences. "To the pure, everything seems pure", remember that, when considering that in reality the millions of minute openings covering our skin are the mouths of as many tiny sewers, subject to similar rules as hold good in our city sewers. Experienced men will tell you that it is a fact which they cannot explain, that, at the narrowest passages, stoppages occur most frequently where the smaller drains open into the large mains. You can observe this in villages or suburbs, where sewers run in open ditches, there a greasy, slimy filth accumulates and equally nasty, slimy creatures of both the vegetable and animal kingdom are found; worms, leeches, snails and other slippery things, invariably found in such locations, cannot be effectively removed by making them still more slippery—not the making of things slippery, but the solvent, enveloping properties of well made soaps are needed.

Perfectly healthy, robust persons, doing hard bodily work, do not need our preparations so badly. They are in a position to live according to scripture, which tells us, "In the sweat of thy brow, thou shalt eat thy bread". With them nature attends to the flushing of the sewers, a thorough perspiration during hard work, to them, is what a heavy shower means to a brook with sewers emptying therein; the flood washes away all impurities. Your physician, however, will explain why it is not only impracticable, but often dangerous to force our systems to exertions necessary to produce, artificially, such floods. Innumerable are the cases where serious illness followed the use of Turkish or vapor baths; civilization has changed our natures, nowadays, the human mind must attend to many duties formerly done by our bodies, and common sense methods of keeping in perfect working order the sewerage systems of our skin, such as are explained in this essay, are amongst the triumphs achieved by proper consideration of the subject.

The secretions through the skin vary not only in different persons, but also in the same individual at different times. The way of living, the seasons, etc., etc., cause a change; sometimes the waste matter secreted
by the pores, etc., are more or less acid (sour) and require, for their neutralization, alkaline preparations of various compositions; then again the opposite is the case when the mildest soaps are indicated.

It should not be forgotten, however, that the duties soaps have to perform are of different kinds. They act, first, as removers of secretions; second, as softening and detaching agents for old, dead, hardened skin; third, as destroyers and removers of parasites, germs and bacilli; fourth, as stimulants for skin action, which latter may again be divided in regards to the duties of the secretory glands and the nerve ends which abound in the skin.

The Man Who Knew A Good Thing.

Once there was a Town in which there were two Merry-Go-Rounds. The Boss of one Nickel-Varier said that his Machine was better than the Other and if Folks did not see it that way they were Fools. The Ringmaster of the opposition Carousel replaced some of the out-of-tune Pipes in his Hardy-Gurdy and called the Attention of the Young Man who did local stands for the Evening Blazoo to that Fact. A free ad worth 20 cents a line appeared in the pure Reading Matter of the Blazoo next day under the head, “Improvements Noted in Our City.”

The Pushing Citizen who took the Gate Money for the Popular Entertainment dropped in to thank the Editor and incidentally remarked that if he would send the Little Ones down any Evening when School was out, he would give them his best Attention.

Next day a double-headed Editorial on the Happiness of Youth came out in the Blazoo, and the Wise Guy was mentioned by Name as a Blessing to any Community in which there were Children. Lots of People read and acted under the Impulse of the Moment, while others Reasoned that if the Editor’s children rode they did not see why Theirs shouldn’t too. And the very respectable Dizzy-Mill Man who at first thought the people were Fools, became convinced that he was Right.

The Boy who passed up the Locals felt sorry for the reflective Purveyor of innocent Amusement and went around to give him a Jolly. When he asked if there were Any Thing Doing fit to print, the only Answer he got was, “I can’t think of a thing. Oh, never Mind!” After that he didn’t mind a little bit.

Just for a Lark one day when News was scarce, the Pencil Pusher got his Crowd together and each Mother’s Son of them took his best girl down to the Wise Guy’s place for a Whirl. The idea took and after that the Grown Up Young Set could be found doing the Circus Act every Wednesday afternoon—but not on old Frosty’s Reservation.

The Wise Guy and the Blazoo Literary Cult played the Game of I-tickle you-and-you-tickle-me to a finish, and the Guy’s Standing-Room-Only Sign had to work Overtime. When the Constable levied on the other Machine for License Fees, the Wise Guy bought it for a Song, and soon made Money enough out of it to buy a second-hand Circus Tent and make a first Payment on a vacant Lot.—Druggist’s Circular.

Simulating Trade Marks.

The problem, how far one must keep from established trade marks of competitors and from their styles of packages and general appearances, has troubled more than one manufacturer who was about to bring out a new brand. (In a few cases it would be more correct to say that the problem was, “how near one might come” instead of, “how far one must keep away”, but what’s the use of splitting hairs?) A recent decision by Judge Wing, in the U. S. Circuit court for the Northern District of Ohio, which throws a bright light on this matter, is as follows:

“It appears from the proof in this case that the complainant, the Sterling Remedy company, shortly before the year 1895, introduced into the market a laxative remedy containing the drug called, in Spanish, Cascara Sagrada, meaning “bitter bark,” combined with other ingredients calculated to produce the purgative or laxative effect upon persons using the remedy. The remedy was made up into dark brown, flat, slightly elongated, octagonal tablets, upon which, in a raised form, were the initials “C. C. C.” These tablets were put up in rectangular tin boxes, with rounded corners, the boxes having a gray-colored background. The boxes were lithographed in this color, with gilt and blue letter-press lettering. The name most prominently appearing in this letter press was “Cascarets,” with underneath, in gilt and somewhat similar letters, “Candy Cathartic.” There was other lettering upon the box in smaller type.

“The proof further shows that the defendant is a lawyer, and that in the year 1900 he prepared to make sales of cathartic remedies in a way which the complainant says is unfair, and which operates as an invasion of rights in business which it has acquired by extensive advertising.

“I need not go closely into the matter of the comparison between the boxes and the boxes sold by the defendant and those introduced to the market prior thereto by the complainant. When a box sold by the defendant is compared with that introduced by the complainant, such dissimilarities appear that there would be no difficulty in distinguishing the one from the other. There are similarities of effect upon the observer produced by the markings of the two boxes, and the ways in which they are advertised for sale and presented to the public. The defendant, I think, studied to so prepare his boxes and their contents that confusion would arise which would result in the purchase of a box of
the defendant's medicine by one who had become favorably disposed towards the use of the remedy introduced by the complainant.

"The phrase "Candy Cathartic," I think, is a fancy name, and, when used with the word "Cascara," forms an alliterative combination of words which is catchy and has a tendency to leave an impression in the mind of those whose attention has been called to it by either hearing the phrase or seeing the advertisement. The defendant has used this same alliterative combination, evidently with a view of getting the advantage of whatever impression a similar combination of words had made by reason of the complainant's advertisements, and introduction to the trade of its product. It was not necessary for the defendant to use this arrangement. To be sure, he used the word "Cascara" instead of "Cascars."

"I cannot escape the impression, from all of the evidence, that Gorcey studied to so prepare his tablets, which are in the exact similitude of the complainant's, with the exception of one letter, "G," and put them in boxes of exactly the same shape as the complainant's, boxes of a color nearly the same, with lithograph work of the same general appearance, for the purpose of taking unfair advantage of the complainant. I think that his purpose was to create a similarity, and to thus take advantage of the established trade of the complainant.

"Whatever differences exist (and it must be admitted that, upon close comparison, there are many) between the package used by the defendant and that introduced by the complainant, were concessions to expediency by the defendant, with a view of using such differences as a ground of escaping the appropriate remedy, when invoked by the complaint, against unfair methods.


"In this case, as in the one referred to, I think, while there are differences between the packages, the differences are less observable than the resemblances. Unless the defendant intended to infringe upon the rights of the complainant, he has gone to extraordinary pains in imitating the package of the complainant for no purpose. If he intended to build up a trade for himself, he has much limited his chances of success by starting out with a package in form, color and arrangement of print so similar to those already introduced by the complainant. It will necessitate a much larger expenditure of money in the way of advertising to give individuality to his wares, than it would have started with a subject matter which had an individuality of its own.

"The word "Cascara" is the name of a drug generally known as a good laxative, and the defendant should not be enjoined from using that name. The phrase "Candy Cathartics," I think, is a fancy name which has been appropriated by the complainant, and the defendant should not be permitted to use that, or its plural. The defendant may sell tablets which are compounds of cascar, and, appropriately naming them, he may use the word "Cascara;" and the decree of injunction in this case must not be so sweeping as to prevent the defendant from so doing. But he must not continue in the line of conduct which he is now pursuing, and, since he has disclosed an intention to introduce his remedy to the public dressed in a similar guise to that used by the complainant for its article, he must be enjoined from further so doing.

Counsel for the complainant may draw a decree in accordance with these suggestions."

**Transparent Glycerine Soap Without Spirit.**

By transparent glycerine soap is generally understood a clear transparent toilet soap made with or without spirit, and sometimes containing glycerine, and of any color. The glycerine is by no means an essential ingredient, and may be replaced by sugar, for example. The absence of glycerine cannot be detected from the appearance of the soap, but betrays itself by the inferiority manifested by the soap when used.

When spirit is used in the manufacture, it must be pure, i.e., unmethylated, and in most European countries, such spirits has to pay very high excise duties. It is therefore of extreme importance to the soap-making trade, which is continually finding itself compelled to produce its articles more and more cheaply, to find some substitute for alcohol for the soaps in question.

In order to manufacture a glycerine-soap without spirit, which will yet be satisfactory to the customer, great care has to be taken in the process, and to have the materials of the proper quality, i.e., pure and clean, and of the exact strength necessary. The following recipe may be confidently recommended:

- Cochins Cooconut oil..................130 kilos.
- Fresh white tallow...................185
- Castor oil No. 1 for pale soaps, No. 2
  - for dark soaps)..............................95
- Glycerine, white and free from home....33
- Caustics soda lye of 38deg. B. and
  - perfectly clear and colorless...........166
- "Solution" clear and colorless ........215
- White soda crystals....................10

**Color:** For pale soap.....Lemon Yellow, No. 59.
  - dark soap.........Wax Yellow No. 8.
  - red soap..Transparent Red No. 85.
  - dark green.Transparent Blue No. 157.

all of Messrs. Hessel, of Nereau.
Perfumes:  
(a) Citronella oil........ 1,500 grs.  
Cinnamon oil........ 1,300 "  
Cedarwood oil........ 480 "  
Clove oil........... 120 "  
(b) Cassia oil........... 1,300 grs.  
Lemon oil........... 800 "  
Clove oil........... 520 "  
Bergamot oil........ 560 "  
(c) Cinnamon oil........ 1,300 grs.  
Lavender oil........ 900 "  
Fennel oil........... 300 "  
Clove oil........... 300 "  
Aniseed oil........ 180 "  

All for the above quantities of fat, etc.

The day before the actual manufacture is begun certain preliminary steps must be taken, such as clarification of the fats, and the preparation of the "solution," which always contains sugar, carbonate of potash, and common salt, and sometimes chloride of potassium, as well. Next day, the fats are weighed out and passed through a hair-sieve or cloth to remove any dirt. They are then heated in a jacketed kettle by means of hot water or steam, to 167 deg. F. At this temperature are eructed in gradually and thoroughly, first the glycerine and then the lye. The temperature must then be brought to 167 if necessary, and the kettle must be left covered over for an hour or an hour and a-half, when its contents will saponify, the heat evolved in the process maintaining the temperature. An eye must be kept on the kettle lest it boil over. If, on the other hand, saponification is slow to set in, more heat must be cautiously applied, and the mass diligently eructed. When saponification has happened, the contents of the kettle are eructed and heated for a short time, without, however, bringing them to the boil. The kettle is then again covered over for half an hour to give full time for complete saponification, which is an absolute necessity. In the meantime the "solution" and the color are weighed out and mixed in a vat with the soda. The whole mixture is heated to about 167 deg. F., and then poured with diligent crutching into the soap. When the soap grain is fully dissolved, the temperature must be brought back to 167 deg. if necessary, and the kettle again left covered for 30 to 60 minutes. The temperature must never be allowed to get above 167 deg., or the soap will be made brown, and it will be impossible to alter it. At the expiration of the last interval, any remains of previous boilings of the same kind may be eructed in, and two samples are taken, a small one and a fairly large one. The temperature must be kept steady at 167.

To prevent smallness of yield, due to loss of water by evaporation, from 1 to 10 per cent. of water are now added to make up, and the soap must lie in the kettle clear, and so looking dark and almost black, and with only a slight froth. The samples above alluded to, should, when cold, cut up into firm, perfectly transparent flakes, uniform in color, and with just a slight alkaline touch. If, on the other hand, the sample is turbid, although firm, the soap wants water or "solution," and the same should be added little by little, till the sample pans out right. Great care, however, must be taken not to overstep the mark. If the sample is clear but not firm, and without strength, more lye is wanted. This is then added with the same precautions as are observed with "solution." If the sample is clear but not firm, but with the proper strength, too much water is present and more crystal soda must be added. If, however, too much is added, the soap will effloresce in cold weather. Undue softness may also mean impure alkali containing too much carbonate. The remedy is obvious for future boilings, but the present one can only be put aside and gradually added to better lots. If the sample looks as if it had a veil over it, the soap is too caustic, i.e., has too little carbonate. Carbonate is therefore cautiously added in the form of 20 deg. B. carbonate of potash.

The soap should not, of course, settle a precipitate in the kettle. If it does, the fault may be excess of lye, and will be remediable by the addition of cocoanut or castor oil. The soap may, however, want water, and this will be the case if a sample gets too stiff. Saponification, too, may be incomplete, in which case the strength will be very sharp and the soap soft and greasy feeling. This can only be remedied by prolonged heating and eructing. Yet another cause may be the presence of excess of salts. This is the case when all the signs above enumerated are present, and none of the remedies mentioned is of avail? The only remedy is the use of more fat.

If the cold soap shows little white stars and streaks, lime-soap is present, which spoils the appearance of the soap, sometimes to the point of making it unsaleable. This trouble is unavoidable if the glycerine used contains lime, or very hard water is used.

If all is right, the contents of the kettle are now allowed to cool to 145 deg. F., and at that temperature the scent is added. As soon as this is done, the soap is framed. In doing this the soap must always be poured through a fine wire sieve, and the operation should be carried out as quickly as possible. The best frames are of wrought iron and narrow shape, and only holding about 3cwt. each, so that the soap may cool quickly.

The remaining operations of cutting, pressing, and wrapping, etc., are not without an important influence on the appearance the soap will present to the retail buyer, and a somewhat second-rate soap may have its looks improved, by carrying out these operations in a suitable manner. In the first place, no attempt must be made to cut the soap till it is thoroughly cooled, and the cut surfaces must be allowed to dry before stamping, which will take from 48 hours to a week, according
Adulterated Drugs.

From a paper read by L. F. Kebler, before the American Pharmaceutical association at St. Louis, we abstract the following notes.

COUMARIN.—A sample of this article was submitted for examination and proved to be of very good quality. Accordingly, a good sized order was placed, and when the goods arrived another examination showed the material to possess a melting point from 54½ degrees C. to 57 degrees C., while the melting point of pure coumarin is 67 degrees C. On heating with a 5 per cent. solution of potassium hydrate at a temperature of about 60 degrees C. for an hour, the odor of aniline was developed, and the addition of a solution of calcium hypochlorite to this mixture gave the blue color reaction characteristic of aniline. On applying Hofman’s reaction for primary amines, the characteristic and disagreeable odor of phenylcarbylamine was obtained, indicating the presence of a primary amine. The percentage of nitrogen was estimated, and on calculating the nitrogen back as acetylaminid, it was found to amount to 25 per cent.

VANILLIN.—With this article the same difficulty was experienced mentioned above, in connection with coumarin—namely, the sample submitted was of excellent quality, while the consignment of goods ordered from this sample proved to be a substitution. This contract involved several thousand dollars, and at first considerable difficulty was anticipated in getting rid of this substance, which proved upon examination to consist of broken crystals of acetyl iso-eugenol, the direct antecedent of vanillin in the manufacture of the synthetic product. The manufacturer, however, took back the goods without a murmur, and paid all expenses involved, including the cost of analysis. The interesting point in this connection is that the melting point of acetyl iso-eugenol is 78 degrees C., while pure vanillin melts at from 80 to 82 degrees C. From this it can be readily seen that had only a superficial examination been made of the goods consigned, they would readily have passed as vanillin, inasmuch as the acetyl iso-eugenol had been mixed with a certain proportion of vanillin to give it a distinct vanillin odor. The following methods were employed to establish this impurity: microscopical-
ful if many of them have met with an oil adulterated with corresponding oil of gurjun balsam. There are a number of tests given for detecting the presence of this adulterant and some of them are of service, but the writer, so far as his experience goes, has the utmost confidence only in the following: Into the bottom of a test tube place 1 C. of glacial acetic acid, (99.5 per cent.), add 4 drops of pure concentrated nitric acid and mix well; then add 4 drops of the oil to this mixture, allowing the oil to float on top, if oil of gurjun balsam is present a reddish or purplish zone will be developed between the layer of oil and the acid mixture in a few minutes. No reaction occurs if the oil is pure.

**OIL OF PEPPERMINT.**—Is probably one of the most liberally adulterated oils met with, and especially is this true in mixing a high grade oil with an oil of poor quality. Several years ago an oil was met with that showed upon examination to contain at least 25 per cent. of added oil of turpentine. It must be remembered that oil of peppermint is liable to contain a small percentage of terpenes, but no such quantity is admissible and it should also be said, quite unnatural. Notwithstanding the fact that this oil contained such a considerable amount of added turpentine, the specific gravity did not fall materially below the recognized lower limit. On reporting this condition of affairs to the vendor he immediately requested the oil to be returned and he gladly paid all cartage, freight, etc., in addition to $25 for analysis, without making a protest. This in itself was ample evidence that the article was known to be of a spurious character.

The presence of the turpentine was established by a fractional distillation, the first fraction began to come over at 150 degrees C. and 40 per cent. distilled before the temperature reached 180 degrees C. The specific gravity of this fraction corresponded to that of turpentine, and other physical and chemical properties unmistakably proved this fraction to be turpentine. By allowing 15 per cent. for the possible presence of a natural terpene, having a boiling point lying between the above limits, which is quite improbable, we still have left 25 per cent. of added turpentine. Genuine oil of peppermint contains very few constituents having a boiling point below 200 degrees C. The per cent. of menthol, both combined and free, was also estimated and found to be very low.

It is hoped that the present Committee of Revision will see its way clear to introduce a lower limit of boiling point and a method for estimating menthol. For the benefit of some, the following references to the methods for menthol determinations are given: "Schimmel's Semi-annual Report", Oct. 1894, Page 438; "The Volatile Oils" by E. Gildebeenste and Fr. Hoffmann, translated by E. Kremer, page 651 and the Am. Jour. Pharm. 1897, Page 189.

**OIL OF THYME, WHITE.**—It is well known that white oil of thyme contains very little genuine oil of thyme, but consists for the greater part of oil of turpentine, distilled over some herbs of thyme. For this the consumer is in a measure responsible in that he demands a colorless article, which the producer is unable to supply in pure quality, because pure oil of thyme will always be more or less darkened in process of time. It is sometimes stated that pure oil of thyme is not available. This is a mistake. All samples, however, should be carefully tested as to the specific gravity and the percentage content of phenol bodies.

**BEESWAX.**—This is one of the most frequently adulterated commodities met with. In former years adulterations were of a very gross nature, but within recent years, this material has been manipulated in a very skillful manner. With ceresin having a color and a melting point practically the same as beeswax, it is very easy to adulterate this article; but the difficulty does not end here, for the up-to-date adulterator knows that beeswax is at present examined in other ways than by simply noting the physical appearance and by the application of a few crude tests; consequently, he has endeavored to so adulterate the wax that it will comply with nearly all the tests to which this article is usually subjected. By adding a little stearic acid he is enabled to bring up the acid number which has been lowered by the addition of ceresin, and a little tallow or Japan wax will adjust the disturbed saponification number. From this it can readily be seen that he is practically able to make an artificial beeswax which will comply with the specific gravity test, acid number and other number. The melting point can be adjusted by properly selecting the adulterants. There is now only one test left us, that is, the detection of stearic acid by Fehling's method. It should be noted in this connection that we frequently find stearic acid in beeswax which we have every reason to believe comes from a good source. The reason for the presence of this stearic acid is best explained by remembering that it is not a very unusual thing for beeswax and tallow to be handled together, and that a sample of the former may accidentally find its way into the latter. On subsequently purifying the beeswax with dilute sulphuric acid, the tallow is saponified with the production of stearic acid and glycerine, the stearic acid finding its way into the beeswax while the glycerin remains in the liquid portion. Beeswax is also occasionally found adulterated with paraffin with the addition of coloring matter.

**Wood Oil.**

When a few years ago the first consignments of wood oil reached Europe, the only researches into its nature were those of Davies and those of Cloeq. Since then Holmes, de Negri, and Sbrulatti, Jean, Jenkins, Williams, Kitt, Millian, Fraps, and Anderen have contri-
latted to our knowledge of it, but nothing has been done in the way of investigating the production of the oil, which it would be far better to make in Europe, import-
ing only the fruit. Much would then be gained, and the cost of the oil would be lessened by proper utilisation of the press-cakes and other waste products.

Nothing certain is known about the harvest of the trees in their native country. All there is to go by is the amount of oil exported from China, and as good an estimate as can be made of the amount consumed by the Chinese themselves. In 1899, the export was in round numbers, 30,000 tons, 21,000 of which was from Hankow. It is not likely that the home consumption is less than twice this, so that the production may be set down at 90,000 tons per annum.

Several minor varieties occur in the nuts from which wood oil is pressed, these, that is, of Allocrites cordata, and doubtless partly explain the known differences in the oils which come into the market. No accurate knowledge on this point, and hence no possibility of buying a uniform quality of oil, will ever exist until the manu-
facture of it is taken out of the hands of the Chinese. Their methods are in the highest degree primitive and wasteful, as we know from consular reports. Even the Hankow wholesale dealers do not know whether the differences between the usual three brands of wood oil, Pai-yu, Hsin-yu, and Hung-yu are due to difference in the methods of manufacture, such as variations in the number of pressings, or sometimes pressing hot and sometimes cold, or whether they arise from differences in the raw material, or from both causes combined.

The writer of these lines has made many attempts to experiment in China on the manufacture of wood oil, but so far he has only been able to procure one sort of nut, and that in rather small quantities. The following is an account of his experiments.

The nuts were first freed from their shells, and it was found that a machine could be made on the lines of an earth-nut sheller, which would do the work faultlessly. The shells formed 48 per cent. of the whole weight, the kernels 52 per cent. No use has yet been discovered for the shells. Thus the high percentage that they form of the nut is an unfortunate circumstance, in view of the advisability on all other grounds of importing the nut into Europe, and not the oil. It might be thought that the shelving at least might be done in China, but that is scarcely practicable, as kernels would become rancid before they got to the European crushing mills, if they made the voyage without the protection of the shells.

The kernels contained 58.7 per cent. of fat, and yielded 43 per cent. at a pressure of 350 atmospheres at 82 deg. F. Another 19.7 per cent. leaving only 5 per cent. unobtained, was got by powdering the press-cake from the first pressing, and then again subjecting it to the same pressure as at first, but at 150 deg. F. We thus have the following percentages, reckoned on the whole nut:—

<table>
<thead>
<tr>
<th>Value</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st pressing</td>
<td>22.36 per cent.</td>
</tr>
<tr>
<td>2nd pressing</td>
<td>5.56 per cent.</td>
</tr>
<tr>
<td>Press-Cake</td>
<td>21.08 per cent.</td>
</tr>
</tbody>
</table>

Note that the shells contained 100.00 per cent.

The oil from the first pressing was of a pale yellow color. The second oil was a pale orange yellow, and had more viscosity than the first. The usual determinations gave results closely corresponding to those already published. If care is taken to pick out all bad nuts in the first instance the acid number of the cold pressed oil will be as low as 9, instead of about 2.9, its usual amount. Such pure oil does not possess the unpleasant smell which we have learned to associate with wood oil, and will keep many weeks without change in a closely-stoppered bottle. If, however, it is exposed to the air it soon smells like bought oil. Ulcer was right when he attributed the smell to oxidation or rancidification, and adopted the proper means, viz., the use of alkalis, to deodorise the commercial oil.

A great deal depends upon the utilisability of the press-cake, whether the manufacture of wood oil will be introduced into Europe or not. Analyses of it showed that it contained 53 per cent. of proteins and 12 per cent. of fat, but was unusually poisonous. In China the press-cakes are used chiefly for manure, but small quantities are employed in Chinese-ink making. In Europe, however, we should not, as would at first appear, be limited in using the cake for manure. It is easy to remove the poisonous constituents, and then its immense percentage of proleid matter makes it an unsurpassable food for cattle. "Chemische Revue Uber Die Fett und Harz Industrie."

Note on Pure Otto of Rose.

By E. M. Holmes.

Absolutely pure otto is said to be extremely difficult to obtain, but Mr. J. C. Sawer, the author of "Odorographia," had presented a specimen he obtained from Messrs. Slavi Mitow et Cie, of Kezanik, Bulgaria, which they guaranteed as unsophisticated. Mr. Mitow states that the mountain air and climate have a marked effect on the odor of otto, and that produced at the foot of the Balkans is greyer and less yellow, and has a more delicate fragrance than that obtained at lower elevations. His own gardens yield only about 280 kilos. a year, and he purchased a further 800 kilos. from small growers, and unless the batches from all sources are mixed, the output even of one supplier can scarcely be of uniform quality. Mr. Mitow ascribes part of the excellence of the produce
he himself distills to the fact that he uses English stills, and another part of his flowers being grown in the most favorable situations.

Roses flourish best in rich, slightly calcareous soil—not heavy loam—and on a slope, so that stagnant water cannot collect about the roots. Shelter must also be provided against dry east winds.

There is no really trustworthy means of determining the amount of added geraniol and geranium oil. The amount of stearoptene and the congealing point are sometimes relied on, but stearoptene may be made to cover adulteration. Mr. Holmes obtained two plants from Messrs. Potter and Clarke, a few year since, which were said to be the source of Bulgarian otto. One of these had flowered in his garden at Sevenoaks, and proved to be *Rosa alba*, a variety having little odor. The other had not flowered; it was presumably, *R. damascena*. He had asked why *R. alba* was employed as a boundary in the rose fields, and was informed that it yielded a higher ratio of stearoptene, and geraniol. The stearoptene has no odor. There were two stearoptene in otto, and one might be derived from *R. alba* and the other from *R. damascena*. Bulgarian otto contains about 28 per cent. citronellon, 40 per cent. geraniol (including fmalool), 1 per cent. phenyl-ethyl-alcohol, besides citral, normal myonlic alcohol, and probably other bodies. The stearoptene equals 18 to 19 per cent., and, although the phenyl-ethyl-alcohol amounts to only 1 per cent. in otto, there is much more in the perfume of the rose, as Soden and Rajahm found 25 per cent. in a product called "Rosepure," obtained by L. Pillett by treating the petals with a volatile solvent. It would thus appear that distilled rose water from the flower is essentially different from that made with otto. French otto, from a slightly double-flowered *R. centifolia*, differs in odor from the Bulgarian oil. This otto was largely bought for the preparation of white rose perfume. All roses vary in odor, and that of otto is not quite the same, even as that of *D. Damascena*. At Kceanik, the buds are used, as the open flowers lose part of their perfume, the oil being situated in epidermal cells on the upper and lower surfaces of the petals. The buds, with the calices attached, are thrown in the stilis. A sticky substance adheres to the fingers of the operators, and this is scraped off and sold—mainly to Arabs—for smoking, mixed with tobacco. This is a secretion of the glands of the seicc and bristles of the peduncle and calix tube, and this substance must necessarily modify the fragrance of otto. A sample of French oil made solely from the petals was exhibited at the Paris Exposition, and was of extremely delicate odor. Mr. Holmes showed samples of Bulgarian otto, German otto, geraniol, citronellol, and phenyl-ethyl-alcohol from Scimmel and Co., and also of otto from *R. centifolia* distilled in South of France by Warrick Freres. German otto contains from 10 to 20 per cent. more stearoptene and less alcohols—particularly citronellon—than Bulgarian, from which Schimnells argue that there is geranium oil in the Balkan product. The stearoptene from German oil has the same specific gravity as that from Bulgarian—viz., .8574 to .8572 at 15°C, and a melting point of 32°C. There is no reliable means of detecting geranium oil in otto. Even in genuine otto the stearoptene varies; it is greater in the white than in the red otto-rose, and further in cold weather, and as the season advances it increases even in the red petals. The specific gravity varies as the stearoptene. The congealing point gives no clue as to the stearoptene; a sample congealing at 29°C contained 28.5 per cent., stearoptene; a sample congealing a degree higher contained 39 per cent. The optical rotation of Bulgarian oil varies from -2.3 to -3.3; in German oil it may be as low as -4.4, while with French otto -8 has been found, and in a Persian sample -9. It is thus absolutely imperative to buy from a reliable source. The odor is the best test, and this is ascertained most satisfactorily by rubbing a few drops with starch or chalk, or dropping on blotting paper. Practice will enable an expert to detect the addition of geranium oil, and the characteristics of French, German, or Bulgarian otto may be recognized. Some experts claim to be able even to identify the district from which otto is derived.

There is now on the market a synthetic otto; it contains crystalline matter, and thus simulates the natural produce. In some cases otto is added or it is distilled with rose petals. It is inferior in odor to otto, and is easily distinguished.

Mr. Holmes states that there are districts in the south of England, Wales, and Ireland where good roses suitable for the manufacture of otto can be grown, such as *R. damascena*, *R. centifolia*, (particularly the white flowered variety called "Unique"), and there is no reason why good English otto could not be produced. If means could be devised for separating the calyx from the corolla, the odor would be improved.

The following is from "Prenes' Rose Industry of Bulgaria": A hectare (2.5 acres) give generally about 3,000 kilos. of buds, which yield at most 1 kilo. of otto. The gathering is done in the early morning, and is completed by 9 a.m., as roses plucked later have less odor. The roses purchased from villagers are paid for at the rate of 15 to 18 centimes per kilo. (the white roses fetch 3 centimes less). The collection on maker's estate is done by women who receive 2 centimes per kilo. The harvest lasts not more than one month, from May 15th about 220 lbs. per hectare being ready every day. In growing, protection must be provided from dry east winds, but free access to light and moisture must be secured.

After a few remarks from the President, Mr. Mac-
Ewan entered a protest against Mr. Holmes's sweeping assertions as to the adulterations of otto. They might acquit, at least, the peasant growers of fraud. The Bulgarian Government, too, had done all it could to maintain the reputation of the article by instituting a law against the importation of otto adulterants. He had seen the Shipkoff exhibit at Paris, and had obtained specimens which had been reported on. The firms had published a pamphlet giving particulars as to the product of each small grower. He thought it quite possible to buy good otto.

Mr. Wilson said that if one examined otto by the nose a sort of fractional vapourisation took place.

Mr. Heap stated that the Pharmacopoeia limits would exclude all the best otto.

Mr. Holmes said he considered there was some difficulty in getting pure otto, and he thought the product would vary largely in different seasons. The matter of purity, was in the main, one of price, however.

**Shaving Soaps In The Netherlands.**

United States Censul S. Listoe at Rotterdam sends the following communication on shaving soaps in the Netherlands:

The wholesale price of the French perfumed cream shaving soap is, for twelve porcelain boxes, each containing a little over an ounce of soap, from 6 to 12 florins ($2.40 to $4.80); and for a dozen boxes, each containing a little over half an ounce, from 4 to 6 florins ($1.60 to $2.40). The price of the powder is from $1.20 to $1.80 per dozen boxes. The shaving soap in cakes of Dutch manufacture sells from 9 to 12 American cents per pound.

The retail prices for the porcelain boxes of perfumed shaving cream are: Full boxes, 30 to 60 American cents; half boxes, 20 to 30 American cents. Shaving soap is sold at 4 American cents per cake. Persons shaving themselves buy their soap in stores or barber shops at retail prices.

The barbers generally buy their soaps either direct from the manufacturers in France or through their agents in Holland and Belgium. Traveling men and agents of the manufacturers regularly call at the principal barber shops to solicit orders and furnish advertising matter.

Soap powder, not perfumed, pays the same duty as "other hard soaps."

**How To Introduce American Soaps.**

The best means of advertising shaving soaps is to furnish the fashionable shaving parlors with attractive advertising signs to adorn the walls and show windows. These, when placed properly, always attract attention. Another good way is to advertise in the Barbiers en Kap-

**Soapmaking In Jamaica.**

The soap industry of Kingston, Jamaica, which at one time promised to develop into a large enterprise, has now almost entirely died out, owing, manufacturers assert, to the tax imposed by the government. One by one the factories have been gradually shut down, and that of Mr. Andrew De Lisser has been the last to go under. Mr. De Lisser, interviewed on the reasons which had led him to shut up his premises, said that it is impossible to make a good soap to compete with the imported article with a margin of only about $1. between what he was taxed and the duty on soap.

(We have recently had a number of requests for sample copies of the Soap Journal from Kingston parties previously unknown to us, from which circumstance we judge that the industry may be revived there by some new firm or other.—Editor A. S. J.)

**Shampoos.**

The essential feature is so-called "dry shampoo" is the substitution of ammonia for other alkalies. By this proceeding the need for subsequent application of water is supposed to be diminished, as any excess of the ammonia evaporates.

The following formula is a typical one for this class of preparations:

- Ammonia water .................. 2 drs.
- Cologne water .................. 2 drs.
- Alcohol .......................... 4 ozs.
- Water .......................... 4 ozs.

By rubbing this mixture into the hair with a sponge or towel of course a partial transference of dirt that may be present will be effected, but some washing with water is necessary to bring about a thorough cleansing.

For regular shampooing in which there is to be no sparing of water, neutral soft soap is a desirable agent. If not rapid enough in its action to suit the views of the customer it may be changed in that respect by the addition of a small proportion of potassium carbonate or other similar alkali.
As to the form: a soap made from potash always remains soft, and can consequently be relied on to prove satisfactory as a "paste." Soda soaps on the contrary are by nature hard. When first made, they contain quite a quantity of water, but this evaporates as they are kept (unless in closed containers of course), so that they ultimately become dry. This difficulty may be largely overcome, however, when it is desired to use them in paste form, by adding some glycerine. With this addition they may be expected to remain soft for an indefinite period.

A potash soap suitable for use as a shampoo may be made by the following formula, the preparation being used as a "shaving cream" also:

- Lard .................................. 3½ lbs.
- Caustic potassa ........................ 8 ozs.
- Water .................................. 1⅛ pts.

Melt the lard in a porcelain vessel over a salt water bath; dissolve the potassa in the water, and run the lye thus formed very slowly into the melted grease, stirring thoroughly all the time, until saponification is complete.

A "peary" appearance may be given to this preparation by triturating it for a long time in a mortar with a small proportion of alcohol, say 2 drams to each pound of the soap.

Perfume can of course be added, if desired. Oil of bergamot will answer; oil of bay is probably better, though costlier. A variety of other essential oils are available.

The following mixture may be found desirable, the quantity directed being sufficient for the amount of soap produced as above:

- Oil of lavender .......................... ½ oz.
- Oil of cassia ................................ 30 mins.

Any other fat may be substituted for lard in the foregoing formula, as the potassa is the element on which the permanent softness of the soap depends. Of vegetable fats used in soap making may be mentioned palm, olive and cocoanut oils. Cottonseed oil is said not to give a satisfactory product.

In the case of such change, a variation in the proportions may be necessary. An excess of alkali is readily determined by phenolphthalein for instance, and rectified of course by the admixture of more fat.

A shampoo paste may be made by the following formula:

- White Castile soap ............... 4 ozs.
- Water ................................. 6 ozs.
- Glycerin .............................. 2 ozs.
- Oil of lavender ...................... 5 drops.
- Oil of bergamot ...................... 10 drops.

Shave the soap to ribbons, melt with the water on a water bath, adding the carbonate; allow to become nearly cold then stir in the remaining ingredients, with more water, if required.

To this may be added if a more active preparation is desired, from half an ounce to an ounce of potassium carbonate.

The "egg shampoos" are presumably constructed on this model, the title ingredient being absent as it would apparently serve no useful purpose, and the appearance doing duty for it.

Whenever the hair is washed with a shampoo the operator should be careful to dress it afterward with a little oil or pomade to restore the softness normally produced by natural grease.—Druggists Circular.

**Testing Carbonate of Soda and Caustic Soda.**

*BY HALFORD STRANGE, M. SC.*

Having discussed the general principles of volumetric analysis, we now pass on to the actual practical details of applying those principles to the testing of the chemicals under consideration.

As one might suppose, this must consist principally of vessels for measuring liquids. Graduated vessels can be divided into two classes—those required to measure a particular volume of liquid, and those necessary for the purpose of delivering a definite quantity of liquid. Of the first class one requires several measuring vessels in the form of flasks with narrow necks, and marked on the neck with a horizontal line to indicate the volume of liquid they are intended to hold when filled to this mark—say a liter (1,000 c.c.), half a liter (500 c.c.), quarter of a liter (250 c.c.), tenth of a liter (100 c.c.), or other quantities as the case might be. However, the four I have mentioned are a convenient set to have, and are likely to answer the purposes of elementary analysis. In addition, it is desirable to have cylinders graduated every 5 c.c. up to half a liter or a liter.

The measuring vessels used for the purpose of delivering a certain amount of liquid are called pipettes, or burettes. A pipette is a tube, generally enlarged in the middle, into which liquid can be sucked. It is graduated, and as soon as a little more liquid has passed in than is actually required the finger is placed over the top, and only removed slightly in order to allow the superfluous liquid to escape. By the removal of the finger the liquid can be easily discharged. The burette is also an instrument used for discharging known volumes of liquids, but, unlike the pipette, it is not limited to one particular quantity. It is a long graduated tube, with a tap fitted at the bottom, so that any measured quantity of liquid can be delivered into a vessel beneath it. It should be remembered that the surface of liquid in a narrow tube is curved, the sides being higher than the center portion, and that, it is usual to read the measurement from the lowest portion of this curve, or meniscus, as it is called. At the same time it is important to remember that the eye, the bottom of the meniscus, and the
graduation on the burette or other vessel must be all in the same straight line. Sometimes a float is used in a burette, and the measurement is taken from a mark upon it, but for our purposes the use of the float is not necessary.

We shall need beakers also, which are glass vessels ungraduated, made of thin glass, and suitable for boiling liquids in. A Bunsen burner, a tripod, and some wire gauze, may also be required. Of course, heating can be done by a small lamp or spirit stove, but the colourless coal gas flame of a Bunsen burner is more satisfactory. Some glass stirring rods must also be obtained.

In testing acids and alkalies by means of normal solutions, an indicator is necessary to show when a solution is acid and when alkaline. Litmus solution is an indicator commonly in use. It is blue in alkaline solution, and red in acid solution. But it has one great disadvantage in testing carbonate of soda or commercial caustic soda. If carbonic acid gas occurs in a solution, litmus is unreliable, because carbonic acid gas, when dissolved in water, is a weak acid, and has an influence upon litmus. It is manifestly impossible, therefore, to employ litmus in the analysis of carbonates except under one condition—the solution to be tested must be used hot or frequently boiled. The application of heat drives off the carbonic acid gas, but it is obvious that if a simpler method can be adopted, and the extra labor of boiling avoided, it is to be recommended. Another indicator allows the testing to be done while the solution is cold, and it is not affected by the presence of carbonic acid gas. It is known as methyl orange, and turns yellow in alkali and red in acid. It is certainly the best indicator to use in this case.

The normal solutions can either be made or purchased, and it is entirely a question of choice, whether the tester manufacture his own or let someone else do it for him. If he prefers to make them, some pure sodium carbonate is required. As it is easier to purchase pure bicarbonate of soda, and sodium carbonate can be made from it, it is a better substance to purchase in the first place. The bicarbonate must be heated in a crucible for twenty minutes, to a dull red heat over the Bunsen burner. In that way the carbonic acid gas and the water it contains, are driven off, and it becomes pure sodium carbonate, the equation being:

\[
2\text{NaHCO}_3 \rightarrow \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2
\]

The pure sodium carbonate must be cooled in a vessel containing dry air, and then a certain quantity, equal to half its molecular weight in grammes (53 grammes, as we saw in the last article) must be dissolved in a litre of water, and the normal solution, that is desired, is ready for use.

When sodium carbonate or caustic soda is to be tested, a normal solution of sulphuric acid is required. This is made as follows: Sulphuric acid as pure as possible is obtained. Absolutely pure sulphuric acid is hardly obtainable, for it usually contains some extra water, and always a variable amount. A solution must be made of this, of about the right strength for a normal solution. It is exactly right, one c.e. should neutralize one c.e. of the normal solution of sodium carbonate. If it is too strong, a little water is added, if it is too weak, a little sulphuric acid, and in that way the normal solution of sulphuric acid is obtained.

I have explained these methods of obtaining two normal solutions, for those who are in position to undertake the manufacture themselves, but it is undoubtedly easier to purchase the normal solutions ready made. They can be obtained accurately prepared, and, with these in hand, the work of testing is a comparatively slight matter. A sample of sodium carbonate—say soda ash—has to be tested. It is assumed for the moment to be pure, and as though a normal solution were to be made, 53 grammes of it are weighed out and dissolved in a litre of water. A 100 c.e. of the solution thus formed are put in a beaker, and a few drops of the indicator, methyl-orange, are added. It will be yellowish in color. Now, from the burette, previously filled, the normal solution is run into the beaker. It is well to note here, that the portion of the burette below the tap, should be full both before and after the normal solution is run in. The sulphuric acid should be run in until the last drop turns the methyl-orange red, and care should be taken not to exceed this amount. Another point to be observed is, that the solution in the beaker should be frequently agitated to insure satisfactory mixing of the two solutions.

If the sample of sodium carbonate were absolutely pure, the 100 c.e. of the solution taken would, of course, require 100 c.e. of the normal acid solution. If, however, it be only of 50 per cent. strength, 50 c.e. of the normal solution will have been needed. In short, by the arrangement of quantities suggested above, the percentage strength of the tested sample will be indicated by the number of c.e. of the normal solution required.

It is of course apparent, that by suitably altering the quantity of the sample taken, seminormal, decinormal, or other fractional solutions may be employed in place of the normal solution.

The testing of caustic soda is conducted in a precisely similar manner. Caustic soda is almost sure to contain a certain quantity of carbonic acid gas, and therefore, methyl-orange will again be the most suitable indicator to use. The only difference between the process of testing caustic soda and that of testing carbonate of soda, is caused by the fact that their molecular weights are different. I pointed that out in my last article, but it may be well to repeat here that the molecular weight of caustic soda is 40, and that 40 grammes will be re-
required to the litre in consequence or to prepare a solution for testing.

From this article it will be seen, that it is quite within the province of any one purchasing carbonate of soda, to determine the alkalinity of particular samples, and thus to estimate their value.—Paper Trade Journal

Ceara Wax.

The South American Journal recently published an article from a contributor regarding “carnauba wax,” called Ceara wax in the United States, which is characterized as “one of the most curious products of nature,” and is produced in the form of a powder or dust on the leaves of the carnauba palm tree (Corypharia ceroxifera). This variety of the palm is to be found in vast numbers on the margins of the River Jaguari and its affluents in all the districts of Aracaty, as well as along other rivers in the State of Ceara, Brazil. It is also to be found in smaller areas in the adjoining States of Piau-

Although the tree has many other qualities which render it of service to man, its most valuable product is its wax. Last year the amount of this wax exported was about 1,000 tons. One firm in Aracaty sent over 500 tons to the United States and Europe. The United States consumes the largest quantity in the manufacture of phonograph and gramophone record cylinders. The wax is also used in stareine candle preparations for the purpose of giving the candles firmness and adding brilliancy to the flame. Another use is to give luster to yellow and russet boots and shoes, and to harness, while it is also used as a polish for hardwood floors.

The crop is gathered and prepared from September to March, that being the summer season in Ceara. In favorable seasons the tree is richest in wax about the middle of January. From each tree about six young leaves not yet fully opened are gathered by means of pruning shears fixed upon a long pole, and this is repeated twice more during the season. The first quality of wax is produced from the tenderest leaves. Generally it takes from 2,000 to 5,000 leaves to produce enough powder or dust to make 15 kilograms of wax. The leaves, when gathered and selected—first and second qualities—are laid out in the sun to dry for two or three days. When dry they may be put into a storehouse for an indefinite time or until required for use by the producer. The leaves are then covered by a whitish dust or powder, which is brushed off in a tightly closed room. The leaves are then beaten with switches, the dust falling to the floor. This dust is afterward swept up, placed in a tin vessel half full of boiling water, and kept boiling for fifteen or twenty minutes, when the wax gathers in a mass on the top of the water. It is then removed and placed in a coarse-meshed, cotton cloth strainer to allow any water to drain off. When dry, the result is a mass of light yellow, hard, vitreous wax. After the powder has been extracted, the palm leaves are used in the manufacture of hats, matting and brooms. A fiber called tucam is also obtained from the leaves, while in some parts of the country, the leaves are used in thatching hovses.

The fruit of the tree has a black pulp of a sweetish taste, and is eaten both by human beings and animals. The seed resembles a small coconuot and makes good food for pigs. It is used also as an adulterant for roasted coffee after it is ground.

On this wax the State of Ceara collects an export duty of 10 per cent., with 5 per cent. additional on the official value, which is declared every month.—Bureau American Republic.

Formula For Hair Dyes.

The following formula are reprinted in the Pharmaceutical Journal, (Eng.), from Pharm. Zeitung:

Black Hair Dyes.—(1) The hair is washed with soap or weak soda solution to remove grease, then moistened with a 2 to 5 per cent. solution of silver nitrate, to which excess of ammonia has been added, then allowed to dry, and again treated with a 3 to 4 per cent. solution of pyrogallic acid in diluted alcohol, or with a 6 to 8 per cent. solution of potassium sulphide. (2) (a) sodium thiosulphate, 50; distilled water, 500; (b) lead acetate, 11; distilled water, 500. Mix the solutions, and add glycerine, 75; alcohol (90 per cent.), 60; allow to settle, decant and filter, and keep protected from light. Directions for use: Sponge the hair each day, during first three days, then every fourth day, and finally every eighth day. (3) Rub the hair with dilute solution of lead acetate, 200; glycerine, 80; rose water, 250; precipitated sulphur, 3. (4) Ammonium hypo-
sulphite crystal, 30 Gm.; lead acetate, 15 Gm.; distilled water, 1,000 Gm.; alcohol (90 per cent.), 15 Gm.; glyce-

Black or Brown Hair Dyes.—(1) In varying concentrations, solutions of the following bodies give results varying from yellow to the deepest blue-black. Para-phenylene-diamine, dimethyl-para-phenylene-dia-

(2) By the application to the hair with a small brush, of a solution of potassium per manganate 15, distilled water 200, every shade of brown may be obtained. (3) Powdered peat free from sand 1, is macerated for two days with solution of ammonia, 10, and water, 5, heated to boiling, and strained through linen, then evaporated to a syrup on the water bath. The brown extract is dis-
solved in distilled water, 10, and alcohol, 2, and perfumed with eau de Cologne. The hair is thoroughly moistened with this brown fluid. (4) Brown Hair Dye: Pyrogallol, 0.5 Gm.; brandy, 30 Gm.; Peru balsam, 1 Gm.; solution of ferric acetate, q.s. (5 to 6 drops). (5) Walnut Extract Hair Dye: The green outer shells of walnuts are beaten up and then digested for several days with water, until a dark brown fluid is obtained; this is evaporated to a thick extract, mixed with twice its bulk of fat, or oil, and the whole gently heated till all the water has been driven off. (6) Bismuth Hair Dye: Metallic bismuth, 100 Gm., is dissolved in the requisite amount of nitric acid (about 280 Gm.), and after the addition of tartaric acid, 97 Gm., dissolved in as little water as possible, this solution is precipitated with a large excess of water. The precipitate is washed free from acid, and dissolved in ammonia. In his solution, sodium sulphide, 75 Gm., is dissolved, and finally glycerin, 2 to 5 per cent., is added. This solution contains about 5 per cent. of bismuth, and should be applied once daily. (7) (a) Glycerin, 10.15; ammonium chloride, 6.42; water, 76.18; bismuth nitrate, 7.25. (b) Pyrogallol acid, 1.05; sodium hyposulphite, 13.68; gaultheria water, 85.27. Dissolve separately and mix before using. (8) Pyrogallol Hair Dyes: Pyrogallol acid, 8, is, dissolved in alcohol, 16, and sodium sulphide, 1, in water, 48, and the solutions mixed. (9) Pyrogallol acid, 15, is dissolved in alcohol (90 per cent.), 30; and mixed with a solution of sodium sulphite, 2.5, in water, 100. (10) Hager's Hair Dye: Copper sulphate, 2.5; copper acetate, 2.5; pyrogallol acid, 5; water, 95; ammonia, 5, are dissolved together. A second solution, consisting of potassium neutral chromate, 10; water, 100, is prepared. The hair is treated with the first solution, allowed to dry, and then the second solution is applied.

To Produce Fair Hair.—(1) Apply diluted hydrogen peroxide solution, after cleaning the hair. (2) According to Dietrich, the following solutions may be used: (a) Potassium permanganate, 5; distilled water, 95. (b) Sodium thiosulphate, 1; distilled water, 25. The hair is washed in weak soda solution, then with hot water, and dried. Solution (a) is then applied with a comb and brush, and the stain on the skin removed by rubbing with soap and solution (b). (3) The hair is moistened with a mixture consisting of iron acetate, 1; silver nitrate, 1; bismuth nitrate, 2; dissolved in distilled water, 10. After an hour the color is brought out with potassium bisulphide dissolved in an equal volume of water. Instead of the first solution a mixture of stannous chloride, 2; and calcium hydrate, 3, with water, 10, may be used. (4) For Golden Hair: A diluted solution of zinc chloride is used, with ammonium sulphide as a mordant. A fine golden tint is obtained by the use of a solution of nitrate or acetate of lead, followed by a solution of potassium chromate. The color may be obtained of a darker shade by the addition to the lead nitrate solution of 5 drops of solution of basic lead acetate. This dye is, of course, not quite harmless. To Darken Red Hair: Saccharated solution of lime, 3.5; glycerin, 15; jockey club, 7; alcohol (90 per cent.), 15; water, to 100. Treat the hair daily with this solution.

The Production Of Soap.

The aphorism of Liebig, writes Mr. A. H. Hoffman, manufacturing chemist, in "La Nature," that the civilization and comfort of a people are in direct ratio with the production of soap, has been verified by its extraordinary development. Limited at first to the exclusive employment of carbonated alkalis extracted from wood ashes, it was long conducted in a primitive fashion; but when industrial chemistry was revolutionized by the production of artificial soda and by the extension of the production of sulphuric acid, France was the first country to inaugurate a rational manufacture founded on chemical laws. It received an impetus from the remarkable investigations of the illustrious chemist Chevrel, who determined clearly the principles involved. And it has gone on at a rapid pace, especially since the appearance in commerce of fatty materials formerly unknown. Many of these products present new and characteristic properties, and invite scientific study. The consequences have been highly beneficial. Increased domestic requirements have met with a response, and textile industry has secured a valuable auxiliary in varied applications.

The old soaps of oleic acid, types of the former Marseille fabrication, compounded with the oil of olives, sesame, or nut oil, have lost their importance, the public preferring white soaps, plain or mottled. Soaps are obtained with the aid of concrete oils (cocoa, palm-kernel, nowrah), which enter into the combination with the oils of cottonseed, arichide, sesame, and other fatty materials.

The manufacture is carried on in one or in two operations, according to the kind of soap desired.

In the usual process, consisting of two operations, the oil, or mixture of oily materials, is passed into the boiler before forming the base—white cottonseed oil, arichide oil, sesame oil, bone grease, beef tallow, lard—say, 1,000 kilos. Water, to the extent of 1,000 or 1,200 kilos, is added. The boiling is commenced, and then is introduced, little by little, moderating the heat, the lye formed by 400 or 450 kilos of a solution of carbonated soda of 20° Bé and caustic-soda lye, 1,000 or 1,100 kilos, of 23° Bé. The saponification is sometimes quickly accomplished; under other conditions prolonged attention is necessary. The final adjustment of the requisite quantity of lye is too delicate an operation, and presents
an economic side of too much interest to be communicated by soapmakers to every corner. When this is properly regulated, the boiling is allowed to proceed as long as necessary, followed by the clarification and refining. The soap is charged with a complementary quantity of caustic lye, and the heat increased, so that the lye shall be constantly thrown to the top. This is continued until a granulated appearance is communicated to the soap. The fire is then stopped, and the mixture left to repose until the next day, to afford an opportunity for the deposit of foreign substances. The refining lye is removed and replaced with hot water.

Then comes the second phase of the process, which consists in forming in the mass of the neutral soap already existing a complementary soap, composed of concrete oils; on this depend the final qualities of the product. Coprah, palm, and mowrah oils, separately or mixed, are added in the proportion of 30 to 50 per cent. of the oil materials of the soap first formed. The fire under the boiler being renewed, the quantity of caustic and non-caustic lyes necessary for the concrete oil employed is poured in. The heat is increased moderately, and when the whole mass is brought to the boiling point, the suitable proportion of saline solution is added. When the boiling reaches the right point, the fire is stopped, the boiler is covered, and the next day, after the scum forming on the top is removed, the soap is conveyed into the cooling receptacles, whence it emerges to be prepared and packed for sale.

Thus we have constituted a type of soap. Of course, it may be modified in various ways, to meet the taste of purchasers. Palm oil, yellow or white, may take the place of coprah oil, communicating a yellow or creamy color and an agreeable perfume. Colophony may also be added to the initial soap, and the product will possess special advantages when used with limy waters.

Our typical soap has excellent qualities, but it is unlike the old Marseillais product. We can, however, impart the appearance of the old, while preserving the qualities of the new. Let us consider our product at the stage last mentioned.

Instead of lowering the fire, let us introduce gradually a sufficient quantity of the marine salt solution to cause the soap to float on the lye, and let it boil for some hours, and then rest, with the boiler well covered. In forty-eight hours we shall obtain a mass entirely separated from all the glycerine and impurities, the proportion of water will be reduced, and the soap thus formed will be typical soap, what the Marseillais people call “a 72 per cent. soap,” containing from 60 to 64 per cent. of fat acids, 6 to 7 per cent. of alkali, and 30 to 34 per cent. of water. A suitable addition of water in the course of the process will enable us to produce what is designated at Marseilles and Paris as “a 60 per cent. soap,” and now of current sale. This typical soap can well assimilate the chemical products ferric sulphite, ferric sulphate, cuprie sulphate, ocer, &c., for producing the mottled appearance; this marbling is to-day effected in a single operation.

It is to these soaps of direct saponification that cocoa and palm, the Cochin-China palm oils, owe their immense prestige, and which will occasion their increasing use in the future.

The soapmakers who first tried these oils noticed that the proportion of water necessary for the combination of their fat acids was greater than with the former oils. It seems therefore possible, to increase the yield without adulteration. This information reversed the opinions that had been entertained, and opened the way for the more advantageous production of soaps. The absorbing qualities of these oils have rendered incontestable service, and have become the object of close study. We ought to felicitate ourselves on the modifications secured in the processes. Every fatty material of good quality may serve for the production of soaps in one operation, but white and those not possessing a strong odor are preferable.

We will take the Echweg soap as a sample: 1,000 kil. of fatty materials, bone grease, and coprah oil, or lard and concrete oils, are combined in a boiler with 1,200 kil. of lye of caustic soda of 25°; 350 kil. of water; 390 kil. of solution of potassium carbonate of 20° Bé, and 200 kil. of solution of sodium carbonate of 22° Bé. A homogenous mass is obtained by a moderate fire.

The proportion of lyes above indicated is evidently too great with reference to the fatty materials employed. But when it is considered that the quantity of 500 kil. of sodium silicate of 31° Bé. is to be introduced into the caustic soap formed, and that it is possible to add 500 to 600 kil. of saline solutions and a mixture of potassium chloride and sodium chloride, the elevated yield of certain recent makes can be readily comprehended.

The above soap, although it is somewhat caustic, is a good soap, however great the yield may be. Formerly it would have been called an adulterated soap. By using the nature and qualities of soaps manufactured abroad on a large scale, and having a regular sale, though too long ignored in France.

It is easy to understand that the processes of direct saponification have allowed of the variation in the percentage of water and of lyes, and have also given rise to excellent soaps intermediary between soft soaps and the so-called loaded soaps. I repeat that the qualities of these products are at least equal to those of the old soaps, which have so legitimately established the reputation of our country. A good soap of this kind, one showing that France can excel in this line, is thus produced: 475 kil. of cocoa oil, 250 kil. of palm-kernel
oil, 140 kil. of vegetable oil, are melted together, and combined with 1,100 kil. of lye of caustic soda of 20° Bé. and about 250 kil. of carbonate lyes (potash and soda). As the saponification proceeds, the necessary quantity of hot water is added. When the mixture becomes transparent, the marine salt solution of 18° is added, until a firm product is obtained. It is excellent, whether for domestic or manufacturing use.

Special dressing soaps are demanded in certain trades. These are made by means of cocoa oils mixed with lard or oleins well washed, combined with oils of cocoa, palmiste, of palm. It is a delicate operation; the proportions of water and of lyes must be regulated in a manner almost mathematical. On this account many soapmakers do not succeed well.

Soft soaps of potash base have also undergone transformation by the employment of potassic salts in new conditions. The oils of linseed, of maize, of hemp, and oleic acid are combined with lyes of 20° Bé. (two-thirds caustic, one-third carbonated); colophonies are added (15 to 20 per cent. of the weight of the fatty bodies), and fecula. From these materials and proportions, enormous quantities are manufactured in the North. Their reputation is occasioned by their great solubility in water. In this industry the will of the buyer is often the law for the manufacturer, and it becomes embarrassing to regulate the production in accordance with the price offered.

(to be continued.)

QUESTIONS AND ANSWERS

In this column we shall print questions of general interest submitted by subscribers and invite replies to the same from our readers, which will be printed in the next issue of this paper.

Question 9: Will you kindly advise us by whom the Crosby soap press is made, or the nearest dealer to us from whom we could purchase one.—R. C.

Question 10: Would you be good enough to send us a useful recipe for transparent glycerine soap made without alcohol.—

Question 11: Please give us the names of one or two firms who manufacture polishing soaps and compounds in cakes.—H. C. G.

Answers In Brief.

E. S. & Co., England: If you—like some other firms—believe to have reasons for giving orders for any of our publications to subscription agencies, or to book dealers, instead of to us directly, we are certainly not concerned with any loss you may incur thereby! We don’t mind saying that we mailed a book to the party named two months ago, but whom they intend to deliver it to, whether to you or to some one else, we have no means of knowing. Since you preferred to avoid direct communication when ordering, you will have to do the same with your complaint.

M. Co. of New York: Change of price has been noted for future reference. Thanks.

C. O. S. of Ill: Which one?

M. of Mexico: The press offered for sale, as you observed correctly, is a Dopp press—which means "made by Dopp", and therefore is not identical with the make you are looking for. Indeed, the party offering this press is looking for the other make himself, we understood.

T. R. of Texas: Owing to the modesty of the firm you enquire after, we have sent you its name and address by mail rather than drag it into these columns.

W. C. B. of N. Y.: We have no catalogues of soap making machinery, but have referred your enquiry to the Heney Mfg. Co., who make soap presses, etc.

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bidg, Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

TRADEMARKS.

37,648. Soap. Bell & Bogart Soap Co., New York, N. Y. Essential feature the words "King Cole's" and a pictorial representation of King Cole.

37,469. Eau-de-colognes, soaps, waters, and lotions for toilet purposes. Naamloze Vennootschap Eau de Cologne Fabriek, Voorheen J. C. Boldoot, Amsterdam, Netherlands. Essential feature: A rectangular border inclosing a panel and composed of views of the principal historic buildings of the city of Cologne, associated with the representation of the city of Cologne and coats of arms of the registrant flanking the representation of the city.


LABELS.


8,872. Title: "Pine Shampoo." (For shampoo). Pine Eye Shampoo company, Milwaukee, Wis.


Around the Soap Factories.

News items sent us by our readers will find prompt attention in this column.

The assignment of C. L. Jones & Co., Cambridgeport, Mass., is reported. This firm was one of the oldest in the soap manufacturing business.

The Bridgeport Wood Finishing Co., owing to its growing business, has added $50,000 to its capital stock.

Our thanks are due to A. Klipstein & Co. of New York for a pretty desk calendar, which is both an ornament and a convenience.

We learn with regret that M. J. O'Hara, a long time soapmaker, met with a painful accident on January 27th, while taking out a kettle of soap at Stanley's Soap Works, in New York city, burning his eyes and face with hot soap. We trust he may recover soon and completely.

The Theo. Rickecker Co., New York, whose plant was destroyed by fire on Dec. 22, has found a new location at 74 Reade street.

A. A. Maginnis of New Orleans died on Dec. 28, in New York city, where he had gone on a business trip. Deceased, who was nearly sixty years old, was the son of the first manufacturer of cottonseed oil, and had been connected with the oil and soap business nearly all his life, to say nothing of large interests in the fertilizing, warehouse, sugar planting and banking lines.

John Crosfield, of the firm of Joseph Crosfield & Sons, Ltd., Warrington, England, died recently of bronchitis at the age of sixty-nine. He had been at various times chairman of Brunner, Mond & Co., Ltd.; member of the town council and Mayor of Warrington. The father of the deceased was the founder of the firm of Joseph Crosfield & Sons.

The Manufacturing Perfumers' association will hold their annual meeting in New York city on Feb. 13-14. The meeting is expected to be an unusually interesting one, as it will deal with a number of important subjects, such as the proposed French treaty which threatens to lower the tariff schedule of perfumery to a disastrous extent and the subject of lower freight rates.

A peanut oil factory has been projected for the city of Petersburg, Va., which is the leading market for peanuts of this country.

H. J. Heister of Chicago has withdrawn from the firm of Geo. Laeders & Co.

The business of A. M. Todd of Kalamazoo, Mich., has been incorporated under the name of the A. M. Todd Co.

The Luckel, King & Cake Soap Co., Portland, Ore., has increased its capital stock from $60,000 to $100,000.

F. Trenkamp, who has been a soap manufacturer in this city for over 50 years, last month lost a sister by death, who had reached the age of ninety-one years.

The Markets.

Tallow: New York city 614 in hds; market rather quiet in sympathy with lard prices, though supplies are reported rather small. Sales of country make at 6 to 61/2c as to quality. Western sales range from 61/2 to 7c for prime packers; 6c to 61/2c for country.

Glycerine: A white 71/2 to 71/4c; B white 61/2 to 61/4c; yellow 51/2 to 51/2c; bone and house 51/2 to 5c.

Cottonseed Oil: Last sales reported from New York at 41/2 to 42c for prime yellow. The market has been growing duller and duller for the past weeks, largely owing to conditions in the lard trade.

Corn Oil: Firmer; 5.60c to 51/2c as to quantity.

Cocanut Oil: Ceylon held at 8c for spot; 71/2c for stock to arrive. Cochin: 83/4 to 9 asked for supply on spot and 83/4 to 81/2c for supplies under way.

Olive Oils: Declined slightly; 51/2c to 51/2c for spot goods; 5c less for new crop to arrive.

Palm Oil: 51/2c for prime red oil; 6c for Lagos; palm kernel unchanged at 61/4c.

Red Oil: Saponified, 61/2 to 61/2c asked, with little demand.

Latest Additions to Our Brand List.

- Paline 310
- Green Olive Chip 340
- Sentinel 340
- Peach Blush 340
- Blue Monday 340
- Gold Seal Soap Flour 340
- Chlorine 340
- Rex Liquid Soap 340
- Rex Cream 340
- Green Seal Chip 340
- Blue Chip 340
- Blue Olive 340
- Blue Coco 340
- Yellow Palm 340
- Green Palm 340
- Palm Soap Flour 340
- Palm Oil 340

An Australian subscriber to the Soap Journal and purchaser of the work "American Soaps," writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file, in black and white.
Perfumes and... Their Preparation.

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DR. HENRY GATHMANN, Publisher.

322 Windsor Place.

MILWAUKEE, WIS., March 1, 1902. VOL. XIII. No. 7.

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The American Soap Journal and Manufacturing Chemist is devoted to the interests of all manufacturing industries of a chemical character, and is an absolutely independent publication. It is the only newspaper of its kind in America and has also a large foreign circulation.

For Subscription and Advertising rates see above.

Communications on industrial subjects, news items, and any information suitable for printing in these columns, are solicited and will have due attention.

Readers in search of machinery, supplies etc., not advertised in these columns, are invited to write us and we shall endeavor to supply the information.

Address all communications to
DR. HENRY GATHMANN, Publisher,
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U. S. A.

A meeting of toilet soap manufacturers was held in Pittsburg last month and resulted in the formation of the National Toilet Soap Manufacturers' Association, whose object it is to "correct abuses and protect the public and the industry against the various illegitimate schemes of irresponsible parties." Charles H. Gilfus of the Andrew Jergens Co., was elected president; Frank C. Bushnell of New York, secretary; executive committee, Louis H. Waltke of St. Louis, A. P. Dobson of Chicago, L. L. Eavenson of Philadelphia, W. C. Woolwine of Nashville.

The soap trade, as well as the perfumery trade, is now pretty thoroughly organized and we hope to have the opportunity soon to record valuable results accomplished.

Making designs in cakes of soap is a problem brought once more to our attention by the granting of a patent to a Cincinnati man for a plotter-like apparatus, which will produce soap cakes bearing certain designs of given color in differently colored soap cakes. There have been invented (and in some instances patented) several ways for accomplishing somewhat similar results; thus, we have seen transparent soap enclosing printed matter, soaps provided with "indelible" trade-marks by means of needles carrying coloring matter through the whole thickness of the cake so that the trade-mark could not be washed away; and the writer of these lines many years ago amused himself one day with whittling a design into a soap cake, coloring the soap so cut out and pressing it back again to form a colored trade-mark extending through the whole thickness of a cake of white soap. Mr. Schmidt of Chicago has also shown us specimens of a somewhat similar kind, made by him in a more perfect and less whittlesome fashion. The invention just patented is described in a specification so full of side elevations, longitudinal sections, apertures, design-cores, shafts, pulley-bands, stopples, chambers, and worms and other things, and is so lengthy that we can hardly reprint it in full, but we consider the item interesting because we cannot help believing that some day a cake of that kind will "take" and earn good profits for its maker. So, if anyone feels interested, just let him send for patent specifications No. 692,193.

Having been obliged, time and again, to reject manuscripts submitted to us for publication by professional writers, we desire to state—in hopes that it may do some...
good—that we believe it good policy to pay cash for only such articles as are of a strictly technical and practical character. If anyone desires to submit to us articles of real merit, articles which our subscribers may hope to profit from, we shall be glad to pay reasonably for such matter if deemed of sufficient value. But poetry, stories, encyclopaedic compilations known to everyone in the soap business, and similar writings of a general character, we are not in position to pay the "usual rates" for.

The annual meeting of the Manufacturing Perfumers' Association of the United States was held in New York on Feb. 13 and 14, as previously announced. President J. E. Davis spoke encouragingly of the increasing demand for goods of domestic manufacture in place of imported goods and then reverted briefly to the prevailing trade evils all too familiar to our readers, as dating invoices ahead, consignments subject to return of goods remaining unsold, offering of prizes, undue allowances for claims of shortage, etc. The committee on resolutions reported in favor of legislation requiring foreign goods bottled in this country to be labeled so as to state that fact. Henry Dalley moved that the members of the association shall pledge themselves in writing that upon notice from the secretary that a manufacturer or dealer in first materials is selling or proposing to give formulas as an inducement to engage in the manufacture of perfumes, such members shall cease to purchase from such houses until satisfactory assurances are given to the executive board that the practice has been discontinued. Adopted.

The French treaty, the internal revenue tax, the selling of domestic goods under foreign names, were other subjects discussed.

It is worthy of note that the Perfumers' Association, after fully discussing the practice of dating invoices ahead and of giving prizes, did not see its way clear to take decided action on either point. Unlike the soap business, however, it disavowances emphatically the selling of home-made perfumes under foreign designations.

We read in a foreign exchange that perfumes, to be perceived by our olfactories, must be in a gaseous state; even strongly odoriferous liquid substances make no impression on the nerves of smell if instilled directly into the nose of a person lying on his back and with the head hanging down.

Thank heaven for this last resort.

The same writer, by a complicated and most scientific process of reasoning and induction, demonstrates that, in order to measure the intensity of aromatic substances, one must have a nose, and that such a duly qualified nose beats the spectroscope all hollow for finesse in scientifically demonstrating the presence or absence of certain substances.

Who wouldn't be a scientist?

An Object Lesson.

A friend of the Soap Journal, who writes us often he will permit us to print his letters, makes the following remarks in a recent letter which we are at liberty to print, though only without the writer's name:

"** Do you know it is quite a task for me to get my mind on that nigre question? I was in hopes that the poor sinner had been finally consigned to his rest; maybe he got to a pretty hot place and started in motion again.

"The sound lesson taught by Messrs. Melzer's article is this: "Be observant and study carefully and patiently every condition that is liable to affect the result of the operation under consideration." Those who can see the wisdom of applying such a rule to every stage in any manufacturing process will no longer be satisfied with the simple knowledge that the nigre goes to the bottom for various reasons, and that from numerous causes his rest may be disturbed; the careful observer will look for reasons which can be demonstrated. The illustration of this principle is most apparent in the carefully devised method for demonstrating what actually takes place in the soap kettle after it is consigned to rest. It is by careful and patient study that the most intricate problems are solved and the lesson presented by Messrs. Melzer's article therefore reaches far beyond the neger question. Advantages are gained in every manufacturing process and the improvements in technical as well as scientific processes are almost invariably directly due to careful application and patient study of physical and chemical fundamental laws. I know of no industry where the opportunities for improvement are so numerous as in the manufacture of soap. The selection and treatment of the proper material, vigilant and careful observation during the process of manufacture, constant and unirring research for reducing to a minimum every source of unavoidable loss, offer every inducement for investigation. Instances are sometimes cited of failures in manufacturing establishments through the application of too much scientific and theoretical knowledge; in all such cases you may depend on it that the fault was not attributable to the knowledge of scientific laws, but to a lack of good judgment or proper management; or it may be that reverses were caused by some unfortunate condition that could not possibly have been foreseen.

What can be accomplished by faithful supervision in a large industry on the part of the man who is capable of applying in practice the fundamental laws of physics
and chemistry would seem to many so erratic that I hesitate to cite “what has been accomplished” by application of the principles taught in Messrs. Melzer’s article in the January number of the American Soap Journal.”

**ALPS.**

Received With Thanks.

Feb. 15, 1902.

**Dr. Henry Gathmann.**

Dear Sir: In case you are ever in need of a “filler”, the enclosed bit may bring a smile to the face of some weary soap boiler.

Yours sincerely,

Dorothy.

[The enclosure above referred to is “An Amateur’s Receipt for Soap That Will Keep” which we print with pleasure on another page. The communication comes to us anonymously, but our readers will freely forgive us for departing from the general rule of not printing anonymous communications. Having not the least doubt about “bringing a smile” to the face of more than one “weary soap boiler”, we thank Mrs. Dorothy for her letter (in the name of all who smile) and congratulate her John; with such a treasure he can well afford to laugh with her at the sad loss sustained by his jolly and no doubt better half. We hope this acknowledgment of her letter will reach its destination.—Editor A. S. J.]

Systematizing The Practical Work In A Modern Soap Factory.

**BY GEO. A. SCHMIDT, CHICAGO.**

It was necessary to explain first the complicated and varying work soaps have to accomplish, in order to understand the necessity of a perfected system which must prevail in modern soap factories, if the products to be turned out should prove satisfactory to both buyers and the owners of the plant. Order is all the more needed if success should be permanent; profits are so very small nowadays that the slightest waste of time, energies or material might prove disastrous.

There may be “old timers” in our trade who have smiled at the seemingly unnecessarily complicated explanations of the varieties of soaps needed by discriminating users; those who doubt our statements ought to communicate with the most refined users of toilet preparations (soaps) and ask their opinion whether they consider it advisable to substitute the best soap used for cleaning the scalp (for shampooing) by any other; the same of tooth soap, of shaving or of “Face” soap. These are used for the human head alone; these four kinds of soap are actually needed to perform the work of purifying and beautifying the human head most satisfactorily.

To the readers of this journal we agree to send small samples, enough to make the test themselves, if they will address the author; we will also include a fifth sample for washing the other extreme of the human body, the feet; a thorough trial of these five samples will put the mind in the proper condition to appreciate the following explanations about systematizing the work in a model American soap factory. The first requisite to success is the purchase of the proper raw materials at reasonable prices, as the quality, etc., etc., vary considerably, and in order to be able to get easily and quickly at the quotations received from various sources, the observations made in making analysis and while using the supplies received from different dealers, each of these ought to be known by a certain number and files ought to be provided and each fact bearing on the value of every article ought to be deposited under said number. To illustrate, call Cocoa butter “No. 710”; under that number the general characteristics of the article might be mentioned, its origin, from cocoa beans to distinguish it from coconut oil; (the writer has seen quite disagreeable results follow a mistake of that kind, a green German soapmaker wrongly translating and confounding cocoanut oil and cocoa butter). The various sources of supply of the same article are to be shown by adding letters to the figures; thus 710 might be a lot purchased from a Chicago confectioner; 710b might be imported, etc., etc. If on all bills, the notes from shipping or receiving clerk and stock keeper, the remarks made while using the lot are all marked 710a and are all filed in that particular section of the file marked with the same number, a very interesting story is sometimes told by the record thus gathered from the different assistants. In one instance it may be a lot of Oil of Sassafras of a kind which changes color if used in white soaps; the system of numbering will show where that particular lot came from, etc., etc.

The same system will be found very useful in the finishing of soap and it may be best to give an outline of this before entering into the details of making each kind of soap. We repeat, the more intelligent and discriminating users of soaps become, the more necessary it will be to increase the number and the variety of those “tools” used for beautifying ourselves and surroundings. Instead of using names which at best are very misleading, it is well to use numbers as above suggested. Designate each quality by any number below one hundred. In the older countries they say Americans are smart to put up their soaps in pieces or bars of a certain size only, and they have tried to imitate the American style, but without success. This is but natural because as business expands and competition grows, various sizes, styles, shapes, colors and perfumes will be demanded and where there is a demand, the
supply follows. This we repeat, is proper and our efforts should be directed towards creating a demand and not to accumulate supplies far exceeding the demand, as is the case just before panics.

Let us again resort to an illustration. Take, as an example, white castile soap and give it the number, say, 36. As long as it is in the boiling rooms and framing department, it is known by that number and all work done towards finishing it, as far as boiling and framing is concerned, is recorded under that number and filed in its proper place; when cut into the usual size we add an 0 on the right side of figure 36 and castile soap in bars are known as 360, and their movements are recorded under that number. But different customers might want special packages, stamps, etc.; these would be shown by adding a letter, thus 360a might designate “regular bars of castile soap, quality 36, stamped with Geo. A. Schmidt’s name, etc.” If more work is done to these bars, say putting them in the drying room, we add 1 to 36, thus dried bars would be 361; cut in 1 lb. bars 362, in ½ lb. bars 363, in ¼ lb. bars 364, pressed 365, pressed twice (as in the case of finest milled soap) 366, polished 367, the same thing wrapped in one wrapper 368, in two wrappers and boxed 369. Thus one number and perhaps a letter added would show exactly what stage of finishing a certain quality had arrived at, and such a system of numbering affords an easy method of keeping track of the movements of every batch of soap as it journeys towards and out of the shipping room.

(The to be continued.)

Counting The Cost.

Much having been said and written lately about methods of figuring out the cost of soaps, and selling below actual cost of manufacturing on account of faulty calculation, a German soap manufacturer humorously suggests the following as a “timely” process of arriving at the cost of products:

1. 17 cwt. tallow, palmkernel or coconut oil
   at M 29................................ M 493
   3 cwt. cottonoil at M 26...................... 78

2. Caustic soda, considering the present high cost of fats, as above, we cannot expect to figure in, hence..............................

3. Fuel may be obtained from burning up oil and resin containers, old parts of the shed, old soap frames, remnants of axle grease, etc., whereby in addition, the premises are kept free from litter, hence once more..............................

4. Salt is regained in the disposal of the lye, therefore..............................

5. Paper and packing boxes are probably rarely considered in estimates of this kind, hence ...........................................

6. Office salaries are so low that it seems improper to include the same in our figures

7. Wages for soapmakers, in view of the present-day rapidity of manufacture and the great labor-saving machinery in use, would be an insult to an industrial establishment that is up to the times to consider, therefore..............................

8. Salesmen’s expenses give rise to nothing but ill-feeling and do not make the soap any cheaper, so the less said of them the better, therefore..............................

9. Postage for bills, circulars dunning letters, being actual cash, we will put down with

10. Freight on 30 cwt., on an average.......18

11. Spoiled batches of soap must not occur, every up-to-date soapmaker, young or old, must be infallible..............................

12. Lost accounts are easily prevented by simply shipping no goods till paid in advance, hence..............................

13. Rent, interest, wear and tear, accidents, gas bill, water taxes, are too troublesome to calculate; therefore put them in as ...........................................

Total, M 590

The yield is about 30 cwt. white soap and nigré. Average cost therefore, M 19.70 per cwt.

“My colleagues,” adds the writer of the above, “will notice that I have added nothing for unnecessary expenses, and that nothing is lost in selling at M 20 or 21—though there is a rumor that as much as M 22 has sometimes been obtained. The complaint of low prices is therefore really unjustified. We old hands in the business can stand it a few years longer, as we either had some money left us by our forefathers, or are by this time insured to starvation.”

An Amateur’s Receipt For Soap That Will “Keep.”

Soon after my marriage I decided to follow the sage advice of some thrifty dames of my acquaintance, and turn all left-over fats into soap. Accordingly I began to save with a miser’s greed all bits of fat and grease. But I found my small family did not accumulate fat as fast as I should have liked, so I hailed with delight the offer of kind-hearted relatives to aid me in filling my apparently insatiable “fat crock”. At last, after three years of careful hoarding, the monster was filled. With joyful anticipation I set apart one Thursday as the great day long looked forward to. With my good John’s
help, I brought the precious crock up to the kitchen. At his suggestion that the odor was rather strong, I replied with the air of a connoisseur, “That’s as it should be; don’t you know how horrid a soap factory smells?”

I soon set to work with a will, and when evening came I had a beautiful lot of white soap, all duly turned into baking tins of my good neighbor’s lending. Next day I cut it into blocks and distributed it on shelves and tables on exhibition for my admiring friends. Having been praised to my satisfaction, I decided to store it in a nice convenient place at the head of the kitchen stairs, leading to an unfinished attic. With much labor I placed a board across the low landing, each end resting on a beam, and then piled my beautiful white treasures on the board in lattice fashion. I had just put up the last piece and dropped on my knees to admire my completed task, when I heard John come into the house. I called to him to come and see the result. He came running up the stairs and I, anxious to greet him, jumped to my feet, forgetting, alas, the low board above. With a thud my head struck the board, and horror of horrors! my precious soap slid down, down out of sight, between the wall and the plastering. And there it is to this day.

Dorothy.

Extraction Of Oil By Solvents.

When a chemist has submitted to him a sample of seed or other substance containing oil or fat of any kind, he takes advantage of the fact that certain volatile substances, such as ether, turpentine, benzene, and benzoline, act as solvents for the oil, and will extract it from the oily substance, after which, by evaporation, the solvent can be driven away, leaving the oil behind. Special apparatus, such as the well-known Soxhlet and the Jerritz apparatus, have been devised and are extensively used for this purpose. Many attempts have been made to adopt similar methods on a manufacturing scale, but it cannot truthfully be said that some of these processes are very satisfactory in practical working. Under the circumstances, therefore, a discussion of the principal features of these solvent extraction processes, and the reasons of their possible success and failure, may not be without interest.

It is a well-known fact that the ordinary processes of extracting oil from seeds by pressure does not extract the whole of the oil; some is left in the cake, the amount varying with different seeds and different methods of crushing. This is not altogether an unmigitigated evil, because the small quantity of oil left in the cake gives to it a good value for cattle, but still there are cases where the residual cake is not required for cattle feeding purposes, and any oil left represents so much loss to the oil crusher. A process which will extract the whole of the oil is therefore to be preferred to one which leaves some oil in the cake. Solvent extraction processes will effect this.

The principle underlying all solvent extraction processes is that the oily material is treated in a special apparatus, with the solvent which extracts the oil. The oil-charged solvent is subjected to distillation, when the solvent distils over, and, by passing the vapor through a condenser, the solvent is recovered for use over again. The oil is left behind in the distilling apparatus, and can be employed for any purpose to which it may be applicable. But in the distillation process it is not advisable to subject the oil to a high temperature, or it will be deteriorated in quality. As a matter of fact, the heat used in the process should not exceed 220 deg. F., that is a steam heat. Presently, it will be seen how the solvents in use conform to this particular. At that heat the whole of the solvent should be eliminated from the oil, or the process is not satisfactory.

Ether is perhaps the best solvent for oils that is known; it has a low boiling point, and is completely expelled at from 200 deg. F., to 212 deg. F., but for a manufacturing process it is too expensive and too volatile, while its inflammability is great. Turpentine is a good solvent, but its high boiling point—320 deg. F.—prevents its being completely expelled by a steam heat, and, therefore, it is not available for this purpose.

Benzol from coal tar is a satisfactory solvent for oil. When pure, it has a boiling point of about 180 deg. F., and can be completely eliminated from oil by steam heat, but commercial benzoIs often contain small quantities of the higher boiling homologues—toluol and xylol—which are not separated out of oil by a steam heat, and, consequently, these benzoIs are very liable to leave traces of the solvent in the oil, and in the material from which the oil has been extracted. It is therefore important, if benzol be used as a solvent, that care is taken to see that it is fairly pure. Benzol that has been once used, and thus freed from the higher boiling impurities, is much more satisfactory for use as an oil solvent.

Benzoline, or petroleum spirit, is most largely used for this purpose. It is readily obtainable and is cheap, while its solvent properties are good. It is a limpid liquid of a specific gravity of about 0.730, very volatile and inflammable. It is not a simple compound, but a mixture of several allied compounds, the nature of which varies in different grades of benzoline. Some of these compounds boil below the boiling point of water, while others boil at higher temperatures; in light benzoines, from 70 to 80 per cent. will distil under 212 deg. F. This means that some fractions of these benzoines will be left behind in the oil, or in the materials from which the oil was extracted. This feature is often not recognized by oil extractors, who sometimes wonder why the oil is not as good as they expected it to be.
Benzoline which has been once used, is free from such impurities.

Carbon bisulphide has often been employed for extracting oil and grease. As a solvent it is good, while its boiling point is much below that of water, and it is very volatile. It suffers from two defects—it has an unpleasant odor which makes it objectionable to work with, and it is very liable to contain small quantities of free sulphur and other impurities, all of which pass into the oil or residual material, and contaminate it, this contamination, in many cases, rendering the oil unsuitable for certain purposes.

One of the chief troubles in the use of the solvents noticed above, arises from their great inflammability, which renders it extremely necessary to take due precautions in storing them, to prevent fire, while the apparatus used must be so constructed as to avoid the escape of any vapor, and to prevent any fire or flame coming in contact with the vapor; otherwise, a disastrous explosion may occur. Carbon bisulphide is perhaps the most dangerous medium, although it has one advantage—it can be stored more safely, as, being heavier than water, it can be kept below water in suitable tanks, and this will prevent any flame reaching it. All the other solvents are lighter than water, and should be stored in well-constructed vessels or tanks.

Chloroform and carbon tetrachloride have been proposed and used for extracting oils, and for this purpose are very satisfactory. They boil below 212 deg. F., and are completely volatile, without leaving any trace behind—a feature which is highly desirable in an oil solvent. Another important point is that they are not inflammable, and, therefore, there is no risk of explosion or fire when they are used. Unfortunately, they are rather expensive, and the cost of oil extraction with them is proportionately great. While, theoretically, the solvent is recovered for reuse, still, there is some little loss from leakages from the apparatus and other causes. This increases the cost of the process, which is greater with chloroform and tetrachloride of carbon than with benzol or benzoline. There has, of late, been some reduction in the price of these two solvents, and if this could be brought down still lower, approximating closely to that of benzol, they would be ideal solvents in every way, as when using them there is no risk of fire.

A complete apparatus or plant for the extraction of oil by solvents should comprise the following parts: First, the extractor, in which the oily or greasy material is placed. The size of this and its construction must be adapted to the quantity of material to be dealt with at one operation, and also to the character of this material, it being obvious that greasy cotton or wool requires to be handled in an apparatus somewhat different from that used for oil seeds or oil pulps. There is one important point which must not be overlooked, and that is, the material after all the oil has been extracted will be saturated with the solvent, and it would not do to take out the material from the apparatus while so saturated, as the solvent contained in it would be lost by evaporation, and the money loss so incurred would be considerable, adding greatly to the cost of the process, while there would be a great risk or fire by so doing. A ton of any oily material will absorb, roughly, a ton or so of solvent, and before it is taken out of the apparatus this must be recovered, which is best done by a closed steam coil being fitted into the extraction apparatus; when all oil has been extracted, steam sent through this coil will evaporate away the solvent.

A second part of the plan is the still into which the oil containing solvent is run from the extractor during the progress of the operation, and in which the solvent is evaporated, leaving the oil behind. This oil is run from the still into a suitable storage tank at the end of the process, or at convenient intervals during the progress of the operation of distilling. The still should be heated with a closed steam coil. Iron, coated with lead or tin, can be used for large plants, or copper coated with tin for small plants. If the oil is likely to be at all acid in character, it may act on bare iron or copper stills, and some of the metal will pass into the oil, which, when iron is present, will turn dark brown, or when copper is present will turn green.

A third part of the plant is the condenser, in which the vapor of the solvent from the still is condensed. In some forms of apparatus, such as the Dietz, the condensed solvent flows into a storage tank, from which, by means of pumps, it is sent through the extractor, but in others—and it would seem to the writer to be most preferable—the solvent flows from the condenser into the extractor, and from thence to the still. It is desirable to be able from time to time to observe how the operation is proceeding to ascertain when all the oil has been extracted and, to do this, arrangements should be made to draw a small sample of the solvent as it is passing through the extractor for examination to see if it contains oil; to draw off some of the solvent as it is passing out of the condenser, and to draw off a sample of the residual oil in the still to ascertain when it is freed from solvent. It is important that proper connections be made between every part of the plant, so that no leakages of solvent or solvent vapor occur; too much attention cannot be given to this point, or there is much risk of fire and explosion occurring.

In the construction of plant for the treatment of wool, cotton, or other oily fibers, attempts have been made to render these automatic; that is, by means of mechanical appliances, to cause this greasy wool to pass into the machine at one end and out at the other,
cleaned. But it seems to the writer that such plants possess two defects; they are never vapor-tight, and so some escape of vapor must always occur, with the constant presence of fire risks, and, again, the presence of moving mechanical parts in a dry atmosphere, from which cause an explosion may result. It is, perhaps, from this cause that some explosions have occurred in apparatus designed to scour wool by means of carbon bisulphide. Plants of the Dietz type, in which there are no moving parts, and where the material is enclosed during the whole of the operation, are much to be preferred.—Chemical Trade Journal.

**Good Words For The Chronic Debtor.**

*(From the *Pharmac'1 Era.)*

To the Editor: Several items have appeared lately in your paper, which have "roasted" the chronic debtor. I was in hopes that some of the assailed would reply, but to my surprise nothing ever has appeared which gave the debtors' side of the story. May I be permitted to do so?

The man who owes is numerous; the man who pays promptly, but few. The majority should rule. It all comes through the practice of giving credit. Manufacturers are so eager to get their goods on the market, competition is so strong, that every man who is in the grocery business and does not sell Smith's soap is pressed to buy it. Jones, the groovymen, tries to cut them off with the statement that he uses another soap, gets thirty days' credit and some free goods. Smith's house offers him sixty days and as much free goods as the other folks. As a matter of fact, Mr. Jones has bought his soap in five-box lots for cash up to this time, because he could not get credit. Anxious to get this customer from a rival firm, Smith's house sends his order in before he gives references, or Smith's credit man may find a Jones rated in the agency book which he presumes is the one in question. In any event Jones gets the goods. Sixty days after the delivery Smith's collector calls. Naturally he wants money. Jones, with the new soap has been a decided failure as a retailer of the brand and with that "bunch" of goods on his hands the bill due and practically nothing in from it, he must put up hard cash and lose chances of good bargains, because he got credit. That's the honest position.

If Jones were an old hand at the game, he would point to a sign on the wall, and the collector would read, "Bills paid only on the first of the month." The other side of the sign reads, "Bills paid only on the fifteenth of the month." The way to use it is simply to have the sign indicate the date furthest away. When the collector calls, he sees he was mistaken. Thus one month passes. Next month the Smith firm puts it in the hands of their lawyer. He writes three letters, one every week, each containing additional threats, and at the end of the second month sues. Now the lawyer wants his costs to run up, and instead of suing in the municipal court and getting action in eight days, he sues in the city court and takes six weeks. When the judgment finally is given, he finds that the grocery store has changed hands, and belongs to another man, whose bill of sale is perfectly straight.

All this from the temptation offered the groovymen in the form of credit. It is shameful. Several firms in New York never pay bills of any kind, and the competition and number of houses in the same line enable them to continue getting supplies for years. That is business. Of course the debtor must eat. He does so at the credit man's expense. Some of the meanest letters ever heard of, are sent to debtors by creditors. One man I know of, received a dunning letter every day for six months from a man whom he owed a small sum. The debtor wrote his creditor that he was ill and about to have an operation performed at a local hospital. Doctors have assured him that something is in his appendix, and if it is the money due the creditor, why the doctor will forward it. Another instance of the annoyance debtors suffer at times came in the shape of a daily letter and a postal requesting payment of the sum due a man down South. In two months the creditor spent $1.90 in mail matter regarding that bill. When the debtor sent him a calculation showing him how foolish he had been to waste money that way, (at the rate of 95 cents per month,) when by merely placing 95 cents per month in a bank without interest, he would have obtained the whole amount due by the writer in thirty-six years. The letters ceased, and I suppose the man is making use of the suggestion.

At times debtors get bills received, with explanation in the following tone: "Sir:—As the bill has been due three or more more years, and lawyers, etc., cannot collect it, we receipt it and send it to you, hoping you will frame it as it will no doubt be the only receipted bill you ever had." This is wrong. Useless insults are unmanly. Besides, the receipted bill is always evidence to salesman that the debtor pays his indebtedness, for with a nicely receipted bill in sight, what can Mr. Salesman think? Again, "received of Jones, $—worth of experience" is a poor form to send in a receipted bill. The proper way to adjust matters is to abolish credit entirely and see how many houses fail, and which they are. Who would go to the wall? Not the debtor, but the big, blustering and mighty wholesalers. I know a man in town who never pays anyone. That is wrong. Rent and office help should be excepted.

All the kick is not on the creditor's side. Consider the Bible teaching: "It is more blessed to give than to receive," and adhere to it. THE DEBTOR.
The Production Of Soap.

(CONTINUED.)

When the different soaps manufactured here and there throughout our country are considered, it will be seen that nowhere outside of France have new ideas in the matter of soapmaking been put to better account. The centers of production are numerous; the established sorts are varied; in each region the manufacture presents its own original features—an originality justified as much by custom as by local causes. So Marseilles, notwithstanding the advantages of her port and her important oil establishments, cannot exclude the products of other places, which are seriously competing with her in France and abroad.

It has been claimed that the new departures have facilitated the production of cheap soaps on too vast a scale, and fraud as a consequence, with the inference that the industry of pure soap has been considerably restricted. Experience shows that this assertion is without foundation. On the contrary, special products have been enhanced in excellence. Fraud, since fraud is said to exist, always finds a counteraction in the means of examination at the disposal of the public. Besides, the will of the buyer makes the law. So long as our foreign competitors bow to this law, it would be folly in us to refrain from the production of all sorts of cheap soaps, half cooked or loaded, almost all of them designed for use in countries beyond the sea, where the temperature is an important factor to note. We have a prime interest in engaging in this struggle and augmenting our output.

Our soaps afford the opportunity, and our new colonies can contribute.

In industry, though, adulteration at times opens undesirable paths; it sometimes leads to results unexpected and advantageous. Thus, curiously, it is the introduction into soaps of certain mineral matters—kaolins, talcs, chalks, tripolis, sands—to which the numerous scouring products are due, which are in such vogue in the United States, in England, in Germany, somewhat less in France, though the fabrication has here reached a perfection assuring an outlet abroad.

The soap industry, so long unique in our country, meets to-day serious competition; in England, where it is in the hands of the large soda producers; in Russia, where the production is increasing every day; in the United States, where everything is done on a grand scale; in Germany, where the factories are very numerous, even if not always of importance separately; in Italy, where they saponify the green oils extracted from the pulp of olives by carbon sulphide.

We should, therefore, make use of all the means of preserving the preponderance which our country has incontestably acquired in the fabrication of rich toilet soaps. It is easy. We have but to improve our excellent processes. We are aided by the great purity of American tallow, lards, inodorous vegetable oils, and by the cocoa oils of Ceylon and Cochin-China, which are put at the disposition of modern industry. Combinations of fats well studied allow of forming mixtures corresponding to given perfumes; in other cases the addition at the time of boiling, of a small proportion of choice colophony, fixes the special perfumes desired with remarkable tenacity. Now that the aid of special machines so well promotes an intimate mixture with choice odoriferous compounds, we can appreciate the Iris powder of Florence, finely pulverised. Were it not for this delightful powder; were it not for the care and taste by which its value is enhanced, the violet, the marchioness, the cypress, and the musk soaps, would not have acquired their present favor with the public.

Soft soaps form the base of rich toilet soaps. Their saponification is effected according to known principles. This particular makes consists in causing the fatty matter to absorb an excess of alkali; then to absorb this excess by liquidation by means of weak lyes; renewing the lyes, so as to obtain a very pure soap paste. It will derive a good odor when palm oil has entered into the combination. The wonderful emollient qualities possessed by glycerine have made it a valuable auxiliary in toilet soaps. Notably in Russia, soaps have been produced, which are only machine mixtures of pure soap pastes, extra fine tale and officinal glycerine, with which the desired perfumes are incorporated. In my opinion, they are the best toilet soaps. England and Germany have shown us how to prepare transparent glycerine soaps. Their action on the skin is very favorable; they render it white and supple. The manufacture may be conducted in two ways, either with or without alcohol.

In the first, 10 kil. of pure beef tallow and 4 kil. of Cochin cocoa oil are melted together at 70° to 75°. The saponification is conducted on the water bath with 84 kil. of soda lye, 38° Bé., with the addition successively of 8 kil. of white glycerine, 5 kil. of a sugar solution (3 kil. of sugar and 2 kil. of water), and 6 kil. of 90 per cent. alcohol. When the alcohol is added, the mass has a tendency to rise. So the operation is conducted in a receiver, proportionately large. The soap is flowed into the requisite forms, where it is lightly covered, until it grows cold. The saponification can also be made with 15 kil. of beef tallow, 8 kil. of ester oil, 15 kil. of cocoa oil, and 2 kil. of yellow palm oil.

To 22.5 kil. of soda lye (35° Bé.), 18 to 20 kil. of alcohol and 10 kil. of glycerine of 24° Bé. can be added. This soap, not containing sugar, will be less viscid than the preceding.

The preparation of transparent soap without alcohol is more delicate. After 11 kil. of beef tallow, 14 kil. of cocoa oil, and 12 kil. of ester oil have been melted together, the saponification proceeds on the water bath,
and, without pressing the steam, with 22 kil. of soda lye, 29° Bé, mixed with 10 kil. of glycerine. Almost immediately are added 24 kil. of 50 per cent. sugar of syrup heated to 75° C. The mass well stirred and homogeneous, is left to rest, covered for an hour; then a solution, previously heated to 75° C., is poured in, composed of 2.5 kil. of water, 0.4 kil. of potassium carbonate, and 2 kil. of soda crystals. After intimate mixture it is removed from the water bath, and allowed to cool to 50°, then perfumed before flowing into forms. The perfume is generally a bouquet of essences of geranium, gilliflower, lavender, cinnamon, sassafras, and sandal wood or cedar.

White shaving soaps, sold in bars, are soaps with base of beef, tallow, lard, and cocoa oil, well worked with lyes, drained, and scented with bouquet of mixed perfumes.

Light soaps, called bath soaps, are produced in a boiler furnished with a heating apparatus, which is revolved more or less rapidly by means of a crank. A good tallow and cocoa oil soap is used, which can be readily cooled and scented. Sufficient water is added to form a mass which will remain firm after cooling. When it has becomeropy, it is subjected to the heating apparatus, which is revolved until the whole is converted into foam; then it is poured into moulds and cooled. The porous appearance is occasioned by the bubbles of air in it.

As products of direct saponification, from which the business of perfumery draws great advantage, the so-called “cold” soaps require mention. On account of the prejudice of customs, they have been too much neglected in France. Enormous quantities are turned out in England, Germany and Russia. The manufacture exacts great care and method, but it is simple. Cocoa oil, alone or in mixture with white palm oil, lard, and pure tallow, is melted and raised to the temperature of 35° or 40° C. A soda lye, ranging from 36° to 42° Bé, is then poured in. At 36 about 50 per cent. in weight of the fatty materials is necessary. It is constantly stirred, until a thick paste is obtained, which is conveyed into special receptacles covered carefully with felt. The heat of the combination is soon manifest; the soap matures, and at the end of three or four days, when it is cooled, it is ready to be put up in cakes; it is subjected to the action of heat sufficient to evaporate the excess of water, and then stamped and packed for sale. The coloring matter is employed in aqueous solution, and added at the same time as the lye. The perfume is added at the time it is drawn into the forms. France has scarcely undertaken this production, until now, since the importations of cocoa oil have become so abundant, it is entering into rivalry with England and Germany, which have created the demand.

This sketch would not be complete without remarking how valuable the new auxiliary coloring matters have proved, as well as the synthetic odorous products.

The rational employment of the chemicals, and their combination with the natural perfumes, have worked a revolution. Modern perfumery chemists marvel at the results. What astonishment is yet in store when we consider that it is by chemical means that we are able to incorporate, especially in soaps, certain perfumes formerly considered beyond attainment. Jasmin, orange flower, rose, violet, lilac, heliotrope, lilac of the valley, musk, have now no secrets. The industry is assured of an uninterrupted continuation of resources, if mechanical appliances are kept in a state of perfection corresponding to the progress of science.

Chemical Nomenclature.

With reference to the suggested elimination of the names of persons from the fundamental laws which they were the first to enunciate, now going on in a journal devoted to theoretical chemistry, that is a mere matter of detail upon which it is unnecessary to quibble. There are many points of more importance than that which cry for attention. One, for instance, is the use of the word “practical” as applied to chemists and chemistry. What would a newspaper proprietor think of an advertisement like this: “M.A. of Cambridge, etc., etc., at present teaching English grammar and composition in a large school, wishes a post as ‘practical’ journalist on a large daily paper”? Yet teaching boys qualitative and quantitative analysis by the book in a school laboratory no more constitutes a man a practical chemist than teaching boys English grammar and composition makes a practical journalist or litterateur of a Cambridge M.A. Yet this class of man frequently dubs himself practical in the advertisement columns of certain theoretical journals. These practical men can estimate chronic acid in bichrome, but fail ignominiously when they tackle a chrome ore.

A man may have become a practical chemist when he leaves a works and its laboratory after having wrought therein for several years. He is certainly not a practical man when he enters a chemical works for the first time, whether he learnt the A B C of chemistry at Cambridge or elsewhere.

The present race of chemists seem a very unpractical lot indeed. One genius, in recently reporting in the columns of a certain journal the results of analyses of sulphate of ammonia by a quasi-new process, did so in terms per cent. of ammonium (1), an instance apparently of sheer pedantry, if not of downright ignorance.

The chemist, in reforming his vocabulary, forgets the man in the street who calls a spade a spade, and drives a coach-and-four through the refined subtleties of would-be “practical” chemists. To the man in the
street cream of tartar will remain cream of tartar as long as the English language is spoken, let the chemist shout hydric potassic tartrate, etc., etc., until he is hoarse. Again, “John Black” is very well known by his cognomen, although physically he may be a “John Brown” or a “John White” or a “John Grey,” as the case may be.

Moreover, how is it that Frenchmen can write on chemical subjects in the language of every-day life, and without the use of any pedantic phraseology, however high-floved their language may otherwise be? Their science does not seem to flutter, yet he who runs may read. Adepts in the use of chemical terminology are not necessarily “practical” chemists. Even the long-suffering Frenchman has begun to kick at the vagaries of the pedantic schools of chemists. Apparently, some little time ago, Messieurs Condon and Rousseaux, chemists on the staff of the National Agronomical Institute of France, were commissioned by the French Minister of Agriculture to inquire into the cause of the variation in the volatile fatty acids in the Dutch butter as supplied to France. In their report they say, with reference to what is known as the Reichert value:

“In this connection we must remark how bizarre it appears to us to express the result of an estimation of acids in cubic centimeters of an alkaline solution.

“Is it not anti-scientific and obscure to express by an abstract number, having in itself no signification, such a precise and definite thing as the richness of a butter in fatty acids?

“Thus, certain authors no longer speak of the estimation of the volatile acids, an expression which everybody would understand. They find it more a propos to say the Reichert value, or, more simply still, the Reichert, or the Meissl, or the Wolay, etc.

If this language be accepted, there is no reason why it should not be generalised, and one would therefore be right in the analysis of manures in replacing the percentage of nitrogen by a Peligot value or a Kjeldahl value, which would then be n c. c. of sulphuric acid or of alkaline solution titrated, which would be pure phantasamagoria.

“It is very desirable that this cabalistic language should be abolished. In fact, the expression of analytical results and the reports of experts should not be edited for the exclusive use of professional chemists. On the contrary, they should be capable of being read and understood and compared by the majority, even by those who possess but an elementary knowledge of chemistry.

“Beyond a small number of initiated persons, the signification of the Reichert value of the Wolny, etc., will therefore remain incomprehensible. The diversity of names used in this case to serve as a label for a figure without any great signification by itself can only add to the confusion.

“We may add that it is quite necessary that the result of an acid estimation be expressed in acid, and brought to per cent. of the substance analysed. Now, as in butter the volatile acid which predominates is butyric acid, it is altogether logical to express the result of the estimation of the volatile acids in that product, in butyric acid per cent. of fatty matter, as the majority of French chemists do.”

The present school of pedantic chemists might therefore be more usefully employed than in dissociating the names of the discoverers of the fundamental laws of chemistry from the written formula in which those laws are now enunciated. Let them learn to write their analytical reports, not for the professional few alone, but so that they can be read and understood by the uninitiated million, and not affix half a dozen names of different modifiers to a very minor chemical estimation of no great value but in very exceptional cases. — Oil and Colourman’s Journal.

Adulterated Vanilla.

Henri Lecomte (Bull. des. sc. pharmacol.) denies that the presence or absence of a crystalline coating upon vanilla is an infallible index of the quality of the material. It is commonly believed that the best varieties of vanilla always exhibit superficial, needle-like crystals of vanillin. According to the author, this is untrue, for Mexican vanilla, which is classed with the best varieties, is always without these crystals. He states that vanilla is sometimes artificially covered with crystals of benzoic acid, in order to improve the appearance of inferior varieties or to effect a sale of polis from which the valuable principle has already been extracted. This adulteration is easily detected by determining the melting point of the crystals; benzoic acid is also easily distinguished from vanillin by means of a magnifying glass. An examination of the crystals by chemical means may be performed as follows: A trace of phloroglucin is dissolved in alcohol upon a watch-glass, an equal volume of hydrochloric acid added, and one of the minute crystals of the vanilla pod brought into the mixture by means of a slender glass rod. If the crystal is vanillin a beautiful red color appears, while in the presence of benzoic acid the mixture remains uncolored.
New Process For The Complete Purification
Of Cocoa Oil.

The oil of cocoa is a vegetable fat of butyric consist-
ency, extracted from the coconuts by pressure. If it
were extracted from fresh nuts it would be a neutral
oil, composed, as almost all oily bodies are, of glycemic
ethers, having for acids those commonly designated as
fat acids, such as stearic and oleic acids, etc.
The cocoa oil contains, besides a certain quantity of
glycerides, other fat but volatile acids, such as caprylic
and caprinic acids.
The oil, perfectly fresh (says "Les Corps Gras In-
dustriels"), and consequently neutral, ought to have
neither taste nor smell; but in commerce it is always
found in a state more or less decomposed, and has an
odor and taste rendering it absolutely unfit for con-
sumption as an alimentary fat.

Different processes have been tried for purifying it
for the purpose of rendering it insipid and inodorous,
but the results are imperfect, both as to the quality
of product obtained and the economy of the operation. By
the new process the different contaminating products
are removed, and it is rendered perfectly inodorous and
insipid.

The oil as found in commerce contains:
1. All the volatile fat acids existing originally in the
neutral oil; the proportion is very variable, and may
exceed 10 per cent.
2. Small quantities of a neutral product possessing
a marked odor, proceeding evidently from the oxida-
tion of the glycerides, caprylics, and caprinics; for, on
saponifying them, a volatile acid is set free, which has
a penetrating and disagreeable odor.
3. Coloring matter in very varying proportion.
4. An alkaloid matter, extremely tainted, which con-
tributes especially to corrupt the oil, and give it a bitter
taste.

The first operation consists in getting rid of this im-
purity, which is the most harmful of all.
The result is obtained by agitating the contaminated
oil for some time, at a temperature not exceeding 100
deg. C., with water to which some thousandth part of
an acid has been added, such as sulphuric acid (employed
preferably), chlorhydric acid, etc.
The acid in excess, and the salts formed, remain in
the washing waters, and it is easy to remove them.

This treatment, without taking from the oil all its
impurities, at least removes the whole of the alkaloid
matter, which renders it so offensive, and is sufficient to
allow of its industrial employment in many cases.
It is, however, but the first step in the complete puri-
fication, which is secured by a series of operations which
we will describe. It is to be remarked that, in case of
need, the special removal of the alkaloid impurity may
be dispensed with, for one of the subsequent operations
would effectually remove it, but more time will be nec-
essary.

It is known that if any oil is treated with milk of
lime (hydrated lime diluted with water) there is ob-
tained as a final product, especially when heat is em-
ployed, a soap of lime.

If the operation is continued all the oil will be saponi-
ified.
The new process is based on this observation, that if
a neutral oil is treated with dry, finely powdered lime,
no decomposition (saponification) occurs, even if kept
in prolonged contact, and at a temperature exceeding
100 deg. C. On the contrary, the lime combines almost
instantaneously with free fat acids, especially if the
number of points of contact is increased by agitation.
The coloring matter contained in the oil is completely
removed by the action of the lime.

On account of this reaction the free fat acids con-
tained in the oil can be separated and removed without
fear of decomposing them.

As to the neutral product mentioned under the second
head, the lime has no effect on it. To remove it, the
oil is treated with a weak solution of alkaline carbonate.
This solution does not decompose the neutral cocoa oil,
while it saponifies the inodorous product, forming with
it an alkaline salt, which is drawn off with the washing
water. The treatment, suitably prolonged, will also re-
move, as has been mentioned, the impurity specified
under the fourth head.

The operation is conducted in the following way:
After having subjected the oil to the previous treat-
ment, if desired, an impalpable lime powder is prepared,
either from anhydrous lime or hydrated lime. To ob-
tain the finest powder the hydrated lime is preferable.
The crude lime is then introduced into a vessel heated
to a temperature of 50 to 60 deg. C., and the lime pow-
der is added while shaking. The quantity ought to be
greater than that indicated by the analysis as neces-
sary for the saturation of free fat acids.

The shaking is continued in order to multiply the
contacts, taking care to keep up the temperature. The
saturation being completely finished in a few hours (the
time, of course, depending on the quality of the oil),
the whole is carried to the press filter, which retains in
its meshes the lime soap that has been formed, and the
oil is collected in a neutral state, almost completely
deodorised. To finish the operation, it is mixed with
water, to which 2 per cent. of alkaline carbonate has
been added, and heated to a temperature of about 100
degrees C., making sure of the contact by agitation until
the peculiar odor has entirely disappeared.

After having drawn it off, it is well, in order to avoid
all trace of alkalinity, to give it a final washing with pure water.

The oil, now having neither taste nor smell, has become comestible, and will not grow rancid.

We have seen that the fat acids are separated by the press filter in the condition of insoluble salts (lime soap), mixed intentionally with an excess of lime.

To set at liberty these fat acids, which may be employed in soapmaking, it will be sufficient to dilute them warm with weak chlorhydric acid.

**On The Subject Of Fire Insurance.**

At the last meeting of the National Association of Credit Men, held at Cleveland, Ohio, the following resolution were passed:

**Resolved,** That the National Association of Credit Men, in convention assembled, wish to emphasize the necessity of merchants and manufacturers, and all interested in mercantile pursuits or otherwise, carrying fire insurance; and be it further

**Resolved,** That the Business Literature Committee be, and hereby is, especially urged to give considerable prominence to the publication of such articles during the year in Business Topics, and later put into effective form in the shape of a special leaflet, some selected article or a symposium of articles upon this subject.

Several able papers were read on the subject of fire insurance that would be interesting to any business man, who is in doubt about the proper course to pursue in taking out fire insurance.

We publish two of these papers, as follows:

**BY CHARLES FARLEY PORTER, BOSTON, MASS.**

"Yes. There are pitfalls enough in the credit system, without adding the risk of fire. I would as soon forego my own fire insurance, as to credit those who carry none.

"Exhorbitant premiums sometimes curtail insurance, but it has been my observation, that in such cases, the hazard usually justifies high rates, and thus renders the requirement all the more essential.

"To evade fire insurance evinces a lack of business foresight and conservatism, and places credit upon a speculative basis, thereby destroying confidence, which is the foundation of all credit. Any business which cannot stand insurance had better be wound up.

"Some enterprises are spread over much territory, hence carry their own risks; but these are very wealthy, and seek no credit.

"The general custom is to insure. Very many old conservative concerns have blanket policies, covering all of their belongings bought in transit, sold but undelivered. This would be a good method for the uninsured to adopt. Out of some ten thousand accounts passed upon during the last fifteen years, I cannot ever recall passing to 'profit and loss' on account of fire."

**BY F. J. HOPKINS, MINNEAPOLIS.**

"I have labored so long and persistently, presenting facts and arguments, with now and then an effort at eloquence to convince the erring, that upon first thought, it does not seem to me that this subject could terminate with an interrogation, yet, accepting the question in its full meaning, I am inclined to the belief that one can, by the use of good business sense, get on both sides of this subject and still be right. It is a proposition thoroughly practical; one which confronts us, and yet all our trade cannot be handled in the same manner, and the same answer cannot be given in all cases, or the same stand taken for all accounts with justification to good business judgment.

"In discussing the above I accept the term 'Credit' in its broad sense as well as are called upon to deal with it. In so doing we find at once our trade divided into several classes, all of which would not, by the consistent handling of credits, have this subject applied to them in the affirmative.

"There is a class of merchants (none too plentiful in the northwest who, by the character of their assets and manner of paying, namely, discounting, can do as they please; and when they say "We carry our own risk," you cannot say them nay. As this class almost without exception is insured and the term 'credit' can scarcely be said to apply, they are out of our argument.

"The next are those very desirable customers who invariably pay their accounts when due on regular terms, keep their affairs in good shape, but never seem to get on a discounting basis. This class is comparatively small and they, too, as a rule, are well insured, and unless the character of assets or nature of business is such that by leaving their stock or building uninsured, there would be probability of loss to creditors in case of fire, I think he would be a hard-headed and courageous credit man who would insist where objection was offered. My experience is that these two classes present but very little ground on which to work with this subject.

"We now come to the customer who is a generous buyer, a man who is not worried about terms; to whom thirty and sixty days mean little. The one who pays when he can and settles by note when he cannot, and is always willing to use a portion of his jobber's capital as his own, the customer to whom we are obliged to extend more or less accommodation all the time. This class is larger though valued by us all, and as a rule is insured, but many times sufficiently, and here is where the 'essential' has often to be applied, and where the creditor by virtue of favors in settlement has the right to ask for adequate protection and 'stay with it' until
he gives it. This class of customers causes considerable friction, and it is my practice to insist on an increase of insurance, where in case of fire, the quick assets of a business would just about equal the liabilities.

"The non-insured and those who won't, are generally the class of customers who are ignorant and do not know enough to protect their own; the careless and shiftless who procrastinate until burned out; the over economical and stingy merchant; and those who, by location far removed from railroads or fire protection of any character, and where the risk is very hazardous, feel that the rate is almost prohibitive. The last class we have sympathy for; the others none. These accounts as a rule are small, their purchases being limited by the very nature of their business, and when they are visited by a fire, creditors are generally called upon to attend the post mortem. For this class I would say, make fire insurance essential to the opening or continuing of an account.

"In summing up this subject and looking back over an experience of several years in a section of the country comparatively new, and where the ability of the rural merchant is not above the average, (and when so stated, I am undoubtedly complimentary) I am surprised at our very small losses from this source, and conclude that we have even greater troubles. It seems to me that this subject requires, like many others which come to the credit desk, good 'horse sense' in handling. To make fire insurance essential in all cases would not reflect well on said sense, but I believe we should not fail of an opportunity wherever we find no insurance, or in our judgment, too little, to advocate and argue for it, and in cases insist upon it, because we realize that it is one of the solid spokes in the wheel of right principle and correct business methods that should govern all up-to-date and well regulated establishments, large or small. It is along the line of education; a prerogative I claim, granted to every member of our profession, and one wherein the National Association of Credit Men can, by not neglecting its use, accomplish much good."

Soap Advertising In Germany.

Strong feeling having been aroused throughout Germany by the disfigurement of lovely scenery in the Harz Mountains and Thuringia, and especially on the Rhine, by rival traders in soap, who have posted their hideous notices over ground almost sacred to lovers of nature and students of history, a bill has been introduced in the Lower House of the Prussian Diet, to enable local police authorities to deal with unseemly advertising within their jurisdiction.

The Hygiene Of The Mouth.

By Byron L. Kesler, D.D.S., Salt Lake City, Utah.

A distinguished contributor to medical literature makes the statement that the science of medicine, during the century just closed, achieved its greatest triumphs in "Preventive Medicine." The profession, through local, state and national boards of health, has advised proper regulations and sanitary measures for preventing the dissemination of those epidemic diseases which at times have threatened to depopulate the globe.

The term Prophylaxis is derived from the Greek word meaning "I defend," or "to guard against." The prevention of disease stands to-day in the front rank of medical practice. To the practitioner of general medicine it is one of his most effective weapons against the common enemy, infection. It is of even greater importance to the "common people," as an efficient means of protection against the scourges, plagues and contagious which afflict the people of those countries where ignorance, filth, superstition and uncleanliness abound.

In this age of rapid and quick communication, with its increased facilities for transportation, the dissemination of contagious diseases should be accelerated; but contemporaneously our knowledge of more perfect methods for the prevention and control of disease is correspondingly increased, thus allaying fears for the future and inspiring confidence in the investigations of science and the shield of protection which it affords.

The statement is made by Professor Vaughan, in speaking of mental hygiene, that the mind must be studied from the view point of the materialist; that the mind can not be considered as an entity, dissociated from the brain, as the operations of the mind are merely the physiological phenomena of brain function; that a sound mind is dependent upon a sound body, and a sound body is dependent upon a perfect digestion, genius even being unable to compensate for the ill-temper produced by a faulty digestion. Logically may we not, therefore, go a step further and say that a perfect digestion is largely dependent upon, or is greatly influenced by a thorough mastication of the food, and that mastication is dependent upon a good set of teeth? Therefore the necessity for dental sanitary science, or dental surgery.

As it is practically impossible to be a good Christian when suffering from indigestion, regardless of theory and pretensions, mastication certainly, and salvation probably, in a great measure may depend upon the skill and knowledge of one's dentist.

If sanitary science is important in the practice of general medicine, it is of even greater importance in oral hygiene. The old but true axiom, that "cleanliness is next to godliness," is most appropriate in our cavity with pertinent and peculiarly appropriate fitness. In no other subdivision of personal hygiene are the sins of omission fraught with such disastrous and far-
reaching consequences as are the disregarding and neglect of the sanitary principles of oral hygiene.

As mastication is an important feature of the digestive function, nature has provided suitable organs—the teeth—made not only for service, but also as one of the means of personal adornment when perfectly developed and cared for.

In the practical application of the principles of prophylaxis dental science goes further back in the scale of development than the consideration of the visible or developed teeth. Very much good can be accomplished for the teeth of the child, before its birth, by providing the mother with suitable foods, those which contain the essential elements for the formation of hard tissues, including the teeth, such as lime salts, etc., in the form of lime water (in milk), or the syrup of lactophosphate of lime; also certain grains, as wheat, and skim-milk. The latter furnishes a form of lime, the chloride (0.3 to 0.5 per cent.), of which is very essential in building tooth substance.

After birth, the tooth structure can be improved in the percentage of lime salts, by the feeding of cow’s milk, sterilized, which contains five times as much lime as human milk.

Parenthetically, a few words as to heredity may be of interest. Children inherit the individuality and peculiar characteristics of one or both parents, or perhaps of some remote ancestor. They inherit the complexion, the color of the hair and eyes, and the facial contour. They also inherit the peculiarities of the teeth, not only as to size, form, and position in the arch, but also the constitutional structure as well.

Each of the four basic temperaments; sanguine, bilious, nervous and lymphatic, are characterized as to form, size, shade, position and texture. When a child inherits temperament, it should be endowed with the class of teeth that go with that temperament; though a child may inherit the small teeth of one parent and the massive maxilae of the other, or the reverse. In the latter case the teeth are crowded and irregular. The correction of such irregularities constitutes a separate department of dental science, termed orthodontia.

Next after development comes the subject of sanitation and cleanliness. The salivary and serumal calculus, which accumulates in some mouths very rapidly, necessitate its removal by a dentist every two or three months. Other mouths may not require this operation in as many years. In the case of young people, in the majority of instances, the salivary calculus is the variety usually present. When removed, the surfaces of the teeth should be polished: a slightly roughened surface is favorable to, and induces future precipitation of the deposit.

The serumal variety—a deposit from the blood—is precipitated in the mouths of persons with a gouty or rheumatic diathesis, some of these cases being benefited by systemic treatment.

After the deposits have been thoroughly removed and the enamel surfaces polished, they may be kept so, by the patient himself, by the diligent and correct use of the tooth-brush and other toilet articles, tooth powders, soaps, washes, picks, silk thread, rubber bands, etc.

The tooth-brush—first, as to its selection. In form and size it should be suited to the case. It should be curved to fit the contour of the arch, and the handle also curved, to facilitate manipulation; the bristles firm and well fastened to the handle, with the surface serrated, and an isolated tuft at the end for cleansing the inaccessible surfaces of the teeth, as back of the third molar or in spaces where teeth have been extracted, etc. If the patient be so unfortunate as to wear a “bridge” or other stationary contrivance, then an accessory brush is usually required, a special form and size for these cases.

The correct use of the brush is an important item. To produce the best results, place the bristles against the outer or labial surfaces of the teeth, then brush from the necks of the teeth toward the occlusal surface. Pronate the forearm, or rotate the brush; brush the upper teeth down and the lower ones up (inner or lingual surfaces the same). This will tend to brush the gum festoons into the interdental spaces rather than out of them. The occlusal or masticating surfaces should be brushed from side to side, and forward and backward. This will cleanse the grooves and fissures.

Use the brush as though it were a collection of tooth-picks designed to remove the residual food substances which may have become lodged between and around the teeth.

Don’t brush across the gums under any circumstances. It will tear them loose from the teeth, unnecessarily bruising and lacerating them. Beware of infection! Do not scour the gums, nor scrub the teeth, nor try to polish them, using the brush as in polishing shoes.

Dentists are provided with the proper instruments and utensils to perform such operations without injuring either the gums or the enamel of the teeth.

When oily or greasy films and stains accumulate, which will not be removed by the brush and lukewarm water, then other agents of detergent character may be brought into requisition. Detergents may be classified into two kinds, chemical and mechanical or physical. Tooth powders belong to the mechanical. They are not of much importance as medicinal applications. The base should be alkaline and should be soluble in the oral fluids, and not too gritty; the grit should be regulated according to the condition of the teeth. Precipitated chalk is good for the basis; the grit can be increased by adding pulverized cuttlefish bone; as a solvent for fats and oils, pulverized soap bark or white
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(To
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continued.)

American
Vegetable
Oils.

The
Department
of
Agriculture
has
completed
a
report
on
the
vegetable
oil
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United
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from
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we
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now
estimated
commercially
at
from
80,000,000
to
90,000,000

and
an
export
trade
has
been
established
that
absorbs
annually
about
50,000,000


England
and
France
manufacture
this
oil,
principally
from
Egyptian
cottonseed,
but
their
rank
as
competitors
is
indicated
by
the
fact
that
both
countries,
France
especially,
are
heavy
purchasers
of
American
oil.

It
is
estimated,
too,
that
production
in
the
United
States
can
yet
be
increased
fully
one-third
by
the
utilization
of
the
entire
crop
of
cottonseed,
a
part
of
which
is
still
not
manufactured
into
oil.

Corn
oil
first
became
of
sufficient
importance
as
an
article
of
foreign
commerce,
to
be
given
a
separate
place
in
export
statements,
in
1898.
In
that
year
exports
of
this
article
 amounted
2,646,560
gallons,
and
since
that
date
they
have
increased,
until
in
1901
they
amounted
to
4,805,545
gallons,
an
increase
of
over
80
per
cent.

The
importance
of
the
peppermint
oil
industry
of
the
United
States
is
due,
not
to
its
magnitude,
but
to
the
fact
that
peppermint
oil
is
the
only
essential
oil
produced
on
so
large
a
scale
in
this
country.
Commercial
authorities
place
the
annual
production
of
the
country
at
from
190,000
to
200,000
pounds.
Probably
three-fourths
of
this
is
produced
in
Michigan,
about
one-tenth
in
the
State
of
New
York,
and
the
remainder
in
northern
Indiana.

Formerly
over
one-half
of
the
total
production
was
exported,
but
in
late
years
the
export
trade
has
greatly
decayed.

Other
essential
oils,
also,
are
distilled
in
this
country
from
spearmint,
pennyroyal,
sassafras,
tansy,
wormwood,
and
other
products;
but
the
combined
value
of
these oils is said to be much less than that of peppermint oil alone.

Although the use of imported oils has doubtless been supplanted to some extent by the use of oils of domestic manufacture, there has, nevertheless, been a steady increase in imports of foreign-made oils. Imports of olive oil show a gradual increase from 605,509 gallons, valued at $733,489, in 1891, to 982,706 gallons, valued at $1,365,805, in 1901; imports of other fixed or expressed oils, valued at $1,532,280, in 1891, increased to $3,409,627 in 1901; imports of volatile, or essential, and distilled oils alone show a decrease, the value in 1891 being $2,523,491, against $1,958,383 in 1901.

The attention now being paid to olive cultivation in California will, it is claimed, eventually result in the manufacture in this country of all olive oil necessary for domestic consumption.

An Improved Soap Cake.


To all whom it may concern:

Be it known that I, Willard A. Robinson, of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Soap Cakes or Bars, of which the following is a specification.

This invention has for its object to assemble in a single cake two kinds of qualities of soap having different capabilities and arranged so that both kinds shall be exposed at the exterior of the cake and so that the two kinds may be used simultaneously or either kind alone.

The invention as here shown is embodied in a cake comprising a body portion, two side layers projecting therefrom and separated from each other, the said body portion and side layers being composed of suitable non-abrasive toilet soap and made in a single integral piece, so that the side layers form extensions of the body portion and are securely held thereby, and an intermediate layer of abrasive soap which is somewhat harder and wears away less rapidly than the material of the body portion and side layers, the intermediate layer being composed, for example, of so-called "pumice" soap and inserted between the side layers, so that the series of layers are held together by the body portion. One edge and the ends of the intermediate layer are exposed between the edges and ends of the side layers, the edges and ends of the series of layers collectively forming a laminated surface on one edge of the cake and laminated surfaces extending partly across the ends of the cake.

The relative broadness of the intermediate layer causes it to wear less rapidly than the side layers, so that it is caused by the wear of the cake to bulge slightly between the side layers, its exposed surfaces being therefore adapted to be conveniently applied to the surface requiring its action.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a perspective view of a cake of soap embodying my invention. Fig. 2 represents a sectional view of the same. Fig. 3 represents a view similar to Fig. 2, showing the effect of wear on the cake.

The cake thus formed has homogeneous faces, a homogeneous edge composed wholly of non-abrasive toilet soap, and laminated faces composed in part of non-abrasive and in part of abrasive soap, the abrasive layer wearing more slowly than the other layers and being caused by the wear of the cake to bulge, as shown in Fig. 3. By thus locating the two kinds of soap in juxtaposition, they can be used simultaneously with better results in many cases than would be attained by using either kind alone. When no abrasive action is required, only the homogeneous faces of the cake are to be used.

By extending the layers through the cake from end to end I am enabled to manufacture the soap in bars of indeterminate length and cut the same into sections, each constituting a complete cake.

The cake or bar may be produced in any preferred way, as by placing the strip which is to form the layer 4 in a suitable mold and pouring the other soap while in a sufficiently soft condition into the mold, so as to form the body 2 and the layers 3, the strip or layer 4 being of course located close to one side of the mold, or the layer 4, being relatively hard, may be simply pressed into a bar of the other soap, so that the latter will overlie the former, as indicated in the drawings.

I do not limit myself to the form and proportions of the several parts of the cake here shown.

I Claim—

A cake of soap, comprising a body portion, two side layers projecting from one side of the body portion and separated from each other, the body and the side layers being integral with each other and composed of a given kind or quality of soap, and an intermediate layer between said side layers, composed of a harder kind of quality of soap, so that the intermediate layer wears more slowly and is caused to protrude slightly as the surfaces of the cake wear away, the edges of the two side layers and of the intermediate layer forming a laminated surface extending along one edge and partly across the two ends of the cake, the other three surfaces of the cake presenting only one kind or quality, the series of layers being held together by the body portion.
Stories About Perfume.

A rather entertaining—if not absolutely correct—account of something new about perfumes is contained in a Chicago paper that would not say so unless—but never mind that. It says:

Lady Curzon, Vice-Reine of India, is responsible for the smartest new "craze" of society.

It is the whim for perfume, and fashionable women are intent upon doing in the twentieth century what in the nineteenth was considered extremely bad form. And it is all because of a few drops of a new perfume that an East Indian rajah gave to Lady Curzon, half of which the beautiful daughter of Levi Leiter, of Washington and Chicago, transmitted to the queen.

A whiff of this new odor has set London society ecstatic. It is so delicious, so puzzling delightful in its fragrance. So new! So absolutely unattainable. And the Queen of England has only six drops of it!

A small, very, very small vial of this perfume was given Lady Curzon by one of the enormously rich rajahs of India, whose rose gardens must blossom like the rose gardens of the now desolate Paestum.

To illustrate how precious is the new perfume, the rajah in presenting it said that it required acres of roses to produce just a few drops of this rare odor, and that he wished to christen it in Lady Curzon's honor "Vicereine." So he did.

Lady Curzon shared her small vialful, which contained just twelve drops, with Queen Alexandra. Since then all the titled ladies of London have been keen not for a single drop of it, but only for a sniff of the mysterious essence.

After the sniffing came curiosity; after that, guessing; after that comes the clever puzzling of imitation.

The new "Vicereine" is being manufactured in London and in Paris. And the quick, nimble-minded manufacturers of perfumes who wanted to get their conception of the secret on the market first have taken fair advantage of this newest woman's foible. The way was well prepared. Women of fashion are now hardly ever without their scent bottle or perfume amulet.

For the amulets there are cases of gold studded with artistic beauty, and some are so covered with jewels that they are worth a fortune. Scent bottles of crystal and gold, with the top shaped like a flower, are among the novelties. Some show a beautifully tinted orchid, a rose or a fleur de lise.

One exceptionally exquisite bottle has the cover in the form of a full-blown rose. The curled petals are pink enamel, and now they glisten with diamond dew drops. A pink topaz forms the heart of the rose, and the rest of the bottle is crystal and gold, studded with diamonds. Inside these costly bottles is generally a tiny tube for holding a few drops of some rare perfume. The bottles vary in shape. They are made for holding in the hand, for hanging from the chatelaine, for slipping in the glove.

It is interesting to know the process employed in producing the expensive perfumes used by society women.

It is not one flower, but many that give their fragrance to obtain a single odor.

There is violet, for example. Here is a list of the ingredients which go to make up that most popular of perfumes: Musk, cassie, jasmine, tuberose, civet, oil of bergamot, oil of orris, ambergris and ionone.

And when we are told that ambergris costs $30 an ounce and that ionone is worth, in its pure state, $1,100 a pound, no longer need we wonder why the best violet perfume is so high priced.

Though the rose gardens of India and Bulgaria are famous and furnish to the world a portion of attar of rose, that oil which is so essential to the making of perfumes, yet it is France, and that portion of it situated south of the maritime range of the Alps, that is known as the flower garden of the world. No rain falls here from March until September. Here the village of Grasse is situated, and for miles and miles around nothing but a vista of flower gardens can be seen, etc.

Violet has been the favorite odor, and many women have used it to the exclusion of every other perfume. Clover has been the vogue, and is yet. It has been a fad for a woman to use one perfume and only that. Her soap, sachet, toilet water, hair tonic and perfume have emitted the same odor. But even when doing this she has been careful to have only a subtle fragrance about her—merely the suggestion of the odor, and never has she been guilty of using any other perfume except the one she chose for her own.

But now! Lady Curzon has started a perfume craze. This does not mean that perfume is to be used so lavishly that it will be vulgar, but merely that many perfumes are to be fashionable, and more perfume used than for some time past. Violet, rose, carnation pink, heather and lily-of-the-valley are all in high favor. And women of wealth are having special perfumes manufactured for them at extravagant cost, the ingredients of which are kept a secret.

Lady Curzon just at present is reveling in her precious six drops of "Vicereine." By merely opening the little vial and holding it near her laces, they have become scented with the rare and peculiarly lasting perfume, the discovering of which the rajah regards as a special triumph.

He has promised that when the six drops begin to lose their strength of perfume, six drops more shall replace them.
Trade-Mark Law.

In Part IV. Special Term of the New York Supreme Court, Judge Leventritt reiterated the broad rule stated in the Prince Manufacturing company vs. Prince's Metallic Paint company (185 N. Y., 24) which reads: "Any material misstatement in a label or trade-mark as to the person by whom the article is manufactured, or as to the place where manufactured, or as to the material composing it, or any other material false representation, deprives a party of the right to relief in equity. . . . It is not whether or not the plaintiff intended to deceive, or whether the defendant designed to impose on the public; it is sufficient to forbid equity from interfering if his label was naturally calculated to and did deceive." The plaintiff in a recent case under discussion invoked the aid of the court of conscience, while his own conduct in relation to the subject-matter of the suit, in the language of Judge Leventritt, was unconscionable. It is a most salutary rule, which in cases like the present denies equity to a person who has been guilty of a material misrepresentation on his label, concerning the ingredients composing the article which he seeks to protect.

* * *

Trade-Mark Infringement.—In an action brought to restrain William A. Fors and Harry D. Dye from using certain labels, upon the ground that they were infringements upon those adopted by the plaintiffs, William B. and Bernhard Volger, it appeared that the plaintiffs had for nine years manufactured inkling pads and had adopted the word "Excelsior" and a descriptive label bearing the words "Excelsior Felt Pads," and that the product had become known to the trade as the "Excelsior Pad," that the defendants after purchasing the Excelsior pads for nine years "stopped doing so and placed upon the market felt pads under a label which was an excellent copy of that adopted by the plaintiffs, except for the word 'Excelsior.'" By the trial court, a decision was given for plaintiffs. Judge Ingraham, in delivering the opinion of the court when the case came up for review by the Appellate Division of the Supreme Court of New York, stated that there was not the slightest doubt but the defendants by merely changing the word "Excelsior" to "Excellent" and adopting the remaining portion of the label of the plaintiffs, were guilty of an infringement which was a fraud upon the public. The defendants laid great stress upon the fact that there was no name upon this label, implying that a person could not acquire a valid claim upon a trade-mark unless his name was a part of the trade-mark. This novel proposition, the Court held, was entirely opposed to the principle upon which a trade-mark when adopted becomes property which a court of equity will protect.

Artificial Granulated Musk Scent.

Artificial musk scents are prepared by Lecornu from infusions or tinctures of natural musk, in which he dissolves benzoic acid, boric acid, salicylic acid, acetic acid, antifebrine, or similar soluble crystalline salts. The proportion of these salts taken, varies with their degree of solubility and the temperature employed. Thus, in 96 per cent. alcohol, which is the strength usually employed, the solubility varies from 4 to 6 per cent. in the case of boric acid, 20 to 25 per cent. for benzoic acid, 15 to 20 per cent. for acetic acid and antifebrine, and 50 to 60 per cent. for salicylic acid. The resulting solutions are then submitted to systematic evaporation, either by natural slow volatilisation, or by special distillation, in order to recover the solvent. This treatment furnishes large or small crystals, amorphous masses, or powders, according to the conditions employed; but the products have all the properties of natural musk, and disseminate its characteristic perfume.

Retailing Perfumes.

Considering the liberal profits afforded by perfumes, we often wonder why they are not pushed more energetically than is usually the case, says the New Idea. A choice 86 line can always be sold for 75 cents per ounce, thus affording a gross profit after deducting all loss by sampling, etc., of fully 98 per cent. The sales are of fair size for the drug business, which is necessarily one of small items; the use of perfume is very general among all classes, thus making its aggregate consumption large; and by careful management a large business may easily be built up unless one's business location is peculiarly unfortunate. In addition, hardly anything gives better tone to a drugstore than a reputation for handling a really choice line of perfumes.

Success, however, depends not merely on the quality of the goods, although that is of first importance. It hinges also on the way they are handled, whether or not the are permitted to deteriorate by interchanging stoppers of the containers and by permitting strong light to exert its baneful influence. A fine, delicate perfume is as easy to spoil as it is difficult to make. Success also depends on whether perfumes are treated, in the presence of the customer, as fine, dainty goods worthy of the greatest care, or merely as so much molasses or coal oil. Some druggists, too, who think they are really careful about protecting the quality of their perfumes, measure out bulk goods of all sorts, day after day and week after week, from the same graduate without washing it. Each time the evaporation leaves a small residue of oily matter, which being exposed to the air, soon oxidizes and becomes rank and foul-smelling. Then when it is used again the graduate contributes of this foul, oxidized portion to the perfume being measured in it, and
in turn acquires a new oily layer in its turn to decompose. Thus the customer's perfume is deteriorated, and this accounts for many of the disappointments where "that perfume doesn't smell so good at home as it did at the store."

But the way for the druggist to make the most money on perfumes, is to get hold of something in which he will not have competition. Competition is the life of trade, but it is rather tough on profits at the same time. Where a special odor can be had at a reasonable price, the dealer, by taking the exclusive agency, places himself largely out of the reach of competition and it therefore becomes to his interest to push that odor. It is hard to sell a "white rose" or "heliotrope" for 50 cents an ounce when the dry-goods store is advertising perfumes of the same name at 27 cents; too many people do not stop to think of the difference in quality. But where the druggist advertises the perfume for which he holds the sole agency, at say 50 of 75 cents an ounce, he has the satisfaction of knowing that no one can cut under him simply because no one else can get it.

Wherever you eliminate competition, you improve your chances of getting fair profits.

**Advertising, Sampling and Selling Perfumes.**

By E. P. Ferre, Butte, Mont.

An original method of sampling perfumes, free from the faults of the other and more common methods, is to place the perfume in small gelatin capsules, such as are used in prescription work, care being taken to use those that have perfect fitting covers. The technic of filling them is as follows: Use size number 1 or 0. Fill with the aid of a medicine dropper or pipette to about seven-eighths of their capacity. With a camel’s hair brush put a small quantity of a 20 per cent. aqueous solution of gelatin, kept warm on a water bath, on the outside of the top part of the capsule. Put on the cover with a spiral motion and stand upright until dry. In case any of them are not hermetically sealed they can be tested by allowing them to lie on their sides and be moved about occasionally for a few days before using.

When ready for use, the capsule is mounted on a fancy card with glue (not mucilage) bearing directions for the customer. "Remove the capsule from the card, wrap in the handkerchief, squeeze to crush the capsule, then shake out the fragments from the handkerchief."

Keep a fair assortment of perfumes, giving preference to those lines not handled by department stores. Push specialty odors which you can control, rather than those which are sold by everyone. Keep perfumes away from a strong light and in a cool place. Clean the lips of the bottles and the stoppers frequently with alcohol, as the pasty dirt that accumulates about them is very detrimental to the goods, as well as unsightly. Discourage the sale of ten-cent bottles by explaining the greater economy of buying a twenty-five or fifty-cent bottle. (Condensed from Western Druggist.)

**Homalomena Aromatica As A Perfume.**

Hooper of the Economic Museum at Calcutta calls attention in a recently published report to “gundo materi” (homalomena aromatica) as a perfuming substance. This plant grows in Cachar and Sylhet. It was described by Roxburgh who called it calla aromatica. The fragrance of the powdered root has been described as similar to that of ginger, but the root from Cachar has a distinctly peculiar odor in which a faint suggestion of nutmegs is present. The powder exposed to the air rapidly fills the room in which it is kept with a delicate perfume. Enclosed in a box or drawer, it communicates its fragrance to the contents. The root submitted for distillation yielded a greenish volatile oil of a somewhat different odor from the original material, and the proportion of oil was slightly less than 1 per cent. In addition to the volatile oil, the root contained a resin, an amorphous saccharine body, a trace of alkaloid, albumin, and other plant constituents. Some needle-shaped crystals were detected by the aid of the microscope, and these are a source of irritation if administered internally.

**Questions and Answers.**

In this column we shall print questions of general interest submitted by subscribers and invite replies to the same from our readers, which will be printed in the next issue of this paper.

**Question 12:** When a dealer has a private brand of soap made for him by a soap manufacturer, can he claim the ownership of the trade-mark and afterwards have the same brand made wherever he wants to? Can he stop the party making it in the first place, from using the trade-mark?—M. P.

**Question 13:** What, if any, is the difference between proof spirit and dilute alcohol?—L. & Co.

**Answers.**

To Question 10: An answer to this question is found in the February Soap Journal, pp. 174-176. It is specified “glycerine free from home” which must be an error of course; it is probably meant to read “free from lime” for it is true that lime introduced into transparent soap in any way—with the water, or sugar, or any other way—spoils the result by forming specks in the soap.—O. L.
Answers In Brief.

D. B. in Va: The manufacturers of soap machinery usually have now and then another lot of second-hand soap machinery for sale. There is no firm making the dealing in such machinery an exclusive specialty, although sometimes second-hand soap machinery may be found in the hands of dealers in all kinds of second-hand machines. We have sent you the desired addresses.

P. A. of Ill: That is a matter coming properly under the heading of advertising.

L. F. of N. Y.: What is the correct version?

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

Patents.


692,216. Washing-machine. Conrad P. Steinmetz, assignor of one-half to A. Boynton, Mitchell, S. D.


692,493. Apparatus for making designs in cakes of soap. Herman H. Uckotter, Cincinnati, O.

693,255. Washing-machine. Stiles Fry, Flint, O.

Trade-marks.


37,785. Certain named toilet preparations and soap. Mirona B. Hubbert, Syracuse, N. Y. Essential feature.—Three figures on the representation of a crest, i.e., a goat with fish's tail, a dragon facing the goat, and a fleur-de-lis between them, accompanied by the hyphenated word "Miro-Dena."

8,910. Title: "Lifebuoy Soap." (For Soap.) Lever Brothers, Limited, Port Sunlight, Eng.

8,951. Title: "Beedeaner." (For Washing-Powder.) John W. Hussey, New York, N. Y.


Labels.

Around the Soap Factories.

It is reported that the packing house firm of Schanz-schild & Salzberger will add to its plant in Kansas City a soap factory.

Papers of incorporation have been filed by the Dingman Soap Co., of Buffalo. As directors are named: Jacob Davis, E. J. Hussey, Laura Hussey, J. C. Bertrand, Marie A. Bertrand.

Lewis Thurber Lazell, of Lazell, Dalley & Co., died on the last day of February, at the age of 67, after a protracted illness.

We had occasion last month to report an accident from hot soap flying into the soapmaker's face. We have since learned further particulars, and as similar accidents are liable to happen again unless guarded against, we want to warn soap makers to be careful in foreseeing such accident. The immediate cause of the mishap was the worn-out condition of the socket holding the bottom end of the screw in a Dopp crutcher; in taking out a kettle of soap, after 50 frames had already been crutched, the screw jumped out of this socket and broke the second and the top blades, just as the soapmaker was looking at the soap. He described the soap striking him as if shot out of a gun and it was a week before he could see even the outlines of an object. It is therefore important to remember that machinery will wear out in time and needs looking after before any accidents like the foregoing happen.

A report has it that Proctor & Gamble will in the near future erect a large cottonseed oil mill at Selma, Ala., to be ready for operation by September.

A newly incorporated firm is the Crescent Soap Co., Cincinnati, O. Capital $10,000.
The George E. Marsh Co. has become incorporated, with a capital of $800,000, to manufacture soaps, glues, fertilizers, oils, etc. Incorporators: F. Hutchinson, Newton, Mass., J. M. Marsh, Lynn, Mass., and others.

The Pope & Bowder Soap works at Eugene, Ore., have received a fifty foot addition with soap kettles, etc.

The Goldena Mfg. Co., has been incorporated to manufacture soap and a washing compound at Lynn, Mass. Capital stock $5,000.

The Andrew Jorgens Co. will enlarge its soap plant at Cincinnati.

The story of the founder of the Crown Perfumery Co. is told by the American Druggist as follows:

At the age of 79, when most men are dotards, content to rest idle in chimney corners, William S. Thompson, wealthy, the founder of half a dozen successful enterprises, has embarked in still another. Mr. Thompson's life story is that of a typically ingenious Yankee. Born in Connecticut, he began life as a dry goods clerk, was the first to make corsets by machinery. He was the second person to be operated on under an anaesthetic, the operation having been performed in Hartford in 1848 by the discovery of the anaesthetic properties of nitrous oxide gas. At one time he had a thousand employees, and had factories in New York, London, Paris, Brussels and Anaberg, Saxony. He made his home in Paris for the last nine years of the third Empire, and there entered upon the manufacture of corsets in a large way, being the first person to do so. He originated the "Thompson glove-fitting corset," which is still widely known and used. In 1868 he paid $75,000 for a patent on a railway spring and established the Crown Iron Works, at Glasgow, to make them. When he sold these works in 1887 they had spread out so that the buildings alone covered an acre of ground. About 1872 Mr. Thompson conceived the idea that the reason for the lack of popularity is English perfumes lay not so much in the quality of the perfumes but in the lack of taste in the way they were put up. He organized the Crown Perfumery Co. in London, where he then lived, and made a remarkable success, particular with the Crown Lavendar Salts and with the Crab Apple Blossom perfume. In 1885 Mr. Thompson established the American branch of the Crown Perfumery Co., and expended $100,000 in advertising, with the most gratifying results. Now Mr. Thompson has recently purchased the English rights to a new form of the therapeutic application of high tension electrical currents, and is as enthusiastic as a lad over its future.

The Markets.

Tallow.—New York City in hhds. 6c bid, with 6¢ asked; in tierses, 6¢ bid, 6¢ asked; country — made sales reported at 6¢. Western markets quiet; prime packers' 7¢.

Glycerine.—Market rather dull. A white, 7¢; B white, 6¢; yellow, 5¢; bone and house, 5¢.

Cottonseed Oil.—Buyers inclined to await developments; sellers taking their time. Prime yellow, 42¢ in barrele; off yellow 38¢; sales of white at 43¢.

Corn Oil.—6¢ as to quantity.

Cocoa Nut Oil.—Ceylon, small sales reported at 7¢; Cochini held at 9¢; for April delivery, 8¢.

Olive Oils.—5¢/5¢ for spot, as to quality.

Palm Oils.—Prime red 5¢/5¢; Lagos, 6¢; palm kernel, scarce at 7c.

Latest Additions to Our Brand List.

342 Home Soap Co., N.Y.
Perfclota 25c
Dactylia 11
Marcelline 300
Geyser 35c
Bell's Brown 35c
Reston 35c
Flip 35c
Long Shot 35c
White Pine Castle 34
Sorosis 300
Red Family 300
Gusher 300
Blue Family 300
Polite 300
Green Olive Chip 300
Sentinel 300
Peach Blue 300
Blue Monday 300
Gold Seal Soap Flour 300
Chlorine 300
Rex Liquid Soap 300
Blue Cremo 300
Green Seal Chip 300
Blue Chip 300
Blue Olive 300
Blue Coco 300
Yellow Palm 300
Green Palm 300

An Australian subscriber to the Soap Journal and purchaser of the work "American Soaps," writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file, in black and white.

An Australian subscriber to the Soap Journal and purchaser of the work "American Soaps," writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file, in black and white.

The attention of our readers is called to the column of "WANTED" AND "FOR SALE" advertisements on another page. Manufacturing firms looking for intelligent up-to-date help, or who have secondhand machinery they wish to dispose of, and practical men experienced in any branch of manufacturing chemistry looking for employment, can mutually profit by using this column.
Perfumes and...  
Their Preparation.  
A Comprehensive Treatise on Perfumery  
By G. W. Askinson, Perfumer.  
Price, $3.00  

Containing directions for making Handkerchief Perfumes,  
Sachets, Fumigating Pastils; Preparations for the care of the  
skin, the mouth, the hair; Hair Dyes, and other Toilet Articles.  
With a detailed description of Aromatic Substances; their nature,  
tests of purity, and wholesale manufacture.  
300 pages. 8 vo., 33 illustrations.  

Sent, postpaid, on receipt of price,  
AMERICAN SOAP JOURNAL, MILWAUKEE, Wis.

CHRISTY DIES  
(F. C. CHEMISTRY, Originator and Patentee.)  
Being Made Right, They Work Right.  

The F. C. Christy Engraving Co.  
179-183 Illinois St. Chicago, U. S. A.  
Manufacturers of SOAP DIES, BOX PRINTING PLATES.  
Send Us Your Ideas and We Will Submit Designs and  
Estimates for Your Consideration.

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AND  
CONSTRUCTION.  

The Patent Plate saves cloths, produces a dryer cake, and is altogether  
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Say you saw the Ad. IN THIS PAPER
A French correspondent states that the largest poster used on the blank spaces available in Paris just now, is that advertising—Babitt's soap.

People in business as advertising experts often give the advice to make just one point in an advertisement, and drive that point home, rather than try saying too much. "It floats" was a good example of that style of making just one point. Another example just come to our notice (referring to a chip soap) is, "It rattles in the barrel. Need we say it's dry?"

The Detroit News has discovered that "in a few days" the "American Perfume Company" will be organized by about fifteen of the largest perfume manufacturers, with a capital of five million dollars and headquarters in New York. It even names the Michigan Drug Co., the Seeley Mfg. Co., and Fred'k Stearns & Co., as likely to be "in it." So far it does not appear, however, that the undertaking has gone beyond the promoter and the newspaper reporter—at least the parties supposed to be interested, claim to know as little about it as we do. Such a consolidation or combination seems hardly likely or practicable. It is possible, also, that the report is based on circumstances related in a letter which we print on another page, and which is really quite a different story.

Formerly, when foreign perfumes were better than those made in this country, affixing French labels to our goods was merely an example of business acumen in which we took just pride. Now that we feel we can make as good perfumes as the other fellows, our righteous indignation at all forms of deception swells our manly chests, and we sit down on the practice with that laudable energy erstwhile expended on pasting those labels on the bottles. Times change, but consistency is a jewel always. (P. S. The use of fictitious foreign labels accustoms the public to ask for imported goods—which increases our righteous indignation).

If a London or Paris perfumer, and maker of other toilet articles, ships his goods to this country and bottles it here, perhaps even adding in this country the required spirit to the concentrated importation, we are going to stop him—if we can—from selling the goods under the monstrous misrepresentation that they are imported:
we are going to make him—if we can—put a label on his bottle to show that the goods are bottled in this country and not at all imported...

Foreign labels should be used only on American goods, if at all.

We print on another page a proposed bill, prepared by a soap manufacturer of Ohio, designed to stop in that state the adulteration of soap and soap fats.

The question itself, that of adulteration of soaps in particular, is of immense importance to the trade, and since the subject has come up in this definite form, it may be well to look into it somewhat further.

Whether the bill will be passed in the form printed, or with more or less amendments, or not at all, these are questions still hidden in the future; what it will actually accomplish after being passed, is another; what legislation other states may pass subsequently on the same subject, is still another.

What are the interests of the trade in this matter? Does the trade desire the bill enacted into law and enforced? Does the trade require any amendments? Do other states want similar laws? Can such a law be effectively enforced? What are adulterations?

It is for our readers to speak up, if they have any wishes in the matter; in the meantime we will offer the following few remarks of our own, placing the use of our columns freely at the disposal of all who desire to be heard, whether they believe as we do or otherwise.

Do soap manufacturers generally want anti-adulteration laws? Let each reader answer for himself. There were those who do, those who don’t, and those who don’t care. How many there are of each, time only will tell. There are manufacturers who would rather make pure soap only, and who will be glad to do so, if only the law will actually prevent the sale of adulterated soaps, made by competitors. There are, on the other hand, others who know that adulteration alone enables them to compete with other makers, and they will not favor such law, for their facilities for making pure soap at competitive prices are inadequate.

Does the proposed bill need any amendments? We think it does. As the bill stands, it prohibits the manufacture and sale of a soap containing an insoluble mineral substance—thus making it unlawful (though that is of course not really intended) to manufacture and sell scouring soaps and polishing soaps. Again, the definition in Sec. 2, prohibits the commonest adulterants, but permits all water-soluble adulterants, which is obviously neither intended nor in keeping with the objects of the bill.

Can the law be enforced? We do not know; into the answer to that question would enter the individual liberty of manufacturers to make and sell goods according to their own formulas and ideas of what should enter into a compound; the importation of an adulterated soap from a state or country where its manufacture is not prohibited, would also come in here, as did the “original package” clause in prohibition states.

The question arises, if it would not be better to pass the law, not against the selling of adulterated soap, but against selling it on the pretense of its being pure? You cannot prevent manufacturers making, and consumers buying shoddy, if they want to; but you can (presumably) make it unlawful to sell shoddy by misrepresenting it as pure wool. A bill making it unlawful to call a compound “soap” on the wrapper, when it is mostly something else, and requiring all adulterated soap to have that fact stated on the wrapper, would seem to be nearer the requirements of the trade.

It seems the irony of fate that causes us to print in this issue two letters, one from a writer who desires to stop adulteration of soaps, and the other pleading the cause of incased filling. For the time being we “could really have been happy with either, were the other dear charmer away;” and as the lamented Bill Nye said, “I don’t say this to be smart; I say it to fill up.” There is no law yet against “filling” the SOAP JOURNAL, with either insoluble nor with indigestible matter, and we are taking advantage of it.

The Rostocker Anzeiger of February 19, last, contained the following:

“A new soap. A syndicate, with a capital of six million francs, has been formed in Brussels, for the purpose of exploiting a new soap patent. Negotiations are under way with a strong American syndicate, tending to the association of both. The capital of the new French-Belgian-American society is said to be ten million dollars. It is intended to erect factories in all the chief countries of the world, with a daily output of 500 tons, and also factories for raw materials and numerous oil plantations.”

Come to think of it, we have not seen Col. Sellers lately. Could he have gone abroad?

The question arose last month, who was the rightful owner of a brand, or name of soap, in a case where a party undertakes to use the brand, but has the soap made by a certain soap manufacturer, (the party having the soap put up for him not being a manufacturer).

In view of the absence from our recollection of a judicial decision on this point, and in view, further, of the notorious uncertainty of the law, it is not advisable to venture an opinion on this point lightly. Nevertheless it is a question that might materially affect many a manufacturer at any time, and, at the risk of not-reaching the right conclusion after all, we will offer a few remarks on the subject, assuring our readers that nothing would please us more than to have them arise in a body and talk back—for publication.

Let us assume that a soap manufacturer named Jones, and a certain dealer or jobber, think “The Prince’s Visit” a timely and suggestive name for a soap.
and that the manufacturer has made a certain amount of it for the dealer or jobber, with the latter's name on the wrapper. The understanding is that the dealer or jobber is to be the only one to whom this brand is furnished. Now there are several distinct series of facts possible:

It may be that the soap manufacturer, Mr. Jones, first thought of the name and proposed it to the dealer, in which event Mr. Jones probably—in the absence of a definite contract—quietly assumes that if the dealer ever stops buying this particular soap, he, Mr. Jones, can sell it to anyone else he can induce to handle it.

On the other hand, the dealer may have been the first to think of the name, and he may have gone around to several manufacturers to get prices, before finally coming to and placing his order with Mr. Jones. In that case, it is altogether likely that the dealer thinks himself the absolute owner of the brand, entitled to have his soap made under that name, by any manufacturer he chooses.

Thirdly (and we have seen cases of each of these versions) it is possible that in the course of a protracted conversation between the manufacturer and the dealer, the two jointly evolved the name and wrapper, and after doing business with each other for a time, the two parties have a disagreement. In that case the manufacturer and the dealer may each believe himself the sole owner of the name.

Under these several conditions just enumerated, are the manufacturer and dealer justified in each jumping to these conclusions?

The question is even farther reaching still. If Mr. Jones owns the brand "The Prince's Visit", and if the dealer should decide at any time, for any reason, to have this soap made by another manufacturer, then this other manufacturer would be infringing upon Mr. Jones' rights if he accepted the order, and might be held liable. We are aware that the Soap Manufacturers' Association considers the making of private brands as something to be discouraged, anyway, but so long as the practice is as general as it is, we are right in looking at it from all sides.

In endeavoring to determine the ownership of the brand under such circumstances, we recall some past decisions of the courts which would undoubtedly be brought forward in case of such a dispute—decisions which might lead to results as contrary to the foregoing "jumps at conclusions" as they might be unexpected. To explain our meaning further, we will go into the following details, with the distinct understanding, however, that we are merely presenting these considerations for what they are worth.

The object of the trade mark, that object which the courts will protect, is to stamp upon the soap a mark or a name, which shall indicate the identity and the origin of the soap from a certain source of manufacture. If a dealer has a certain brand made for him by a certain manufacturer, he may be entitled to the ownership of that brand; but if he has his own name put on the soap or on the wrapper, as if he were the manufacturer himself, that is a deception, and we are strongly inclined to believe, would vitiate the title to the brand, for the courts have often enough placed themselves on record as unwilling to give any one a monopoly in any method of deceiving the public. If he were to use his name on the wrapper as "distributor" only, or as "sole proprietor" only, he would probably be better able to maintain his claim to ownership of the brand. Should he, however, at any time decide to have the same brand made by some other manufacturer, it again becomes doubtful whether he could make good his claim to the brand, for now the origin of the soap changes, its identity is no longer the same—it is no longer the same soap. This may seem a strange view to many of our readers, but we have in mind an actual decision of the courts, which is almost in line with this statement: A certain paint firm owned a trade-mark on a paint, whose chief ingredient was derived from a certain mine; the mine was strongly recommended (in connection with this paint and its trade-mark) as furnishing a superior article; as time went on, the firm in question for some reason or other, obtained its material from another mine located near the first, and this—in a suit which the firm brought later against another firm infringing upon the trade-mark—was held sufficient ground by the courts to declare the trade-mark invalid, since it had been proceeded by its former owners on goods not identical with those which the trade-mark was intended to identify.

The purport of all the foregoing is to show that there is much in the question of ownership of trade-marks that is not thoroughly understood; that there is too much simply taken for granted; that in undertaking to make a certain brand for one certain firm exclusively, it is necessary to have a thorough understanding who is to own the brand, and to then take care that by no action of his own, the owner of said brand loses his claim to it. The courts will protect the owner against infringement, but only if the owner has done nothing to forfeit his rights. Nor can the maker and the dealer both own the brand to the exclusion of others; the brand is either the sole property of a single owner, or it is common property, free for all.

Co-operative Perfume Association.

Jacksonville, Fla., March 6, 1902.

Editor American Soap Journal.

Dear Sir: The cause that has brought me on the battlefield again, is that project of founding a co-operative association, with American capital, for the purpose
of manufacturing raw materials for perfumery, and also confectioned goods in France (Paris and Grasse); the originator of that project is Mr. Edward Eggers of New York. The plan, as outlined in his circular, is similar to the one I outlined myself to Mr. E. S. Steele, assistant Division of Botany, Washington, D. C., in 1899, with the difference that my plan was for this country, and not for France. The fact that, among the supporters of Mr. Eggers' project, are some importers and manufacturers of these same goods, and in France too, seems to indicate the belief that his success will destroy the possibility of the development of that industry here; this is a sure proof that that possibility exists; they recognize it.

I dare predict, that even their success will not destroy that possibility; its realization would simply be retarded, for Florida is bound to be the Riviera of America, and that cannot be until that industry has become her most important and lucrative attraction.

The developers of Florida have not yet realized that such is the case, but they will, and perhaps sooner than expected, and then they will go into the matter with a vengeance, their pile of money being inexhaustible for the buying of whatever is needed, not excepting brains. I really think that it is a good turn to do to the shareholders of the projected plan, to warn them of what will surely happen, and to urge them to consider the adage, "charity should begin at home".

Yours very truly,

E. MOULIE.

Movement Against The Adulteration of Soaps.

COLUMBUS, O., March 17, 1902.

DEAR HENRY GATHMANN,

Dear Sir: I herewith enclose copy of a bill which I got up to stop the adulteration of soaps and soap fats. I should like to hear from you through the columns of your valuable SOAP JOURNAL, what you think of the matter.

I am about to have an amendment to it, so it will stop the premium business also.

Yours truly,

THOS. ROSS.

[Enclosure:]

A BILL

TO PREVENT THE ADULTERATION OF SOAP, SOAP CHIPS, AND ANIMAL OR VEGETABLE FATS, AND TO DEFINE WHAT SHALL CONSTITUTE ADULTERATION.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF OHIO:

Section 1. That it shall be unlawful for any person, persons, corporation, company or partnership, to sell, offer or expose for sale, any adulterated soap, soap chips, or any adulterated animal or vegetable fats.

Sec. 2. That adulterated soap, or soap chips, within the meaning of this act, shall be any soap or soap chips, which contain, in any quantity, rotten rock, commonly called "pulp", china clay, talc, commonly called "soap stone", silex, commonly called "marble dust", alba, whiting, magnesia, carbonated lime, or any solid or mineral substance indissoluble in water.

Sec. 3. That adulterated animal or vegetable fat, within the meaning of this act, shall be when such fats contain in any quantity, petroleum, coal oil residuum, or any so-called "soap stock" or other foreign substance.

Sec. 4. That every person manufacturing, offering or exposing for sale, or having in possession with intent to sell, either soap or soap chips, or animal or vegetable fats, shall furnish to any person interested, upon demand, if such person shall tender him the value of the same, a sample of such soap, soap chips or vegetable or animal fats.

Sec. 5. That whoever refuses to comply with the provisions of the foregoing section, or violates any of the provisions of this act, shall be guilty of a misdemeanor, and, upon conviction thereof, shall be fined not exceeding one hundred dollars nor less than fifty dollars, and in addition to the penalty imposed, shall be adjudged to pay the costs of the inspection and analysis of such articles.

Sec. 6. This act shall take effect and be in force, from and after its passage.

[Our comment on the above appears on another page.—Ed. Am. S. Jour.]

A Question of Silicate.

TO THE EDITOR.

DEAR SIR: Could any of your practical soapmaking readers kindly inform me, through the medium of your valuable Journal, how it is that soaps in the United States are not more extensively filled in with silicate, than they are?

I am an American bred and born, and so was my father before me, and I am, I believe, a practical soapmaker; at any rate, I served three years' apprenticeship at soap making, and it is over 35 years since my apprenticeship was concluded, and I have ever since, in different parts of the world, earned my living as a soapmaker—either working for my own account or making soap for others.

Though an American, as above stated, I am quite a stranger in my own country, for I was all but a few days, 30 years absent from here.

I only came back lately, and, owing to some reverses, in want of a situation; and I was astounded to notice-
how little silicate was used as a soap filler here, when it is. I may say, almost universally used and extensively so, in other parts of the world, and especially by those that export largely to foreign countries.

In my 30 years' absence, I have made soaps or soaps and candles in Australasia, Africa, England, France, Spain, Portugal, Mauritius, Seychelles, etc., and in all those countries silicate fillings are extensively used in soaps. France is the country that uses the least, of the countries named, and she was driven out of her extensive and old established markets in Egypt, Africa, Turkey, etc., by English, German and Russian silicate filled soaps. (France favors tale as a filler.)

Notwithstanding her protective customs tariffs, French soap manufacturers have been all but driven out of their own colonies in New Caledonia and Algeria, by silicate filled soaps.

English and certain continental manufacturers export enormous quantities of silicated soaps to India, China, Africa, etc., and fully 90 per cent. of the soaps so exported by those countries, are heavily silicated.

About 18 months ago, I was told at San Sebastian, in Spain, by a practical soapmaker, that we American soapmakers were behind the times, because we could not fill silicate in soaps. I took up the cudgels for our country's honor and demonstrated to him that, though a despised American, I could fill in more silicate than he himself could do.

The tendency of the times is for low-priced goods, in all parts of the world; very few will pay a fair price for a good class of goods, and as others fill in soaps, and extensively so, I revert to my query, viz: How is it, and what is the reason why American soap manufacturers do not fill in soaps more extensively than they do?

What is the good, or where is the sense of rushing empty and baredhanded towards a foe armed with all sorts of weapons; it is no use running our heads against a stone wall, for the wall being harder, our skull is sure to be cracked before the wall is; hence my query.

I beg you, sir, to excuse the length and diffuseness of this long letter, and I pray your readers to do the same; but I shall be very glad to have my query answered, if your readers will kindly do so.

I am, sir, yours very respectfully,

A. D. Estamps, Soapmaker.

**On Soap and Fat Adulteration.**

**Editor American Soap Journal.**

Dear Sir: Referring to the enclosed clipping (containing a draft of the same law proposed in Ohio, which we print in the foregoing communication.—Editor A. S. J.), I might add a few words.

The proposed law should be promptly put into effect in every state; but the penalty proposed for adulterating animal or vegetable fats, is entirely inadequate. According to my comprehension of such an offense, "the punishment does not fit the crime." There can be no doubt about such a dealer or manufacturer being liable for all sorts of damages, sustained by an innocent purchaser of such adulterated fat. The following incident, which came to my notice some time ago, may interest your readers:

A soapmaker of considerable experience sent me a sample of what he had purchased as No. 1 tallow, with the explanation that he had been unable to properly finish a batch of soap made from this stock, and requesting me to help him out. I did promptly, by separating the sample sent me into its component parts, viz: 2 parts of mineral oil (probably G. W. tallow compound) to 7 parts of tallow. These I returned with the advice to make a heavy claim for damages against the dealer. Unfortunately, my friend had already settled on a basis which was altogether out of keeping with the gravity of the case. An adulteration to the extent of a less quantity of mineral oil, would probably not have been noticed.

It is my opinion that heavy damages can be obtained in such cases, especially where the stock is used in producing a manufactured article possessing a good reputation. By determining this beyond a doubt, Mr. Editor, and informing your readers accordingly, you will probably do more towards the suppression of this fraud than any fines our legislators could impose. There are a number of brands of soap upon the market which contain mineral oil, for the presence of which the soap manufacturer is probably not responsible. It may have found its way into mixture with the soap through fat that was adulterated with mineral oil, petroleum jelly, etc., etc. Such a soap manufacturer is located in a city that bears a world-wide reputation for its brew of a most delicious beverage. However, I am not prepared to judge from the analysis as to whether or not this manufacturer is aware of the presence of the mineral oil.

Yours very truly,

P. Alps.

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**A New Method of Saving Fat.**

A German inventor (Chr. Kremer, Wiesbaden) recently undertook to investigate the composition of dishwater, as it runs into the sewers from the large hotels. He arranged with the owner of a hotel, to keep all dishwater for a few days in two large barrels. Going on the third day to look at the accumulated water, he found to his surprise on the top of each barrel, a solid disk of fat "two fingers in thickness." After remelting and purifying this fat, and taking the amount obtained as the
average, it was estimated that this single hotel furnished the sewer annually with no less than 20 cwt. of fat; in addition, the clogging up of the pipes cost the hotel keeper annually more or less in plumbers' bills.

The inventor then proceeded to find means of collecting this fat automatically and, by dint of studying in a glass container, the movements of fats and oils in hot and cold liquids, he constructed an apparatus which, requiring but little space and less attention, collects this fat automatically from all dishwasher passed through it; solid food particles at the same time are separated at the bottom, and used for purposes of feed, etc. The fat is described as suitable for making very nice soap, after being merely melted and settled. The inventor suggests that users of fat should provide the apparatus in hotels, etc., who would gladly turn over the fat free of charge, in consideration of finding their drain pipes no longer clogged with fat.

The principle underlying the action of the apparatus rests on the fact that in intercommunicating vessels, the water filling them will be at the same level. On pouring liquid fat into one of these vessels, it will collect at the surface, while in the communicating vessels, the water will simply rise correspondingly. But if these communicating vessels are cut off at the original level of the water, the water from them will run over—an amount of water will be displaced from the several vessels together, equal to the fat added to the fat vessel. If instead of pure fat, we use fat mixed with water (i.e., dishwasher) the result is the same: the fat collects on top of the fat vessel and the water escapes by way of the communicating vessels. For restaurants the entire apparatus is of cylindrical form, 24 inches in diameter and 24 inches in height.

**Transparent Soap.**

The following is recommended by a writer in the *Seifensieder Zeitung* (Augsburg) for making a transparent soap, without the use of either glycerine, sugar or alcohol.

100 lbs. coconut oil.
28 lbs. tallow.
16 lbs. castor oil.
72 lbs. 38 deg. lye (soda).
40 lbs. filling, as described below.

The oils are melted and strained into the crutcher. When at the temperature of 100 deg. F., the lye is added in a thin stream and crutched in; when the stock and lye are well united, the filling and perfume are crutched in and the soap framed.

The filling above referred to, 40 lbs. of which are to be used only, is prepared in advance after the following formula:

- 240 lbs. 98 per cent. calcined potash.
- 40 lbs. salt.
- 36 lbs. potassium chloride; all dissolved in 720 lbs. boiling water.

For the perfume are recommended:
- 8 parts spike oil.
- 10 parts oil lavender.
- 5 parts oil thyme.
- 1 part tincture of musk.

Soap so made is not entirely transparent, however, though strongly translucent. The darker an artificial color is added, the more it is said to become like the ordinary transparent soaps.

**Export Opportunities.**

The French consuls located in the various places hereafter named, have investigated and reported on the soap, candle and perfume importations in their respective locations, and to the Austrian Commercial Museum is due the following resume of their reports:

From Saloniki: Candles are imported from Holland, Belgium, France and Italy; the imports increased from 192,000 francs in 1899, to 250,000 francs in 1900. French candles formerly dominated the market, but have been losing ground steadily. In soaps the domestic production is insufficient to supply the demand, and large quantities are imported; Creta has markedly increased its sales in Saloniki of late. From Marseilles there were sent in 1900, soaps to the value of 250,000 francs. Great Britain also has entered the field and English soaps sell well at equal prices with the French.

From Beyrut: Domestic soaps offer strong competition to the French, the latter holding its ground fairly well on the strength of cheaper prices. Marseilles soap is sold at about 0.75 franc per cca, while the Turkish article brings 1.30 franc. In perfumery France furnishes, according to the consul, the better grades, while cheaper qualities come from Germany and Italy.

From Messina: Most of the soap used is of Turkish make, but the annual import amounts to nearly 129,000 francs. France has little share in this. Importations are greatly hampered by the tedious and expensive custom house regulations. Of 14,000 francs worth of candles imported annually, however, 13,000 francs are for French candles alone.

From Adrianople: Travelers for English houses are pushing English soaps here. The Turkish product sells at 0.80 to 1.10 franc per kilo. Italy, more recently, is trying to increase its sales of candles in this direction, but as yet with little success. Marseilles candles cost (in Adrianople) 112 francs per box; Belgian candles 106 francs per box.

From Uskueb: Severe competition is waged here
in the matter of importing soaps. The consumption is rapidly increasing and in spite of a growing home production, the importation of soap in 1900 was more than doubled. In ordinary qualities France takes the first place (because the French soaps are colored and sold as "toilet soaps"). English soaps also sell in considerable quantity; next are Austrian soaps which—in the better qualities—are subjected to strong competition from Italy of late.

From Tangier: Since English candles entered the field, the large market in Morocco has been almost entirely lost to the French. The annual import of candles at Tangier is valued at about 140,000 francs. Morocco uses chiefly paraffin candles, but in summer stearin candles might perhaps find favor for melting less readily in the heat and losing their shape.

From Abyssinia: Candles come exclusively from Belgium; the annual consumption amounts to about 6,000 francs; the price of a package of six candles is half a Maria-Theresa dollar. The sale of soaps is divided between France and Turkey; the annual imports are valued at 20,000 francs. Good laundry soap sells at half a dollar per kilo, or in small pieces, at 5 to 8 pieces for a dollar, according to size. Perfumes are imported annually to the amount of 10,000 francs; extracts and essences of santal, rose, geranium and lavender are preferred; in general, only strong perfumes are in favor. Perfumed soap at 2 to 6 dollars per dozen, also takes well.

From Chile: The French consul at Santiago reports a good field in Chile for perfumeries. Good taste in preparing goods is very important, as often determining the sale between two lines of goods. As importers the consul names the firm of Payani & House at Santiago.

Andrew Pears.

An English daily paper of recent date contains the following short biographical sketch of Mr. Pears, the world-famed soap manufacturer: It is announced that "by direction of Andrew Pears, Esq., J.P., who is removing to Oxfordshire," Spring Grove House, at Isleworth, with its estate of twenty acres, is to be sold by auction. Does this mean that Mr. Pears is going to "cut" personally the world-famed soap business which is carried on within hail of Spring Grove House? Mr. Pears, who is himself no longer young, is the great-grandson of the original Andrew Pears, who started the business. That Andrew was a Cornishman from Mevagissey, near Fowey. He began life as a barber's apprentice, traveled about as a journeyman barber, and finally came to London, where he set up as a general perfumer in Greek street, Soho. He was a skilled chemist, and another of his industries was the manufacture of dyes. These, and the discovery of a way to make transparent soap, were the beginnings of his fortune. The F. Pears of the A. and F. Pears was his grandson, the father of the present Mr. Andrew Pears, and at the time the firm was converted into a limited liability company, in 1892, it consisted of Mr. Pears and his brother-in-law, Mr. Andrew Barrett, who still presides over the commercial interests of the business at its headquarters in Oxford street. Even at that time the yearly profits of the much-advertised soap were said to be £70,000, all made out of soap, and in the most agreeable way, without so much as a disagreeable smell. For Messrs. Pears are only soap refiners, buying the unfinished material after it has gone through the grosser processes which make "soap works" a synonym for an offensive odor. Mr. Pears, who has put into the manufacture the same energy that Mr. Barrett puts into advertising, is a staunch Radical, and recognised head of the Liberal party in Brentford. He is also a generous and clear-sighted employer, and was one of the first of the large manufacturers to try the experiment of voluntarily shortening the working hours of his employees without reduction of pay. The result endorsed his anticipation—there was no reduction in the quantity of work done either.

Citron Oil.

According to Dr. Salvatore Gulli, three kinds of citrons are cultivated in the district of Reggio Calabria and in Sicily namely: (1) Citrus medica, var. vulgaris (Risso). Its fruit has a thick rind and a hard flesh; it is known in Calabria and in Sicily by the name of "cedro"; (2) Citrus medica, var. gibocarpa or citrea (Risso). It is a small citron known as "cedrino". (3) Citrus medica, var. rhegina (Pasquale). Its fruit is rather big, being about two decimeters in length, and it has an abundant eatable flesh, which surrounds the acid-bitter juicy part; it is known by the name of "cedrone." These three varieties of citrons, when treated by hand-pressure, give an essential oil; the yield is limited, however, 1,000 citrons giving an average of from 300 to 350 grams of oil. No distinction, says the author, is commonly made between the varieties on the market "because they have almost identical characters. In fact, in Sicily and at Reggio Calabria only the so-called 'essenza di cedro or cedrino' is known, which, in England, is understood by the name of citron oil and in France by that of 'essence de cédrat.' The fruits, however, as a rule are not used for making the oil, but are exported in brine, and consist of all the three kinds confusedly put together. The variety 'cedrone' is largely demanded on account of the various applications of its rind. The oil therefore is only made to special order at
the period of the fruit crop, not only in Sicily but also at Reggio Calabria, where there are citron plantations." The author adds that pure citron oil is rather rare, distillers mixing with it more or less lemon oil and bitter or sweet orange oil. The specific gravity of an oil obtained by the author from "cedri" was found by him to be 0.8706, and its optical rotation in a 100 mm. tube was +6° 12'; for a commercial oil containing a great deal of lemon oil, the corresponding figures were 0.858 and +62° 13'; for a third sample, which, as the manufacturer acknowledged, was a mixture of the oils of lemon, bitter and sweet orange, lime and citron, the latter in small proportion, the figures were 0.862, and +78° 8'.

Potash and Its Uses in the Soap Trade.

(From Soapmaker and Perfumer, England).

In text books on chemical technology, soaps are usually classified into hard and soft, or those in which saponification is effected by soda and potash respectively. This division is not, however, entirely accurate, because several soap-makers use a certain proportion of potash, in the form of 80 to 85 per cent. carbonate, in connection with the manufacture of soda soaps, though perhaps, in speaking specifically of soft and hard soaps, one need not cavil at the statement. It appears to be the case that, while the production of soap has largely increased in the last few decades, that of soft soap has not increased in anything like the same ratio as that of hard; indeed, we should not be surprised to find, if accurate statistics were obtainable, that it showed a decrease. Certainly it never has had many household applications, as the smell of the fish oil which enters into its composition, is anything but agreeable, and it is only for the rough cleansing work of factories and institutions that it continues to find its application. The manufacture being simplicity itself, and involving but a very modest outlay in capital expenditure, it is not surprising that the competition which has come to exist amongst those who enter the lists when railway companies and other public bodies issue their tender forms, has led to a cutting of prices down to the vanishing point of profits, and several former manufacturers have retired from the business, preferring to concentrate their energies and talents on something that yields a better return for the investment of capital, where this is existent to any extent. Speaking of potash generally, from a commercial standpoint, the chief feature of interest during the last twelve months, has been the remarkable fall in price. Thirty pounds or so per ton for good quality carbonate, is a figure which would hardly have been dreamed of a few years ago, and the rapid fall from £23 or £24 per ton, is in marked distinction to what has occurred in the case of caustic soda, this commodity having advanced by about 50 per cent. In speaking of potash and soda, however, with regard to their relative market prices, it should not be overlooked that while soda, both caustic and carbonate, is always sold as containing so much soda, or in terms of the available oxide, what is sold as potash, either caustic or carbonate, may contain very variable amounts of soda. What we mean to point out is, that a potash which may be quoted at a comparatively low figure is not necessarily cheaper than one quoted at a higher rate, unless the amount of soda present is stated and is a low figure. A chemical merchant offering potash to a soap-maker, may be met with the statement, "Oh, I can buy much cheaper"; but when the case is investigated, it will generally, we imagine, be found that the cheaper quality contains much more soda than the usually accepted maximum of 3 per cent. Of course, where the figure for soda does not matter to a per cent. or two, the soap-maker is, no doubt, doing the best for himself in buying the cheaper article, and we have nothing to say against this except to ask him to be chary of casting aspersions against the business integrity of the seller of the high-priced article. It is somewhat unfortunate that the accurate estimation of soda in potash is not a particularly easy affair, and that its carrying out necessitates the use of that expensive chemical, chloride of platinum, platinum now being quoted at a slightly higher figure than gold. In cases of disputes between buyer and seller, it has become customary to get a certificate from Tatlock, the Glasgow analytical firm, who have got a name in this class of work. The point we wish to make clear by this excursive into the mysteries of the potash trade is, that though potassium carbonate has recently been sold in bulk at from £13 to £14 per ton, it does not follow that those who have bought at higher figures are losers in any way, because, to the best of our knowledge, the low priced article is not guaranteed as to its percentage of soda, which we have no doubt is well over 3 per cent. With regard to the manufacture and source of supply, recent years have seen a great change in methods of procedure. Potashes derived from the burning of wood, bid fair to take their place as exhibits in archeological museums if the newer sources of supply continue to turn out the product at the present rate; that is, speaking from an export point of view. No doubt the black ash of America, produced from wood, will long continue to find local application after its importance as a raw material for European potash manufacturing has entirely ceased, a denouement which seems to be impending. In connection with this question of black ash from America, a recent writer in the "Journal" of the Imperial Institute, was somewhat wide of the mark when he expressed the opinion that Rhodin's process for extracting potash from felspar would hardly
affect the position of this black ash as the raw material for the English potash manufacture. Without here wishing to express an opinion one way or the other as to the prospects of the felspar process, it is permissible to point out that the importance of black ash as a raw product has very sensibly declined since the discovery of the Stassfurt deposits, which took their place as raw material for the manufacture of caustic and carbonate. We do not say that the import of black ash has by any means ceased, but that it is quite erroneous now-a-days to look upon it as the principal source of refined potash. In industrial chemistry changes are apt to be rapid and often startling, and it need, therefore, cause little surprise that the Stassfurt deposits have, to a large extent, been superceded of late years by carbonate of potash, prepared from the residual products of the beet sugar industry of Germany. The high price of potash in the early part of last year was due, in a great measure, to a diminished output from this source, owing to uncertainty as to the arrangements regarding the Sugar Bounties, a subject engrossing politicians a good deal at the present time, but into which we cannot be expected to enter. In addition to this, there was also some difficulty regarding water carriage from remote districts, owing to drought. More than one British chemical merchant found himself in dire trouble at the time, owing to his inability to supply soap-makers with the potash for which they had contracted, and a good deal of use was made of the unforeseen contingency clause in the contract notes. At present, as we have said above, the conditions are entirely changed, and there is no difficulty in getting supplies at remarkably low rates. Further, now that Russia and Italy are numbered among the sugar-producing countries, potash appears likely, in the no distant future, to become almost a drug in the market; indeed, already the Russian output of potash has become considerable, and it may be considered as the principal factor in the recent decline in price, a decline which, however much it may gladden the heart of the soap-maker, is hardly calculated to bring unalloyed feelings to the producer thereof. With regard to the German deposits of potash referred to above, perhaps a word of explanation is due as to their nature. They consist chiefly of the sulphate and chloride, occurring, however, not by any means as pure salts, but in association with salts of soda and magnesia, from which they are separated by chemical means, a good deal of the material being also sold as it is, for unmarial purposes. With regard to the destination of the chloride of potassium, it appears that America is the largest buyer, Germany, the United Kingdom and France following in the order given. In referring to the sources of potash, the sinter, or washings of sheep's wool, calls for mention, a considerable quantity of crude carbonate being obtained from this source, where facilities for its extraction and sale exist. With regard to the manufacture of potash as a branch of the alkali trade, it has never assumed anything like the proportions of the soda industry, although, with respect to methods of procedure, there is little difference. The Leblanc process is as applicable to the manufacture of carbonate and caustic potash from the chloride, as it is for the corresponding salts of soda, though there are certain difficulties in the carrying out of the various operations, which assume a greater degree of prominence in the case of potash. With regard to the ferric oxide process of making caustic soda from carbonate of soda, as adopted by Brunner, Mond & Co., and Messrs. Crossfield, we do not know whether this has been tried in the caustic potash manufacture, though the statement of claim in the original patent refers to potash as well as soda. Here these notes must come to a conclusion; their presentment seems to be justified on the ground that the subject matter has but rarely formed the basis of a special article, though, of course, under the title chosen, the present effort, from the essay point of view, must necessarily be somewhat scrappy and superficial. Such as it is, however, it is given with the hope that it will not prove without interest to our readers:

**Silicate of Soda in Soap.**

It sounds like an echo of former days to read in the *Seifenfabrikant* a quotation from an old report (dated 1863) that:

"Owing to the considerably increased cost of rosin, due to the American civil war, the soap manufacturers of the Northern states are compelled to find some substitute for rosin in soaps. They use for the purpose silicate of soda, which has so often been recommended in place of soap, but they effect the union in a novel manner, for they add it to the hot soap that has been run into the frame and then crust the whole until nearly solid, 25 to 40 and even 60 per cent. of sodium silicate at 35 deg. B are so used. For a complete union of the soap with the silicate, it is necessary that the latter should be saturated with silicic acid (5 equivalents to 2 of soda), for experience has shown that of a product, deficient in silicic acid, only a small amount combines intimately with the soap. This silicated soap has entirely supplanted the rosin soap and in many cases is even preferred to pure soaps from fat alone (for instance in an establishment for cleaning woollen and half-woollen textiles). It is of fair consistency even with a proportion of 60 per cent. of the silicate, is not sticky like rosin soap and free from the unpleasant odor of soaps containing a somewhat large percentage of rosin."
It lathers like ordinary soap. If the silicate is strongly alkaline, the soap will take up less than 30 per cent.

Viewed in the light of later experience, the following summary is given of the salient points to be observed in filling soap with silicate of soda:

1. Along with tallow-like stock, a sufficient amount of such stock as palmkernel oil, cocoanut oil, etc., should be used.
2. The soap to be filled should not have too great an amount of strength.
3. The soap should be well settled, containing the least possible amount of salt water, whereby the running together of portions of silicate is prevented.
4. The soap should be filled hot and crutched to a low temperature, preferably by a crutching machine.
5. The silicate should contain little or no free alkali.
6. The silicate should be saturated as far as possible with silicic acid.

Finally, the following considerations are offered to demonstrate that silicate of soda is by no means a mere filling agent, but an actually useful addition:

The effectiveness of soap depends on its splitting up, under the action of much water, into free alkali and an acid salt (of fatty acids and soda). The diluted alkali set free in this manner is the chief active agent, dissolving case and dirt, while the precipitated acid salt (of alkali and fatty acids) acts merely as carrier to remove the dirt. But in case of hard water, a large part of soap is destroyed, the carbonates and sulphates of lime and magnesia contained in such water, forming insoluble compounds with the fatty acids of the soap. Hence the addition of silicate of soda to the soap, is an advantage, in that thereby a large proportion of fat (whose activity is only of a secondary nature) is displaced by the cheap silicate, which prevents so large a precipitation of insoluble lime soap by the hard water. This insoluble soap is a smearing mass, settling in the goods washed and soon turning yellow, and removed only by mechanical force, distinctly detrimental to the articles washed. In a silicated soap, used with hard water, only little of this insoluble soap and much silicate of lime and free silicic acid are precipitated, but the latter do not injure the goods washed and are readily removed by rinsing. Not only are soap and soda saved (in softening the water by means of the silicate of soda), but the effect of the soap is actually increased, as the alkali of the silicate is a solvent of grease and dirt, just as is the alkali derived from the dissociation of the actual soap. Attempts have been made to use silicate of soda alone for washing linen; like soap, silicate cleans linen by reason of its alkali, and on account of the silicic acid precipitated it also has a mechanical (friction) effect. But the silicic acid attaching itself to the fibres and in the meshes, gives rise to an injurious hardness which can be perfectly prevented only by the simultaneous use of soap. By the latter, the fine particles of silicic acid set free, are enveloped in the precipitated acid salt of fatty acids and alkali, and attach themselves so lightly to the clothes, that they are readily removed by rinsing.

The Hygiene of the Mouth.
(Continued.)

Tooth Washes.

These are medicinal applications, but may be detergent also. The fundamental principle, however, is that of asepsis. For general use the antiseptic in the formula may be phenol 2 per cent. or formalin 2 per cent. Alkalinity may be furnished by the bi-borate of sodium or the benzoate of sodium. The solvent in the tooth wash is alcohol, and the diluent is distilled water. Sweeten with saccharine, instead of sugar, as it has antiseptic properties. Flavor with essential oils, and color with cochineal.

Tooth Wash.

Saccharine .......................... 10 grains.
Sodium bi-carbonate .................. 10 grains.
Spirit ................................. 10 grains.
Salicylic acid ........................ 10 grains.
S. Ten to fifteen drops in a little water or on a wet brush, after the teeth are cleaned; brush teeth and gums gently.—(Hoff).

A mouth wash for general use should not be irritating, but pleasant to the taste. Special conditions require specific mouth washes. A prevalent idea, that all mouth washes should be astringent, is erroneous. Such are required in some cases, but when too frequently used, or too long continued, they will react and produce chronic inflammation of the gums, or an atrophied condition results. Weak alkalis, long used, will produce an atrophied result also.

The best method of application of a mouth wash is by means of a brush. After the teeth are thoroughly cleaned, add ten of fifteen drops to the wet brush, and brush the teeth and gums gently. The medicine may be used as a gargle or wash, in suppulsive conditions, inflammations, etc.

Mouth Wash.

Thymic acid .......................... 3 dram.
Benzoic acid .......................... 3 drams.
Bi-chlorid ............................ 3 dram.
Tinct. eucalyptus ..................... 15 drams.
Alcohol—absolute .................. 12 1/2 ounces.
Oil wintergreen .................... 25 minimis.
M. S.—Fifteen to 20 drops in one-third tumbler of water.—(Miller).

Green stain is a fungous growth upon the teeth of the mould species. This vegetable garden (it can hard-
ly be classed as ornamental, therefore not a flower-bed), develops and grows in an acid medium. The presence of green stain indicates an acid mucous. This acid has two sources of origin, fermentation and secretion. Under certain conditions, gums and soft tissues, when irritated and inflamed, or by reason of constitutional or functional derangement, will secrete a viscid and acid fluid which attacks the tooth, producing erosion.

This acidity requires treatment, by the dental physician, both local and systemic. The local treatment consists of a process of neutralization by an alkali, best accomplished by milk of magnesia. This magnesium hydrate is not only alkaline, but it is also antiseptic. In a strength of 1 to 2,000, it is antiseptic or prevents the growth of the streptococcus pyogenes.

Functional derangements of the oral tissues and membranes, such as catarrhal inflammations or reflex irritations from digestive disturbances, also those produced by eructations from the stomach, require special additional treatment.

*Bacteria Fungi.*

The part played by bacteria and fungi in the pathology of the mouth is an interesting topic. The effects produced may be classified into two groups, those which affect the soft tissues, and those which disfigure the hard structures, the tooth. Of the affections of soft tissue may be mentioned thrush, a membranous disease produced by a mould.

Yeast produces fermentations, and is now being accused of producing cancer. This question is still under investigation.

*Bacillus* tuberculosis is actively represented in lupus, a mouth disease, being a variety of skin tuberculosis. Of the other pathogenic bacteria we might mention those of bacillus diptheria, pneumonia, erysipelas, Frankel's diplococcus, streptococcus pyogenes, and a number of vibriones, bacilli and spirochaetes, which can not be grown upon artificial media.

Of the acids produced in the mouth, we have lactic, butyric, acetic, etc. Of the pus micro-organisms, there are myriads of them.

Whenever the tissues become less resistant or below normal, through impaired nutrition, wounds or traumatic lesion, then the invasion begins, the campaign being waged so persistently and vigorously that septicemia pyemia and death often result.

Of the purulent conditions, the most serious ones are antral abscess and dentigerous cysts; of abscesses of the oral cavity, we have the whole family, from the superficial gum boil, to the deep seated alveolar abscess; abscesses which see with one or more eyes, (fistula), and those which do not see, in fact totally "blind"; those which are hot, feverish and acute, and those which are "cold", indolent and slumbering. Special treatment is indicated for each condition.

*The Teeth.*

The greatest havoc wrought in the mouth by bacteria, or the condition most keenly realized by the patient, perhaps is that of caries, or decay of the teeth.

The process of decay, briefly stated, is as follows: The starches of the food residuum are converted by pyalin into maltose; maltose undergoing fermentation by a bacillus, produces lactic acid; the acid dissolves the lime salts of the enamel and dentin, the organic matrix remaining, becoming liquefied or decomposed by other bacteria, those producing soluble ferments in either acid or alkaline media, the by-product then becoming food for saprophytic or other putrefactive micro-organisms. Each species in turn performs a certain and definite work, and is finally killed by its own toxin or product. This product, which was a poison to the former tenant, now becomes food for the subsequent occupant. The process continues till complete disorganization of the complex molecule is accomplished.

An important fact to be remembered is, that the very first step in the process of decay is the production of acid; and in the majority of instances that acid is a product of bacterial fermentation, as a result of the uncleanliness of the teeth.

What shall we do for that bad breath? Remove the cause which is producing it. Temporarily, as an expedient, a deodorant will either mask or destroy the odor. In the latter case, the gas is made to form a chemical compound by uniting with some other chemical substance. The fetid breath is caused by derangement of the stomach and intestinal organs, or it may be a putrid condition of the oral cavity. For proper treatment consult a dentist.

As may be inferred from the outline given of some of the operations and treatments to be performed by an oral physician or surgeon, the dentist of the future must know more than to merely extract a tooth and make a plate, or to insert a gold filling and build a bridge.

The dentist should know enough about the sciences of bacteriology and pathology, to realize the importance of asepsis in all operations upon the oral tissues; not merely mechanical cleanliness, but surgical and bacterial also. The latter training can only be acquired in a well-regulated bacteriological laboratory.

*Steam Boiler Inspection.*

It is only in the presence of a fatal and destructive explosion that the public fully appreciates the tragic possibilities that are wrapped up in every one of the two or three hundred thousand boilers that nestle among the teeming multitudes of our cities, or speed to and fro on steamboats and locomotives. Steam boiler explosions date from the very first use of steam under
pressure, and the records of the early growth of steam engineering are punctuated with many a sad accident due to faults of material or design in the early boilers. With the increase of pressures which came at the time of the introduction of multiple expansion engines there was a call for special care in the testing of the materials and in the construction of steam boilers, and there is no doubt that measured against other forms of constructive mechanical work the boiler of to-day will hold its own on any point of comparison.

If the security of the user stood solely upon the quality of his boiler, and there were no such thing as rapid depreciation due to neglect or unsuspected decay, there might have been relatively but little work for the steam boiler inspector, and no development of the great steam boiler insurance companies whose organization and operations mark them as among the most perfect insurance institutions in the world.

The absolute necessity of inspection is so fully realized that, in some states, the inspection of boilers is compulsory, and the state provides inspections for this work. In such cases, a fee is charged by the state for the service. In other states there is no compulsion about inspections; and in all cases, if the boilers are inspected regularly by a boiler insurance company in good standing in the state in question, additional inspection by the state is not required.

In most of the states, locomotives on railways are expressly exempt from state inspection. It is presumed that the railroad owning the locomotive will provide a master mechanic or other expert, who will be competent to pass upon the fitness and safety of their locomotives. This presumption does not appear to be altogether realized in practice, for railroad locomotives constitute a class of boilers which explode almost as often as any other class that can be mentioned. Omitting city elevated railways, the total number of railroad locomotives in the United States on December 31, 1900, was 38,065.

Steamboat boilers are inspected by the United States government, and are therefore exempt from inspection by the state, or by any other authority. For this service the United States government employs sixty-three inspectors of boilers. There are over 7,000 steamers in the deep seas, coastwise and river service of the United States.

The total number of stationary boilers now in use in the United States was not ascertained in the last census. Neither are they enumerated in the census of 1890; but the census of 1880 shows that at that time there were 72,304 stationary boilers in this country. It was estimated by The Locomotive that on December 31, 1890, there were approximately 100,000 stationary boilers in the United States. The same authority estimates that at present there are about 170,000 boilers under insurance.

The methods of inspection adopted by the various companies, though they vary in detail, are carried out upon the same general lines. We have been informed by Mr. J. M. Allen, president of the Hartford Steam Boiler and Inspection Company, that at the present writing this company has 83,907 boilers under insurance, and the system employed may be taken as representative of the best modern practice. The inspection, as such, is divided into three classes: (1) Hydrostatic tests, (2) external inspections, and (3) internal inspections.

The hydrostatic test consists in applying a cold-water pressure to a boiler that is completely filled with water. The pressure is usually applied by a pump that the inspector carries with him. The usual test pressure that is applied, hydrostatically, is 50 per cent. greater than the working pressure at which the boiler is run. In Philadelphia, however, the law states that "a hydrostatic test of one-third greater than the boiler is rated to carry" will be considered sufficient.

When the boiler is under hydrostatic pressure, the inspector looks it carefully over, in all parts, to see if there are any signs of leakage, or of distress of any sort. This test is usually applied to new boilers, or to boilers upon which extensive repairs have recently been made, or upon boilers the interiors of which are not accessible, either because of their small size, or for any other reason. In some places, however (notably in the city of Philadelphia), a hydrostatic test is required by law on all boilers. Authorities differ about the advisability of applying the hydrostatic test, some maintaining that it is much better than the "hammer" test, to which we shall presently refer, because the actual pressure may develop a defect that the inspector, armed only with his hammer, might overlook. Other authorities claim that there is danger of straining the boiler by subjecting it to a test 50 per cent. greater than it will ever have to withstand in practice. The hydrostatic test is not considered to be injurious to the boiler, when it is applied by a man with good judgment, but the hammer test is preferable when that can be applied.

"External inspections" are those made by merely looking the boiler over from the outside, to make sure that the attendant is not running it at a higher pressure than is allowed; that he is carrying plenty of water in the boiler; that the safety valve will blow off freely, and at the pressure that is allowed; that the boiler is not showing any signs of leakage, nor any bulges over the fire sheet, nor any signs of distress of any kind. Of course, the attendant is not notified in advance when the company makes an inspection of that kind; for the object of the visit is to see the boiler in the condition in which he usually runs it, without giving the attendant
any opportunity to "fix up" for the inspector's benefit.

"Internal inspections," or hammer tests, as they are sometimes called, are made by the inspector entering the boiler through the manhole, and looking the interior over very carefully. He makes a similar examination, also, of the outside of the boiler, crawling into the furnace and all about, everywhere that he can. Among the things that he has to look out for are these: Deposit of sediment or muddy matter, hard incrustation or scale on the tubes and plates, corrosion of any part of the boiler, both inside and outside, fractures of the plates, heads, header, etc., leakage around the tube ends, seams and all other places where such leakage is possible, defective brae of the flat parts of the boiler, grooving of the plates or heads, burned or blistered parts, and defective accessories of all kinds; water gages, feed pipes, blow-pipes, safety valves, pressure gages, and everything else that can get out of order in any way whatever.

As an example of the magnitude and extent of the work of insurance and inspection it may be mentioned that the company above referred to employs a regular force of 198 inspectors, and in the year 1900 made 92,526 complete internal and external inspections (i.e., "hammer tests"), and in addition subjected 10,191 boilers to hydrostatic pressure; while from the beginning of the company's business down to January 1, 1901, 1,176,097 complete internal and external inspections were made, and enough external inspections to bring the total up to 3,049,303. Also 162,586 hydrostatic tests were made and 13,215 boilers were condemned as unsafe, good and sufficient reason for the condemnation being given to the owners in every case. During this time there were discovered and pointed out to the owners 2,226,856 defects of one sort and another, 245,210 of which were quoted as dangerous.

It is upon data of this sort that a steam boiler inspection company bases its claims to be considered as a great public safeguard. We have no way of knowing how many explosions work of this kind may have prevented, nor how many lives it may have saved, but the claim can fairly be made that the total number of lives saved has been great, and that the loss of property that has been prevented has been enormous.

**The Extraction of Whale Oil.**

The whaling season in Finmarken generally commences at the beginning of March, and extends to the end of August, though a few whalers turn northwards as early as the middle of end of February. Most of these vessels come from Southern Norway, Sandjeford, Tonsberg, and Larvik, and only return home after the close of the season in autumn. During the time occupied in the outward journey the fishing stations are put to rights, since, having been neglected and left exposed to the elements all winter, they generally fall into bad repair, the buildings being usually made of very light materials. The machinery, pipes, etc., also require seeing to. When it is remembered that a good deal of ice and snow are still lying in Finmarken in March, it will be evident that the factory hands have often scarcely finished the work of clearing up by the time the first whales are sent in.

The whalers only seek for bearded whales, and a Greenland whale is rarely caught by them; for the most part, they have to be contented with the fin whale (*Balaenoptera boreas*). The blue whale is not infrequently captured, and this kind gives far better oil than the fin whale, the yield from the former, also, being generally eighty to ninety tons, whilst the fin whale yields only some fifty to sixty tons.

In some places the whaling stations are equipped in merely a very primitive manner, so that they are unable to utilise all the raw materials. For instance, some factories throw away the flesh and the bone; and even in the best a much higher yield could undoubtedly be recovered by more rational methods of treatment. After the greater portion of the fat has been stripped off, the flesh is boiled with steam under pressure; but this is a very imperfect method, the flesh having to be cut into very large lumps, and far better results would undoubtedly ensue from extraction with benzine. The flesh from the boiling pans is dried, and converted into guano, which should be free from fat; similarly, the freshest portions of the flesh are converted into fodder cake, but here, also, though a larger proportion of fat is not out of place, the fat does not fetch a price commensurate with its real value.

When a whale is brought to the station, it is hoisted up on to a platform, where the work of cutting up begins. Blubber-rendering (trying) requires skilled labor, it being a by no means easy task to strip the blubber clean from the flesh without leaving fragments of the one adhering to the other. The platform slopes towards the middle, so as to prevent any of the oil, which in hot weather runs freely from the blubber, draining away into the sea. The fat is cut into long strips, which are then drawn by the aid of winches, into the chopping machines, which chop it into small pieces, that are delivered into the melting-pans by an elevator. In these pans the fat is boiled for several hours with steam, until the bulk of the oil has run out. The first runnings, or No. 1 whale oil, are of a pale yellow colour, and have a faint fishy smell. The chemical composition of whale oil is still little known; but it is believed to consist of triglycerides of palmitic acid, oleic acid, and several unsaturated acids of the oleic, linoleic, and linolenic acid series. The oils have not been very closely
examine, and it is highly probable that they may be found to contain other, still unknown, acids. On the basis of the iodine value given by the fractions obtained by distillation in a partial vacuum, some workers have succeeded in identifying several hitherto unknown members of the unsaturated fatty-acid series. The acid value of No. 1 whale oil is about 0.5 to 2, the iodine value being about 140, according to the species of the whale, and the specific gravity about 0.910 at 15 degrees C.

After the first grade of oil has been recovered, the residue is again boiled with steam; and this treatment furnishes whale oil No. 2, which has the same properties as No. 1 oil, but is a little darker in colour. Both kinds are stored in large vats to clarify, and deposit their contained "whale tallow" (stearine), which gradually settles down to the bottom, and is utilised in soap-making. When the oils cease to deposit stearine they form clarified commercial whale oil.

The flesh of the whale, after the greater part of the fat has been removed, is cut up into strips or minced in a machine, and then placed in the boiling-pans. The lumps must be fairly large, in order to allow free passage to the steam. The pans are horizontal iron cylinders provided with close-fitting manholes; and after the flesh has been spread over the three superimposed perforated trays or false bottoms, steam, under a pressure of 40 to 50 lbs per square inch, is turned on for ten to twelve hours. The pan is fitted with two outlet pipes, one at the very bottom, for drawing off the glue water, and the other about four inches higher up for removing the oil. When the flesh is old and putrescent there forms on the surface a viscous scum, which does not dissipate on standing; and in such event the oil is said to have "fermented". To remedy this defect, the oil is boiled by steam heat for two or three hours. After boiling, the flesh is taken out of the pan, and, although it seems quite dry, is then placed in drying ovens, which are about twenty to twenty-five feet high, built of brick, and fitted with internal sheet-metal trays, which are mounted alternately on the sides of the oven, and on a central revolving shaft. The latter carries a number of slanting scrapers, which revolve once in five minutes, and slowly force the flesh from one tray to the next lower one, in succession. The descending flesh is dried by the action of a coke fire, the hot gases from which enter the oven at the top, and pass, away through an opening at the bottom, on their way to the smoke stack. This treatment produces a very good feeling meal and guano, but is very slow, the output being not more than fifteen to twenty two-hundredweight sacks in twenty-four hours. The dried flesh is next passed through a mill, where it is ground fine, and sifted, and is sold either for fodder or, in admixture with bone meal, as guano.

The bones are crushed, as far as possible, and thrown into large vertical iron boiling-pans, provided with tight-fitting manholes, and are here steamed in the same way as the flesh. The glue water and oil are drawn off through separate pipes. The boiled bones are crushed in a disintegrator, ground in a bone-mill, and mixed with the flesh meal, for sale as guano.

The train oil extracted by boiling the flesh and bones is more or less dark colored, and is classed as No. 3 or No. 4, according to its appearance. The inferior quality contains a relatively large proportion of free fatty acids, the acid value being often as high as 140. On subjecting such an oil to distillation with superheated steam, the fatty acids pass over along with the water vapor, the previously thick oil then becoming thin, and the acid value sinking to about 40. The distillate is quite colorless, and furnishes a soap that scarcely smells of train oil at all. The No. 4 oil is generally very turbid, has a disagreeable smell, and may contain up to 3 per cent. of unsaponifiable matter. The malodorous constituents of train oil are very insusceptible to reagents, and the attempts made to decolorize this oil by oxidation cannot, so far, be considered as successful. Owing to their high percentage of free fatty acids, the Nos. 3 and 4 oils are unsuitable for lubricating machinery, and they are chiefly used in tanneries and for the preparation of cheap soft-soaps.

The glue water, obtained as a bye-product in boiling the flesh and bones, and containing a series of albuminous and gelatinous constituents, is not utilised at all, but simply thrown away.

One defect attaching to nearly all whaling stations is that they are too small to cope with a large catch, the result being that, on such occasions, a good deal of the blubber and flesh begin to putrefy, and therefore furnish inferior oils and meals. This is difficult to remedy, owing to the irregularity of the catch, a week sometimes elapsing without a single whale being brought in, whereas in the succeeding week there may be eight or ten. The gross value of a carcass averages about £150 to £200, but some yield a good deal more.

A small whale, the bottlenose, is caught in large numbers in the Arctic Ocean by the Norwegian whalers, who employ large schooner-rigged steamers. All are provided with boiling-pans, for trying out the blubber on board. The "sweet" whale oil obtained in this way is very pale, and has an agreeable aromatic smell; the acid value is about 0.5—1, and the iodine value about 80—85. The low iodine value is due to the large proportion of so-called "sperm," which chiefly consists of higher alcohols of the fatty series and their esters. This sperm is extracted, as far as possible; nevertheless, a good deal is still found in the commercial oil, and, in fact, the Scotch whalers are credited with being the
only ones capable of getting all the sperm out of the oil. Of course, when the catch is very good, the whalers fishing for bottlenoses cannot try out all the blubber, and consequently the vessels are fitted with large tanks for storing the excess. The fishing season coincides almost exactly with the ordinary whaling season; but the bottlenoses are always caught in the open sea, and the whalers do not return to port all through the summer. The harpoons used in striking the bottlenose whale are smaller than those for the ordinary whale, and the work is attended with more danger, the bottlenose being very quick in his movements and powerful, so that the capsizing of the whale boats is a by no means uncommon occurrence.

The blubber is cut off when the whale has been hauled against the side of the vessel, and the rest of the carcass is then discarded. On the return to port, the blubber, which has melted in the tanks, is pumped out by large rotary pumps, and boiled in the same manner as already described. The crude bottlenose oil issuing from the boiling-pans is of a red color, and has a facial odor, owing to the presence of seato, indol, and chromogenic albuminous matters, formed by the fermentation of the blubber during summer. This crude oil is pumped into large shallow iron pans, and there exposed to sun and rain for a couple of months. This treatment produces decoloration; but the bad smell remains, and is very difficult to eradicate, though this result is said to have recently been attained by a new method. The bleached oil has an acid value of about 2.5—3, and an iodine value of about 80. This oil also contains a good deal of sperm, and it is a very difficult matter to remove this so completely that the oil will not give a sediment on standing. There are one or two factories in Norway for purifying bottlenose oil, but their methods are surrounded with such a deal of mystery that nothing is known of the processes employed. Probably the treatment consists merely of a filtration and clarification of the oil, since neither is the acid value reduced nor the smell improved.—Michael Wimmem, in “Chemische Revue.” Translation by Oil & Colourman’s Journal.

Otto of Rose.

The otto-of-rose industry has attracted considerable attention recently, and several attempts, more or less of an experimental nature, have been made in other localities than the Balkans to cultivate the rose for distillation. The fact that the Balkan district, on account of its purely natural advantages, is so far excellence the rose garden of the world is sometimes overlooked in dealing with the question, and there is a disposition to accept too readily statements in regard to the impurity of Bulgarian otto. Undoubtedly the industry has suffered from great disadvantages, for that sophistication has existed long enough in Bulgaria to be traditional is true, and the fact is taken advantage of by dealers outside Bulgaria, who “reduce” pure ottos to suit market prices. It may also be noted that although the rose is one of the most delicate flowers, the methods of distillation adopted by the Balkan peasantry are frequently as rough as they can be; and if Bulgaria is to meet the severe competition which is threatened by synthetic rose and general vilification, it is clear that Bulgarian trading methods, the industry must be thoroughly modernized—first by the use of improved stills. We have reason to believe that such improvements are being seriously considered by leading distillers, and the sooner they are carried out the better for Bulgaria.

The observations are induced by the perusal of a report which has just been presented to the French Minister of Agriculture by M. J. Gravereaux, who had collected some 800 kinds of wild roses in his rosary at Hay, and was asked by the Minister to visit Bulgaria and report on how roses are cultivated and otto distilled there, evidently with a view to attempt to put the rose industry on a better footing in France. M. Gravereaux points out that France imports over 30 per cent. of the whole of the Bulgarian crop of otto, England coming next with over 20 per cent.; America (apart from Constantinople, which is merely an intermediary) follows with about 15 per cent., the remainder being chiefly divided between Germany, Russia and Austria. M. Gravereaux states that the average value of the otto produced in Bulgaria is from 800f. to 1,000f per kilo., and that one of the principal reasons of adulteration is this low price. Here he is in error, for the lower of these values, and the higher much more so, cover the profitable selling price of the purest Bulgarian otto. Values do undoubtedly vary with the season; but to say that sophistication is practised because the trade prices are not remunerative to the distillers and first hand sellers is a travesty of the truth. Price influence is practically the same as that which induces the great adulteration of lavender oil in France or lemon oil in Sicily, being independent of the cost of production. So long as too eager buyers attempt to get more than true value for their money so long will adulteration of all essential oils be practiced by unscrupulous dealers.

The bulk of M. Gravereaux’s report is a superficial description of the conditions of rose growing in the Balkans. He says: “To stimulate the zeal of our compatriots may we not add that Germany has made numerous efforts in this direction? We know, too, that Russia has made plantations of roses in the Caucasus,” etc. He thinks Algeria and Tunis lend themselves in a wonderful manner to rose cultivation, forgetting that the quality of the few essential oils which have been pro-
duced in Algeria—geranium oil, for example—compares badly with those produced elsewhere, a circumstance probably due to climatic conditions. Anyway, the reporter suggests that France should make a beginning in Bulgaria by taking a hectare of land in Kazanlik, the chief center of the Balkan rose production, plant it with roses, and erecting the requisite distillation apparatus to carry out the experiments which are needful.

It is difficult to see what good this would do to France. The result can almost be foretold. and they should largely benefit the Bulgarian industry. We should have thought that experimental cultivations in the places where it is proposed to grow for distillation in France or her colonies would have been more appropriate, since the avowed object of the inquiry was to enable France, as the largest consumer of otto, to produce cheaper otto than that now manufactured in France. It is true that the French otto differs materially in odor from Bulgarian, and many prefer it, but the superiority in odor is not at all commensurate with the difference in price between the two kinds. M. Gravereaux thinks that French otto would be cheaper if the manufacturers aimed to produce otto of rose rather than rose water; for otto, he says, is really a by-product.

It is apparent that a great deal more information than M. Gravereaux has collected must be available before French growers and distillers can embark upon competition with Bulgaria in this matter.—Chemist & Druggist.

"Up Went The Price."

The heading will recall a popular song of some years ago. It sang of the woes of an individual who was driven from calling to calling by the curious mischance that his entrance into any particular trade was invariably immediately followed by a rise in the prices of the articles he had to deal in. The humour of the thing lay in the whimsical reasons for this buoyancy of the markets. As a matter of fact, the actual reasons that govern violent fluctuations are frequently just as curious. If we could arrive at an exact understanding of the laws which regulate the movements of the market, we should all be successful speculators. As it is, we may sometimes be able to buy from pessimists and sell to optimists; if we have cool heads we may take the opportunities of a panic, and go to market when everyone is unloading; and experience has taught us some other of the main causes which make for the permanent appreciation or depreciation of values.

The downfall of the natural coloring matters, and especially of madder, owing to the introduction of the synthetical dyes, rises naturally to the mind. Indigo, if not doomed, must inevitably decrease in value through the introduction of artificial indigotin. The broad principle of this alteration of value is a commonplace of trade. It is just as easy to understand that the stoppage of main sources of supply will be followed by a rise in price of the commodity in question; this has happened recently in the case of arsenic, in consequence of the stoppage of one of the largest mines in the world. It follows—take salt as an example—that prices of an article will fall as fresh sources of supply come in to operation. Acute competition, as in the case of nitrate of soda and sulphate of ammonia, is also a strong factor in the matter of price. It is not hard to explain the apparent paradox that a largely increased demand for an article may either force it up or down in the market. Our own trade lends two admirable examples of this diversity of effect. Glycerin was a waste substance looked on as worse than valueless by the candle-makers. The requirements of the military men and the medical profession soon changed all that, and its price advanced by leaps and bounds. On the other hand, the salts of titanium were expensive curiosities until they came into demand in the coloring trades; now they are comparatively cheap. The reason, of course, is obvious. A by-product looked upon as waste must inevitably rise in price when an extensive commercial demand arises for it, whereas a demand for the numerous articles which start their career as laboratory curiosity invariably leads ingenious and inventive brains to find fresh sources of supply, and more economic methods of production. As for the effect of a "corner" in the market, the commercial world knows the usual cycle of events only too well—an irritating rise, out of all proportion to intrinsic value, as a rule followed by an appalling and dangerous fall when the reaction comes. One of the most curious instances of an unlooked-for factor bringing about a "boom" in prices has been recently reported from the States. Blood albumen is an important article of commerce, but a letter published in a number of papers recommending it as poultry food and egg producer has sent up prices so high that the textile printers are looking about for some other fixing agent for bronze colors and pigments. This is of course, an instance of a cause which no business man could foresee, and it is sufficient to show that nothing short of the gift of prophecy would allow us to foretell with certainty the course of the market.—Oil & Colorman's Journal.

Alden Speare, president of the Alden Speare's Sons Co., of Boston, died in California on March 22, at the age of 77. He leaves a widow and four children, one of whom, Edw. Ray Speare, is vice-president of the company.
The Vegetable Oils of Tahiti.
(From the Oil, Paint & Drug Reporter.)

Processes of Manufacture by the Natives.

Manufacturers and dealers in vegetable oils will probably be interested in the methods of manufacturing vegetable oils in the Island of Tahiti. The natives on this island are making a vast quantity of vegetable oil from the cocoanut, peanut, berry fruit, and other productions of the soil, the greater portion of which is utilized in the making of foods for native eating or for export. Tahiti is about 1,000 miles south of Honolulu, and your correspondent stopped there en route to the southern islands of the Pacific. There are only a few dozens of thousands of people on the island, but these natives are quite industrious. They have the crudest types of implements to work with. There are about 600 square miles in the island, liberally growing in cocoanut trees, and from these trees the natives secure the immense growths of cocoanuts from which the copra is made for export; and the oils for both local use and for export. These are about 2,000 white people on the island, a number of which are engaged in buying the vegetable oils from the natives and shipping to other markets. The domestic market buys only in small lots at very low prices. These buyers of the native oils have native carts out in the interior during the season of getting oils, and the carts are drawn in heavily laden with bamboo tubes filled with the rich native vegetable oils from the cocoanut and other growths. There is considerable trade in the dried copra, after the oil is extracted, but this is mostly limited to the domestic demand.

Processes of Oil Making.

The native methods of oil manufacture on the island are very similar to those employed in the other islands of the Pacific visited during the past three years by your correspondent. Most of the utensils are made from the natural products of the country. There is very little metal device in service. The attached sketches will give an idea of the native operations in the cocoanut fields; one sees the natives knocking the cocoanut fruit from the tall trees in several ways. Often native boys climb the trees and beat off the cocoanuts with long sticks. Others stand on the ground and throw stones at the nuts. Some ascend the trees and methodically cut off the limb bearing the fruit, and the whole bunch falls to the earth's surface. Then there is the work of collecting the cocoanuts and stringing them on a piece of bamboo, as in figure 7. The nuts are attached as shown, and two natives taking an end of several sticks on the shoulders. The natives trot along to the oil makers or the buyers of oil people. The nuts are then sold to the oil manufacturer. Often this manufacturer is a native, with a number of others to help him. There are foreigners in the business, but all appear to turn the work over to the native boss, and all operations are done according to the native idea and with the crude home-made devices. I saw no modern apparatus for extracting the oils.

The Preparing Gang.

One sees three or four native boys breaking open the cocoanuts by first removing the outer covering. This is done with a tool shaped like that in figure 2. It is a very strong article, made with a head forged from iron or other metal, worked down to a point like b. Thus the point can be forced into the covering of the nut and the covering broken away gradually by twisting and turning. The ordinary type of hatchet would be broken
off under the strain, for the cover is usually exceedingly firm. The next work involves seasoning of the nuts, consisting of drying in the sun for a period, after which the fruit arrives at its proper ripeness and can be opened. The opening of the fruit is done by natives, who merely crack the shell and then proceed to extract the sections of fruit, as in figure 3. These pieces contain a certain percentage of oil, which could be pressed out in liberal quantities if proper machinery were used. But the parties engaged in the work rely upon the old time native pounders or other contrivances equally as crude. One of the devices used is sketched in figure 4. It is merely a log of hard wood, sawed from a tree trunk and gouged out by chipping, burning and hacking until a bowl-like depth is obtained, in which the pulverized cocoanut stock can be crushed. The crushing or pounding tool may be either stone or hard wood. In the cut it is signified c. The processes of preparing the cocoanut fruit for the forcing out of the oil involves a chipping or shaving of the pieces. This process is done with the types of native knives shown in the next views. The knife in figure 5 is made with a singularly designed blade, the purpose being to fit it for service for cutting the circular formations of fruit into slices. The form of knife in figure 6 is utilized in the securing of the cocoanuts from the tree boughs.

MORE MODERN TYPE OF OIL EXTRACTOR.

In figure 7 is a sketching of a type of grinding apparatus which is designed on more modern lines than the first. It is usually cut from stone. These devices may be found many years of age. They are handed down by one generation to another and the long usage serves to make the disk and the disk seat very smooth. The disk is indicated d and this is also stone and weighty enough to cause the under surface to bear well upon the cocoanut material, berries or other products from which oil is being obtained by a process of pressure and friction. Two and sometimes four natives are required to revolve these heavy disks. One native feeds the stock to the hollow space and pushes it beneath the disk for crushing. The same native removes the stock after the proper grinding has transpired. The liquid secured is ladled out with crude cup-like devices of native pattern.

SOME UTENSILS USED IN THE WORK.

In figure 8 is the pattern of dipper or ladle frequently used by the natives for handling the liquids in the oil pressing work. It is a half cocoanut shell, with the interior removed, and fitted to a wood handle. In figure 9 is a drawing of a section of a bamboo tube which is cut about ten inches long, about four inches diameter, and furnished with a bent wood handle as shown. A bottom put into the tube and a tight utensil usually results. In figure 10 is another form of utensil of native pattern, made with a square box-like end, for dipping purposes, and with the handle of wood as shown.

PRESSURE EXERTED WITH WOOD CYLINDERS.

The natives are quite ingenious in the designing of machines with rolls for pressure purposes. One of the types seen by the writer is shown without its wood bearing in figure 11. There are several growths of berries in the island from which oils are obtained and this contrivance was erected with a view of bringing pressure to bear upon the fruit by passing the latter through the various cylinders. These cylinders were carefully and laboriously patterned from the hard woods of the country, these woods being in abundance. There are also some cogs on the rolls as shown. The device is worked by the heavy hard wood handle or crank i. This turns a small wood cog gear that meshes with the larger cogs. The main cog f is on the shaft with the large cylinder e, and this cylinder is the principal one in the set. The berries, cocoanut fruit or other substances to be pressed for the oils are fed to the roll g on an apron. The product is partly crushed between this roll and the cylinder e. Then the material passes between the delivery roll h and the small crank shaft roll, and the juices which are pressed out fall to the trough below. Much of the material falls with the oils, but straining later on effects a proper separation.

PACKING.

The natives pack the oil products in mats or skins, one of the latter of which is shown in figure 12. The edges are closed with coarse sewing. The interior of the sack is sometimescoated with pitches or gums to make tight. One type of package I saw is presented in figure 13. It is made with much labor from sections of wood. The pieces of wood are selected because of straight and close grain and are adjusted properly and secured with straps. These straps may be observed in rawhide, metal and wood.

A SCREW PRESS.

We next show a drawing of a native screw press, which is used on one of the plantations. The enormous screw shaft j is all wood. Evidently a straight section of a hard wood tree was selected and the spiral portions cut out with native tools, probably after much labor and patience. This wood screw is indeed a novelty. However, it does the work quite well. There is a heavy frame of timber erected about on the pattern shown in the figure, the portions being secured with wood pegs, a few iron bolts, hemp cords, straps and devices of various descriptions. The result is that a strong frame is obtained. Then there is a base plank m in the bottom of the pocket and top pressure plank at the top of the pocket at l. The end of the screw rests upon this pocket top plank, and as the substance for pressing is placed below, inside the pocket, as at o, it can be seen.
that the process of squeezing the contents is not difficult. Sometimes animals are used turnpiled fashion to bring down the platen on the mass, while again a number of natives exert the proper force by hauling around the handle. The liquid matter is secured as fast as it flows off and is preserved and separated. From this the oils are made. The mass is usually allowed to settle, and then the different grades form, from which the varieties can be manufactured and packed for home use or for exportation.

Determing Free Fat in Soap.

From the many tests and modifications of the same Les Corps Gras Industriels selects the following for determining the free fat contained in a soap:

In a beaker containing 200 cc., 10 grammes of dried and powdered soap are agitated for some minutes with 100 cc. of petroleum ether, and enough of the latter is then added to make up the 200 cc. The solution is passed through a double filter and 50 cc. of the clear liquid is evaporated in a platinum dish. The weight of the residue remaining is that of the free fat present in the soap.

The petroleum ether used must, of course, be entirely free from water and leave no residue itself, on being evaporated. It is also necessary to make sure that any residue left in making the test, is soluble in the petroleum ether, for if the solvent is not entirely free from water, it may dissolve more or less soap, which would then unduly increase the apparent amount of free fat.

Cananga Oil.

Cananga (also written Kananga) is derived from the Cananga odorata, a plant indigenous to the Malay archipelago and the Philippine Islands. The same plant also produces the well-known oil of ylang-ylang used in perfumery. Though coming from the same source, the difference in perfume of the oils is explained (Schimmel's Report) by climate differences, and by the higher or lower condition of cultivation of the plants producing the oils. According to Blume, the flowers of the wild, uncultivated cananga trees are nearly odorless. Oil of cananga is used in enormous quantities in the manufacture of soap.

From the authority above quoted, it is stated that cananga oil is closely allied, from a chemical point of view, to oil of ylang-ylang, but is distinguished from it by its much larger proportion of sesquiterpene. Benzoic and acetic acids are undoubtedly present in the form of esters. The presence of linalool is very probable. In addition to linalool, oil of ylang-ylang also contains geraniol.

Discontinued Brands.

The following soap brands, formerly on our list, have been discontinued by the manufacturers for whom they were entered:

- Elite Yucca.
- A-O-U-W.
- Chalkine.
- Eczema.
- Yucca Rose.
- Yucca Shaving.
- Yucca White.

QUESTIONS AND ANSWERS.

In this column we shall print questions of general interest submitted by subscribers and invite replies to the same from our readers, which will be printed in the next issue of this paper.

QUESTION No. 14: How does peanut oil compare with other vegetable oils and fats in soap making regarding color, consistency, etc. B. of T.

QUESTION No. 15: Should thank anyone for information on making a good tooth soap for sale in collapsible tubes or jars? How are collapsible tubes filled quickly and neatly? C. of III.

QUESTION No. 16: To what extent is corn oil used in the manufacture of soap? Is there such a thing as a soap being made entirely out of corn oil? Any and all information on this subject would be greatly appreciated. W. M. & O. Co.

QUESTION No. 17: In making a soap (cold process) from one third coconut oil and two-thirds tallow, I find the soap melts considerably after a short time. Can you tell me the reason? In BRANKI'S book on soaps I find the statement that only coconut oil can be saponified by the cold process; this is surely not correct, but I certainly have no trouble with sweating of soaps made from coconut oil alone. Is the tallow really the reason of the soap sweating? D. R. of G.

ANSWERS.

To QUESTION 12: No answer having been received to this question, we refer to it editorially in this issue.

To QUESTION 13: Dilute alcohol contains 41 parts (by weight) of absolute alcohol and 59 parts of water. Proof spirit contains 40.8 parts absolute alcohol to 49.2 of water. K. D.

ANSWERS IN BRIEF.

S. L. in Mo.: As the purposes of an antiseptic soap, and consequently the methods of application, are numerous, it is not possible to say that this or that antiseptic is the "best". Bichloride of mercury, carbolic acid, iodine, thymol, creolin, lysol, etc. have been much used; of late chinosol, used in the proportion of 2 to
5 per cent, has been much praised for soaps of general usefulness. But as it is destroyed by alkalies, it requires to be milled into a neutral soap to preserve its effects.

G. G. Co., and N. Mfg. Co.: The firms making the largest variety of soap machinery are advertising in this paper and at least two of these are prepared to fit up entire factories of small and large size, for making any kind of soap desired. They are thoroughly reliable and fully familiar with the practical requirements.

T. T. of C. : The abbreviation "c. i. f." or "cif" in price quotations stands for "cost, insurance, freight"; thus: 35 cents a gallon cif New York means that the 35 cents include the value of the goods and the freight and insurance as far as New York.

M. L. of T. : You have noticed that you can make soap in the crutcher more rapidly by stopping the machine now and then, than by running it continually. This is an undisputed fact and readily understood, but it is no less true that a soap made is less homogeneous and less perfect than one made by continual crutching. In making a cold-process soap the question is not how quickly you can do it, but rather how slowly you can do it — if quality is an object.

S. S. F. : For caustic soda, soda ash, etc., write to either of the following: Welch, Holme & Clark, New York City; Isaac Winkler & Bro., Cincinnati; Whitelaw Bros., St. Louis; M. L. Barrett & Co., Chicago.

**PATENTS AND TRADE-MARKS.**

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

**PATENTS.**


**TRADE-MARKS.**


**LABELS.**

8994. Title: "Sunlight Soap." (For Soap.) Lever Brothers, Limited, Port Sunlight, Eng.


**AROUND THE SOAP FACTORIES.**

The National Toilet Soap Mfrs'. Association, whose foundation we announced last month, is endeavoring to bring about — as one of its objects — uniformity of sizes of different cakes or packages of toilet soap. A second meeting has just been held at Atlantic City and was well attended. The members appear hopeful of succeeding in correcting some of the worst evils that beset the trade, especially in connection with selling plans or methods, and in bringing about a better understanding as to what is legitimate competition.

The Naphthalene Mfg. Co., Toledo, Ohio, has incorporated; capital stock $10,000; incorporators: J. P. Rex, F. S. Bell, L. N. Bardol.

The manufacture of soap, glue, oils and fertilizers is the object to the Fitchburg Rendering Co., incorporated at Portland, Me. Capital $20,000. Harry L. Cram of Portland is President and A. J. Desmond is Secretary and Treasurer.

The Fritzche essential oil works were among the sufferers from the flood in the region of Passaic, N. J., in the early part in March.

The Interstate Cottonseed Crushers' Association has postponed its next meeting (at Dallas) until April 28 — 30.

Enlargements and improvements are contemplated by the Los Angeles (Cal.) Soap Co., and by the N. K. Fairbank Co.'s plant at Gretna, La.

Stockholders of the American Alkali Co. have asked the U. S. Circuit Court for a dissolution of the company and a winding up of its affairs. The company was organized under the law of New Jersey, three years ago, with a capital stock of $30,000,000, and for the purpose of manufacturing caustic soda and bleaching powder by an electric process. Fraud regarding the purchase price of patents, excessive salaries, failure of process to work, a losing plant at Sault Ste. Marie built at a cost of a quarter million dollars, improbability of the company ever paying a dividend, are stories brought out in this connection.
Fire all but destroyed the plant of the India Refining Co., Philadelphia, on March 13, and consumed 50 tons of coconut oil.

W. T. White of Okolona, Miss., expects to embark in soap making.

The corner stone has been laid of a large packing-house plant for Armour & Co. at Forth Worth, Texas. According to a detailed list of the sixteen buildings comprising the plant, as given in the National Provisioner, one of the buildings will be a soap factory, 61 by 114 feet, four stories and basement.

"The American Soap Journal contains enough pointers to pay for the small price several times over."—Wm. Strachan Co., Montreal.

The Texas Cotton Products Co. has been incorporated at New York City, with a capital stock of $1,000,000; one of its object is the manufacture of soap. As air tors are named the following New York men: M. I. Evans, E. W. Davenport, F. K. Lester, R. Stivers, W. E. White.

The Meduria Soap Co. has been incorporated at Trenton, N. J., with a capital of $1,000,000. Incorporators: Julius Blumberg and M. Cossenas of New York and Redmond F. Kernan of East Orange, N. J.

There was a small fire in Hoppé & Son's Soap Works at Logansport, Ind.

Officers of the O. Porsch Chemical Co., New York, have recently been held in bail on the charge of having conspired with a special examiner of the Appraiser's office to defraud the government in connection with imported perfume materials. The charge which is absolutely denied however, alleges that the goods were classified as "chemical compounds" (duty 25 per cent) and partly as enflargueur grease (free of duty), but really consisted of vanillin passed off as heliotropine, of carminine, citral, musk bau, etc., as entered so as to pay a reduced duty or none at all.

Rutherford & Barnes of Brooklyn, N. Y., are extending their manufacturing facilities.

The Los Angeles Soap Co., of Los Angeles, Cal., are at present at work on their new four-story brick factory addition, to their already large plant; before this improvement they had superior facilities for business. The completion of the new work will be finished by early summer.

The Markets.

TALLOW: New York City 61/2 in huds; market rather quiet; sales of country make at 6 to 63/4c as to quality. Western sales reported at 7 to 7 1/2c for prime packers and 6 3/4 to 6 5/8c for country.

GHEESE: Market somewhat weak in sympathy with tallow. A white 7 4c; B white 6 3/4c; yellow 5 1/2c to 5 1/4c.

COTTONSEED OIL: Last sales reported from N. Y. at 42 1/2 and 43c for prime yellow. For the last week of March the market has been rather active.

CORN OIL: Firmer; 5.90 to 6c as to quantity.

COCONUT OIL: Ceylon held at 7 3/4 to 7 1/2c spot; 61/2 to 6 1/2c for stock to arrive in near future. Cochin, 83/4 asked for spot and 7 3/4 to 8c for supplies under way. Market steady but quiet.

OLIVE FOOTS: 5 to 5 1/4c for spot, as to quality.

PALM OIL: 51/2c for prime red oil; 5 1/4 for stock to arrive; 5 3/4 to 6c for Lagos. Palm Kernel oil nominal at 7c.

RED OIL: Saponified, 63/4 to 6 1/2 asked, with little supply and also little demand.

Latest Additions to Our Brand List.

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<td>Columbia Ref'g. &amp; Mfg Co., Ltd., N.Y.</td>
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<td>Trash Mover 286</td>
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The attention of our readers is called to the column of "WANTED" AND "FOR SALE" advertisements on another page. Manufacturing firms looking for intelligent up-to-date help, or who have second-hand machinery they wish to dispose of, and practical men experienced in any branch of manufacturing chemistry looking for employment, can mutually profit by using this column.
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Situation Wanted: A practical soap-maker wants a position; can make all kinds of laundry and filled soaps—also export soaps, cold-made and chip soaps—also English exports, mottled and pale or brown soaps, potash soaps and castile, floating and sand soaps; can take charge of factory if required. Address Practical, care of American Soap Journal, Milwaukee, Wis.

Situation Wanted: By soap-maker experienced in making fine milled toilet soaps and settled resin (laundry) soap; understands practically the extraction of glycerine from waste lye; also can make soap powder, harness soap, cold-made and half-boiled soaps. Would either take charge of kettle room where the foregoing are needed, or take position as assistant in large factory. Best of references. Address: P. V., care of American Soap Journal, Milwaukee, Wis.

Situation Wanted: By a practical soap-maker of long years' experience in all kinds of laundry, family, castile, chips, powders, mill soaps, by any process and from any stock that soap can be made from. Address: Julius, care of Silberstein, 170 Allen St., New York, N. Y.

The latest complete edition of our

LIST OF SOAP BRANDS

was published on Jan. 1, 1902. All new brands and changes that have been reported since that date are contained in the "Supplementary List" published on another page of this paper.
Cyclopedia of Receipts, Notes and Queries

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AMERICAN SOAP JOURNAL, Milwaukee, Wis.

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The revised and considerably enlarged new issue of the well-known work "AMERICAN SOAPS" is finished and now ready for delivery. (For a description of the book in its present form see circular mailed on request).

The increased number of pages in this book is due chiefly to new practical material collected from many sources during the years which elapsed since the appearance of the first edition, and will, no doubt, add greatly to the usefulness of the work.

The first edition of "AMERICAN SOAPS" having been so favorably received, that a copy of it may at present be found in almost every soap factory in any English speaking country, care has been taken in the new edition to adhere largely to the original plan, simply adding such material as the changes of time or the collection of new information suggested.

In offering this new work to the trade we confidently bespeak for it the same favorable reception which was accorded the original edition in so large a measure.

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SPACE ON COVER DOUBLE RATES.

For Rates and other Information concerning small advertisements of WANTED and FOR SALE, see Announcement at the head of that page.

OFFICE OF PUBLICATION:
322 WINDSOR PLACE, MILWAUKEE, WIS., U.S.A.

The American Soap Journal and Manufacturing Chemist is devoted to the interests of all manufacturing industries of a chemical character, and is an absolutely independent publication. It is the only newspaper of its kind in America and has also a large foreign circulation.

For Subscription and Advertising rates see above.

Communications on industrial subjects, news items, and any information suitable for printing in these columns, are solicited and will have due attention.

Readers in search of machinery, supplies etc., not advertised in these columns, are invited to write us and we shall endeavor to supply the information.

Address all communications to
DR. HENRY GATHMANN, Publisher,
322 Windsor Place, Milwaukee, Wis.
U. S. A.

We are asked—don't know just how often per month—about as follows: "Dear Sir: We have a well-settled country all around here and no soap factory within so and so many miles; would it pay to undertake the manufacture of soap here? Should thank you for full information, plans of factory etc., and if we decide to go into the business shall want your Soap Journal."

Will some one good at figures please calculate for us the following: If it takes each enquirer as above two minutes of his time, a two-cent stamp and a cheap promise, to ask for all this information, how much will it require to answer each such enquirer honestly, fully, and intelligently?

There are undoubtedly readers of the Soap Journal who would unhesitatingly reply to every enquirer as just mentioned that he had better leave the soap business alone. Still, as the country grows, soap factories will continue to be started and some of these will succeed; it would manifestly not do to discourage indiscriminately every enterprise of the kind.

On the other hand it is a notorious fact, based on statistics of our great commercial agencies, that of all new business enterprises started, no matter in what branch, only a very small proportion are permanent successes. From that point of view, then, one might be tempted to warn every one against engaging in business of any kind whatsoever—a manifest absurdity.

Now then, how would you reply to enquiries of the sort under consideration?

The American Soap Manufacturers' Association held a meeting at Buffalo on April 8th.

"Coronatia Soap" is the name of a soap brought out as a coronation souvenir by E. Cook & Co., Ltd., London.

In translating the article of Dr. Shukoff (printed on another page) from the German, we found some difficulty with the words "Kernseife" and "Leimseife" which, for want of better English equivalents, we have made into "grain soap" and "paste soap" respectively. These latter words have done duty before to signify various things, and will be pressed into service again
when articles from European sources are in question. It seems appropriate to explain these terms a little further, for in English speaking countries they are not familiar in the sense which they are given in continental Europe. The reason for all this is, of course, in the difference of the soaps made and processes used in the different countries.

“Kernseife” (grain soap) according to German usage, includes all soap that floats on top of the nigre or the lye in the kettle; it is not necessary that the soap be actually grainy—for instance, our settled soap (geschliffene Seife) is a “Kernseife.”

“Leimseife” (paste soap) means soap in combination with more or less water and free from a substratum of lye; the term, however, is made to include also what we call nigre, although the latter is not really a paste, but, strictly speaking, should come under the appellation “Kernseife”, as it floats on the clear lye in bottom of kettle.

A Los Angeles laundryman, through the columns of the National Laundry Journal, warns his fellow laundrymen against a party selling a fraudulent receipt for making soap without grease, oil or lye. This, he says, “is nothing but a heterogeneous mixture of well known washing chemicals, and the soap is a fraud on the face of it.” The price for the recipe ranges from ten to fifty dollars.

Much has been said—enough so laundrymen should all know it by this time—of buying soap on a valuation based on the fatty acid contents. Buying soap on the strength of its fatty acids, and then paying ten to fifty dollars for a recipe to make soap without any at all, is a strange comment on the insight some people do not possess in their own business.

The adulteration of soap and the adulteration of soap fats are really two very distinct and separate things and it is only because of the law proposed in Ohio, which takes in both questions together, that our communications on the subject have become rather intermingled.

So far as the adulteration of soap is concerned, that is certainly a matter where the laws would be required to put an effective stop to the practice. But when it comes to adulterated soap stocks, the soap manufacturers have the means of detection and punishment at least largely, if not entirely, in their own hands, and with proper precautions they will be able to counteract the reprehensible practice far more promptly than by the slow process of invoking the aid of the legislators.

“Forewarned is forearmed;” knowing the existence of an apparently extensive practice of adulterating soap stocks with a mineral compound, buyers of tallow, etc., can and must refuse to have any further dealings with parties caught at adulterating; and—as pointed out in one of the letters printed in the April Soap Journal—they should teach the unprincipled frauds a lesson as expensive as it would be salutary.

The “Warning to All” printed on another page, is not new, probably, to a number of our readers; as seen it is dated as far back as October last; we print it as it has a direct bearing on an important subject just now under consideration and may not have been seen before by some of our readers.

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**Soap and Fat Adulterations, and Other Things.**

*Ed. Amer. Soap Journal:*

Mr. Ross’ bill to “Prevent the Adulteration of Soap and Fats,” is all right so far as it goes, but in our opinion it does not go far enough, and beg to propose the addition of the following sections:

Sec. 7. That any person, firm or corporation, engaged in the manufacture of soap, who shall put up that article in the form of a cake or bar weighing 20 ounces or over, and designed to be retailed at 5 cents, or who shall put up cakes or bars of soap running in weight from 8 to 12 ounces, and offering the same at a price that enables the retail merchant to sell 20 to 30 ounces of such soap for 5 cents, shall be guilty of a misdemeanor, and upon conviction, shall be fined $5.00 for every box of soap so sold, for the first offense, and from $25 to $100 per box for every repetition, according to the gravity of the case, in the discretion of the court; and that every wholesale or retail merchant who shall offer for sale, soaps at the prices above mentioned, shall be fined in like manner.

Sec. 8. That any person, firm or corporation, engaged in conducting what is commonly known as a Department Store, who shall advertise or offer for sale, laundry or toilet soaps at 1 cent per cake, which cost them 2½ cents per cake and over, shall upon conviction, pay a fine of $1.00 for every cake so sold, for the first offense, and upon repetition, shall be imprisoned at hard labor for life.

Sec. 9. That any person who shall have in his or her possession, soap intended for household or toilet purposes, costing less than ½ cent per ounce, shall be guilty of mis-;economy and shall forfeit such soap and go unwashed for 30 days, and upon repetition of the offense shall be banished to the Philippines.

Seriously, Mr. Ross’ intention is a good one, but as already shown in your editorial in last issue, is not feasible. Soap is not a raw material nor a food; it is a compound for cleaning purposes, and it should remain...
for the manufacturer to determine what materials to use in its composition to obtain the best results, meet
the wishes of the trade and the movements of his competitors. He puts his name on the soap or the wrapper, and thus the consumer knows where to apply for redress in case the article is unsatisfactory; anyway, the consumer is not injured irreparably if he buys 5c worth
of soap that contains the adulterations mentioned by Mr. Ross. We swallow many a glass of beer, and smoke
many a cigar which are not worth one-tenth the price we pay for them, and what about the sausage and the
creamery butter? Up to 10 or 15 years ago, it was no very uncommon thing for some of our large retail
grocers to send to our factory a wagon load of old rancid country butter that had accumulated and spoiled on
their hands. We have not had a pound of old butter offered to us for years, it is all worked over into choice cream-
cry at 30 cents per lb. Here is something that needs legislation far more than the soaps, which are not eaten,
and are sold at a price at which no sane person would expect a pure article.

As to the fats, that is something else; these are simple bodies, and not compounds. Fats and oils are
raw materials used largely in the arts, also for food, and any adulteration of substances belonging to
this class should be punishable by law. Owing to the difficulty of determining quickly and accurately adulterants
in fats, it is next to impossible to test every barrel that is used in the manufacture of soap, and hence much adulterated fat may escape detection and the adulteration goes unsuspected and unpunished. This subject
was brought forcibly to our notice some time ago, when an Ohio man tried to sell to the fat producers of our
city a mineral-oil compound for adulterating their fats, and we are now designing a simple apparatus and short-
cut method for making quick qualitative fat determinations, which, if a success, we may refer to later.

In this connection, it might be well to see if the prices of fats have not been raised to an abnormal figure
by other than natural causes. We might enquire how much the government has realized from duty on tallow
since the Dingley bill went into effect; if nothing, be-cause we import no tallow under normal conditions, then why keep it in force? And if under abnormal condi-
tions we are compelled to import tallow, why should the cost of this necessary raw material be increased by
an import duty? Does our beef trust really need this protection of 3/4c per lb. on tallow to hold its own
against the foreign butchers? The beef and cotton-seed oil trusts are primarily responsible for the very low
price of soaps; with the exorbitant profits they are reported to be making on their main product, they can
well afford to sell their by-product, soap, at existing low figures until the legitimate soap manufacturers have
been killed off, when they will regulate the price of soap to suit themselves.

As to Mr. Estamps' recommendation to use more silicate of soda in our soaps, there is little to say. After
Mr. E. has been in this country a little longer, become better acquainted with our pure or moderately filled,
yet very cheap soaps, and compares these with the soaps he saw and used in those benighted and unprogressive
countries mentioned in his communication, he will thank the star that led him out of that Egypt to this
land of milk and honey, where a 20 oz. bar of soap, which is not half silicate of soda, can be bought for 5c.
If he will look around in our eastern cities, he may find considerable soap that will remind him of the soap he
saw in Spain; cold-process, heavily silicated, stone-like chunks, that will answer for building purposes nearly
as well as for washing. No, silicate of soda in immoderate quantities will not do; next to animal and vegetable
fats, resin is the only suitable material for combining with alkali in the manufacture of soap. These
materials, made into soap by the settled process as generally practiced in this country, and with the addition of
only carbonate of soda solution to the finished prod-
uct in the crutcher, a soap is produced that has no su-
uperior. Our friends on the other side of the pond are
still debating whether it is more rational to employ steam than fire for boiling soap; few have crutchers or
re-melters, and the foot soap-press which was an old
institution in this country 25 years ago, has been re-
cently introduced by them and is looked upon as the eighth wonder of the world. Shall we go back to their
ways and methods? We will concede, however, that
they are as yet a little ahead of us on adulterating,*
although they will not acknowledge our many virtues,
and are continually finding fault with our meats, lard,
apples and wooden nutmegs.

**NaHCO₃ + KOH.**

[*At rate of progress we are making in this direc-
tion, they will not be ahead of us long. See article on adulteration of foods in another column. Ed. A. S. I.]

**Warning: To All.**

CHICAGO, ILL., October 12, 1901.

Some of the makers of tallow have been inveigled
into using a mineral product to adulterate their stock, and have been given to understand that such an adul-
teration, which is much cheaper than tallow or grease,
can be used with perfect safety, inasmuch as the buy-
ers and users of tallow can not detect it either in the
 manufacturing of goods, which it is to be used for, or
by the closest inspection. It is true that some of the
American people like to be humbugged, but let it be
understood that soap makers and candle makers are not
to be rated in this class; they will not tolerate such trickery, and those who have commenced using this adulteration have already felt the results of their new experiment. It has returned to them like a boomerang, and it has discredited in many cases the confidence and good name of the person or parties who have been led into this evil.

This new practice has already taught manufacturers, who use fats, to look with skepticism upon all offerings. And, where this adulteration is used, are frank to express themselves as not wishing to have any further dealings with men who will offer goods which contain any adulterations.

This abuse has caused no end of trouble, and has prompted some of the manufacturers to make a list of all those who offer adulterated stock, which is equivalent to a black list, and all names going on this list, they will have no further dealings with.

While many of those who have commenced using this adulteration were undoubtedly brought into the practice through misrepresentation by being given to understand that it would not affect their product and that they could realize a greater remuneration for their goods, we wish to offer a suggestion (as from the complaints that have come to our notice we feel that we are in a position to do) and that is, to divorce any and all adulterations and maintain the good name you have heretofore established.

We have taken occasion to give this article to several of the trades papers, in the hope that it may assist in correcting the evil, we remain at your service,

Yours very truly,

Geo. M. Sterne & Son.

[In spite of the foregoing remark that the writers had given the above article "to several of the trades papers in the hope that it may assist in correcting the evil", we are bound to state that the AMERICAN SOAP JOURNAL, at least, was not a recipient of the article until the middle of April; nor did we see the article in any of our very large list of exchanges. We feel it due to ourselves to make this statement in explanation of the fact that we did not print the above earlier. Ed. A. S. J.]

About The Finishing (Pitching or Closing) of Soap.

Ed. Amer. Soap Journal:

Dear Sir: There is, I believe, a very popular error prevailing amongst American soap makers and manufacturers, about the finishing of soaps.

It is generally supposed that a very closely finished soap, whether it be closed with oil, tallow or grease, to take up any alkaline strength the soap may hold from the strong change, or with water, produces a first-class soap.

This is a most fallacious error, for if oil, tallow or grease are used to close soap with, there is no guarantee whatever that uncombined fat does not remain in the soap and the result is bad soaps, which, as they grow older, get rancid and of very bad color, and acquire a very undesirable smell.

Finishing with water is preferable, but closely finished soaps—whether on fats or water—are very unprofitable to the manufacturers; they will not take in fillings kindly and they moreover are so thick, on account of the scarcity of nigré to wash in, that they hold most of that nigré in suspension (hence the bad color as they grow old) and are too long a time in settling, and as a matter of fact, they never settle thoroughly.

A soap, to be good and all that should be desired, ought to have sufficient nigré to thoroughly wash in; it will then keep its good color as it grows old, and never gets rancid.

Salaries paid to soap makers here seem very low as compared with the rest of the world, and this may account for the backwardness in soap making here; for we generally get but value for the price we pay, and this is true of men as well as of any other commodity.

I am, Sir,

Yours respectfully,

A. d'Estampes, Soapmaker.

On Soap Adulteration.

Ed. Amer. Soap Journal:

Dear Sir: A well-meaning trained bear, sitting beside his sleeping master, of whom he was very fond, observed that the slumbering man was excessively annoyed by a viciously active and aggressive fly, and, to put that wicked insect out of business, made a mighty swipe with one of his huge paws, which not only smashed the fly but took the whole face off the man. The Hon. E. J. Bracken, author of the bill now before the Ohio legislature prohibiting soap adulteration, is that sort of a well-meaning bear. His good intentions do not admit of question, but he is quite unaware of the mischief he is liable to do by his clumsy swipe at an existent evil.

Section two of his bill specifically defines as soap adulterants "rotten rock, commonly called 'pulp', china clay, tate, commonly called 'soap-stone', silex, commonly called 'marble dust', alba, whiting, magnesia, carbonated lime, or any solid or mineral substance indissoluble in water."

That definition would exclude from sale, under heavy penalties, such a very excellent and popular product, as Morgan's "Sapatio", the value of which is in its solid content, and various other doubtless worthy
"Securing soaps" of approximately similar composition. But it makes no provision against the use of cotton oil "foots", which enter largely into most cheap laundry soaps and make clothes laundered with the composite abomination smell like a dead man. Worse yet, it does not bar out animal fats loaded with the germs of anthrax, glanders and other dreadful diseases. The chief chemist of the U. S. Department of Agriculture, found that in fertilizers made from the refuse of animal matter (after extraction of the fat for soap making) those evil germs remained alive and actively reproductive, and so they continued after a year's exposure to the elements, on the surface of the ground. Yet those germs not only had been subjected to an exceedingly high temperature in extraction of the fat, but had subsequently been treated with sulphuric acid. Is it not at least possible that those germs which come out in the fat are quite as tough and persistent of vitality as the ones remaining in the stuff used for fertilizers? And it will not do to say that the victims of glanders, anthrax, etc., are not used for soap-fat making. The Brooklyn Eagle, one day last week, reported: "Six horses belonging to the city were killed, owing to their having the glanders. They were sent to Barren Island to be made into soap fat and fertilizers." And such incidents are of common occurrence.

But perhaps Mr. Bracken will say that his bill is only meant to exclude substances used to fraudulently increase the bulk and weight of soap, and as the foulest disease germs cannot have an appreciable effect in making soap heavier or swelling it, he cannot see how they are objectionable. Well, there may be something in that. Perhaps it is more important, economically, to prevent people being swindled out of a penny on a tuppenny transaction in soap, than to defend themselves and their children from the poisonous rottenness of glanders and such diseases. But if his fight is simply on a financial basis against "fillers", why does he not bar out that commonest swindle in soap-making, the use of an excess of water? I have in my possession an analysis, made by Messrs. Stilwell & Gladding (official chemists of the New York Produce Exchange), of a soap purchased by the United States Government, which is shown to contain fifty-three per cent. of water. How is that for adulteration? But apparently Mr. Bracken has never heard of that, or else fancies it is all right for his constituents to pay ten cents for four cents worth of soap so long as some hard stuff is not palmed off upon them.

Section three of Mr. Bracken's bill prohibits the use of "petroleum or coal oil residuum", which is about as loosely comprehensive a specification as ignorance could inspire. Paraffin is open to objection as a "filler", for obvious reasons, but refined petroleum is a very valuable detergent and greatly increases the effectiveness of a soap in which it is scientifically combined with pure vegetable oils. Machinists habitually use kerosene to loosen and remove the metallic grime—particularly that from brass—which ordinary soap alone will not take from their hands. Experienced washwomen are accustomed to pour a little kerosene into the tub where very dirty clothes are soaking, knowing that in no other way can they so easily and thoroughly cleanse the garments.

That the Ohio soap-manufacturer who is avowedly behind Mr. Bracken does not know how to make that efficient high-grade soap in which kerosene is a component, will hardly be accepted as a sufficient reason for the enactment of a law which shall prohibit the sale of that sort of soap in Ohio.

Yours, etc.,

MAROSS JENKINS.

New York, April 17, 1902.

The Franco-American Perfumery Co.

Editor American Soap Journal and Mfg. Chemist:

Dear Sir: Mr. Moulié of Jacksonville, Fla., through your Journal, warns the trade—perfumers and soap makers for whom I should have liked to do pioneering work on the European continent—not to invest capital in a French enterprise as proposed by me. The main features of my proposition were: To manufacture at Grasse perfumers' first materials for Americans, and this American institution then to have to attend to such plans which would secure for American manufacturers the world's supremacy—in toilet preparations.

Mr. Moulié appeals to the patriotism of our trade, advocating the manufacture of perfumers raw material in Florida. For this Mr. Moulié—and for what he has done so far—deserves high credit. So do other gentlemens such as P. J. Berekmans, Augusta, Ga. Prof. E. W. Hilgard, Santa Barbara, Cal., Dr. S. W. Woodbridge, Los Angeles, Cal., A. E. Zumbo, Riverside, Cal., etc.

All efforts to establish this industry in the U. S. have so far proved a failure. The lemon and sweet orange products are about the only products which have ever met with a partial success, but not with a commercial success; all the rest of it: Roses, Jasmine, Tuberoses, bitter orange (Neroli), Jonquille, Reseda, Cassie, and last but not least Violets—and these form precisely the bulk of products which can be designated perfumer's first materials—have not been a commercial success.

The question whether or not the manufacture of pomades scented with above flowers can be made a success in the U. S., has been frequently ventilated, and this may be a nice opportunity to bring up the question: "Will our manufacturing perfumers, etc., give their support to see their industry established?" Will they derive advantage by it, or will it harm them?
Now, my personal opinion is, that our manufacturing perfumers would not like it at all to see Florida or California take up the manufacture of raw materials. This statement will no doubt astonish Mr. Moulé as it will a great many, who never before gave any deep thought to the questions I raised.

It is out of the question to make the manufacture of pomades a commercial success here. Labor item is the most important item for cultivation of flowers as well as for the production of raw materials therefrom. The girls and aged women who do that kind of work in France usually are paid 1 franc 50 centimes (equal to 30 cents) a day, working from seven in the morning till seven at night. And to pick the flowers they make fifty centimes a kilo, equal to ten cents for 2½ pounds, which for jasmines means something like 5,000 flowers. Can American labor be had for that? I hope not! To pick the flowers they must get up before sunrise too, and if flowers contain the least traces of moisture from rain fallen at 6 o'clock at night before or after that time the flowers are not taken at all but rejected. What American would work at so starving wages?

This demonstrates that the labor question knocks out successful competition with the French houses, and here comes the main point. A New York, or say Chicago, Detroit, Cincinnati, etc., manufacturing perfumer has at least his doubts whether a Californian or Floridian manufacturer of raw material will ever be in a position to supply him the same grade of pomade at the same price he now pays for French supplies! And if an inland manufacturer cannot compete successfully with the Grasse houses, the result would be that he cannot dispose of the goods to the manufacturing perfumers and that he would—nolens volens—be compelled to work up his pomades into perfumes and toilet preparations, and dispose of his goods in form of compounded goods to retailers. And this is precisely what our manufacturing perfumers rightly dislike, that the manufacturing of raw materials and compounded goods made therefrom should be exploited by one and the same house.

But admitted that the manufacture of pomades, etc., may turn out a success here, even in this instance I say American perfumers will some day need a stronghold in Europe and they cannot have it better than at Grasse and Paris. If California or Florida will be a backbone to our perfumers, Grasse and Paris are needed as their European lungs.

If, however, I am mistaken in my opinion, and if American perfumers will make a serious test, I suggest that experiments should be made by treating our flowers with the highly volatile solvents—hydro-carbures—to produce the concrete essences, in which labor item plays not the important factor, and lest there should be any doubt as to my own patriotism in the matter, I am prepared to go wherever I can best serve the interests of our fellow perfumers if the trade or individual concerns will come forward with capital to solve the questions.

The U. S. Department of Agriculture, Washington, will give its assistance in the way of experimentation along any lines to see the industry established in the U. S., and it might be a good idea to combine with it the manufacture of synthetic perfumes.

I repeat that I am the only American perfumer who ever acquired practical experience at Grasse in the manufacture of perfumes and all kinds of raw materials for perfumers, and my experiences are the compound experiences of hundreds of contre-maitres, in France, Germany, England, Italy, United States, etc., with whom I exchanged ideas, etc. I have investigated all the foremost brands of European raw materials, likewise of Europe's gems in perfumery and toilet preparations. As there is no perfumery store in places like London, Liverpool, Paris, Marseilles, Berlin, Hamburg, Cologne, Dresden, Madrid, Barcelona, Milan, Genoa, Amsterdam, Rotterdam, Brussels, Copenhagen and some 60 more important places, which I have not "studied" and on my lists, I have much inside and outside information to give to our perfumers, and look forward to the day when American perfumes will be the perfumes à la mode in all countries.

Very faithfully yours,

Edward Eggers.

Why Will Not Nigre Settle?

Editor American Soap Journal.

Dear Sir: Some time ago you published some correspondence on the above query. Some of your correspondents blamed dished kettles, but I did not notice that any one ascribed it to the true cause. The reason why nigre settles badly or does not settle at all is because the soap is badly made. Properly made soap will let out the nigre as through a sieve, and the size or shape of kettles have nothing to do with it and do not prevent the settling or delay it for a second.

In most cases soap is boiled too long or dissolved too often in alkali and the other is so dissolved the weaker it gets and the worse it is and improitable. As a general rule again soaps are pitched (finished) too close and too thick to allow the nigre to drop as it ought to do. If a kettle of soap has not settled in 14 hours it will never settle properly, even if it were left undisturbed for a year. * * I remain, Sir,

Yours respectfully,

A. d'Estampes.
Are Lubricants Detergents?

By A. and C. Melzer.

The question: "How does soap act in washing?" has been the cause of much experiment and speculation, the results of which are not very different from the original explanation by Chevreul, familiar to every reader of the Journal. Recently, however, Dr. Carl Stiepel of Berlin, published in Seifenfabrikant, the results of very thorough researches made in this direction, which depart from the generally accepted theory. We quote that part of Dr. S.' findings which are of particular interest, viz.: 

"Soap may possess all the characteristics of a perfect detergent, although it may not contain free alkali, nor liberate alkali when dissolved in water." Dr. S. arrived at this conclusion after making a soap of the fat acids of low atomic weight, found in coconut oil (caprylic, capric, lauric) which produced a soap that did not decompose when dissolved in water, like the soaps made from the higher fatty acids. This truly neutral soap, which liberated no alkali when dissolved in water, was nevertheless a perfect detergent. The reader will appreciate the importance of this fact when remembering that the principal value of soap as a detergent has all along been ascribed to its property of decomposing when dissolved in water, thus gradually liberating the alkali of its composition, which in turn emulsionizes or combines with the greasy impurities of our garments or person in the act of washing and thus removes them. Based upon this traditional theory, we have looked upon the alkali in soap as the active agent to which belongs the credit of ridding us of dirt, and that the fats and oils, although costing many times the price of the alkali in soap, only play the subordinate part of a vehicle for the alkali and the dirt. Thanks to the work of Dr. Stiepel, we are now in a position to give credit where the credit belongs, and in this case it certainly seems to belong to the fats in a much higher degree than has been heretofore admitted. If we admit the correctness of Dr. S.' findings, as indeed we may, it follows that the principal value of the alkalis in saponifying the fats and oils, lies in their ability to combine with the fats and form a product that is soluble in water. The fatty acids of the neutral fats commonly employed in soap-making, are weak acids and require for neutralization a large percentage of the base, caustic soda or potash. Thus, the atomic weight of stearic acid is 284, palmitic acid 256 and oleic acid 282, and consequently will combine and form a neutral salt, soap, with caustic soda in the proportions 1.01403, 0.1563, 0.1413 resp., and the neutral fats ordinarily employed in soap-making require on an average about 14 per cent. (c. p.) caustic soda for saponification. The product resulting from this union of the fatty acids and alkali, retains some of the characteristics of the fats employed; it is also readily decomposable and its component parts will even dissociate in the presence of a large percentage of water, setting free about one-half of its alkali as shown by the experiments of Dr. S. To this alkali set free in this manner, the cleansing properties of soap is credited, but that this can hardly be correct, may be readily proven by attempting to wash in water to which an occasional drop of caustic lye is added; the corrosive action of the lye might dissolve some of the dirt, but it will not discriminate between the dirt and the object we wish to cleanse. Based upon these facts, we must needs look around for a different hypothesis than that which has served us so far.

As just stated, soap retains some of the characteristics of the fat that was employed in its manufacture; one of these is its eminent lubricating qualities; these are so well known that more than simple mention is not necessary, and it seems strange indeed, that whilst we fully recognize the ability of soap to remove or reduce friction and impediments generally, we should have been so slow in assigning the removal or reduction of dirt to this same potent factor. We are not familiar with the theory underlying lubrication; probably the diffusibility and penetrativeness of lubricants, whereby they spread and enter into and between the constituent, not chemically combined parts of bodies, or of separate bodies, is the basis of this theory, and assuming this to be the case, we would say that a solution of soap or other lubricant, spreads and interpenetrates between the fibres of the garments or the skin, and the dirt attached to same, loosening it from its position and also solving or emulsionizing it, according to the nature of the impurity, or simply dislodging it mechanically. This explanation, applies more particularly to soap that will not decompose when dissolved in water, such as was made by Dr. S., but the ordinary soaps are decomposed in the act of washing, setting free a portion of their alkali and also a corresponding proportion of their fatty acids. The popular explanation as to what becomes of this free alkali and free fatty acid or acid soap, is that the alkali forms an emulsion with the greasy impurities of the article that is being washed, whilst the insoluble acid soap mixes with and acts as a vehicle for carrying away the dirt. This explanation has not been entirely satisfactory, but it is the best we had and satisfied our inquisitive propensities, whilst soap attended strictly to its business regardless of our theories and explanations. That ordinary soap is decomposed when dissolved in a large quantity of water, say 1:1000, is proven by laboratory experiments, but this may not be the case in ordinary washing, or the decomposition may be very slight and the fat acids or acid soaps produced thereby, not insoluble in water in the
presence of the free alkali. It is irrational to suppose that soap will decompose in the process of washing, producing an insoluble acid soap, and that the liberated alkali will combine with the greasy impurities in the clothes at same time. Whilst unable to perceive with our senses and the aids at our command, just what action soap produces in the process of washing, close observation justifies us in assuming that it acts pre-eminently as a lubricant and emulsifier in the manner suggested.

That lubricants (fats and oils) possess detergent properties, is nicely illustrated by the familiar way in which machinists sometimes cleanse their very dirty hands, viz. by simply pouring a little oil (animal, vegetable or mineral) on the hands, rubbing well and wiping off on cotton waste; also by the thorough manner in which clothes are cleaned with benzine; a heavy lubricant would answer for this also, but that would not evaporate like the volatile benzine.

That free fats or fatty acids in soap, if not present in too large excess are not detrimental to its detergents action, is shown by the fact that "superfatted" soaps are yet good detergents. A familiar soap of this kind, is the ordinary cold-process coconuot oil soap of commerce, which contains about 15 per cent. of unsaponified oil, yet as we all know, is a splendid detergent and sudmaker. It may not be known to all the readers of the Journal that cold-process coconuot oil soap actually contains so large a per cent. of unsaponified oil, accounting for their turning rancid so rapidly, and will give here the result of an experiment just concluded in our laboratory, which was made primarily to determine in a practical way the quantity of alkali requisite for the saponification of coconuot oil, and to note the points of difference between this soap containing an inadequate percentage of alkali and that containing a full equivalent. In the outset we wish to state that we do not make cold-process soap in a commercial way, holding that soap made in this manner is an imperfect article at best. In practice we believe, it is customary to use 1 part 38° caustic soda lye to 2 parts of coconuot oil, which is equal to 16.25 per cent. NaOH; but as the caustic soda employed is not c. p., the actual per cent. is probably not much over 15.50, whereas the saponifying equivalent (mg. KOH requisite to saponify 1 gr.) of coconuot oil is given at 246.3 to 270, corresponding to 17.55—19.25 per cent. c. p. caustic soda. We used for this experiment Ceylon coconuot oil and refined it very thoroughly to remove all traces of free fatty acids, and the lye was made from a reliable brand of 74 per cent. caustic soda and filtered. Its strength was 37.2° equal to 31.47 per cent. NaOH. Of this lye we took 30 ounces and 57 ounces of the refined coconuot oil and proceeded to mix in the customary manner; temperature of the lye being that of the room and coconuot oil a little above. We stirred steadily for about half an hour, and then off and on for seven hours more, before the mass acquired the proper consistency, which should be accepted as proof of the absence of free fatty acid. After the mass had reached proper state of thickness and homogeneity, we set the soap away in a warm place for the night. Next morning the soap was very hard with every indication of being a well-made cold-process soap. Held to the tongue, no alkaline taste could be detected, but it reacted alkaline on litmus paper moistened with alcohol. We then dissolved a small piece in alcohol in a test tube and tested with phenolphthalein, getting no reaction, which we explain in that, owing to imperfect saponification, the soap contained free alkali as shown by the litmus test, but when dissolved and heated with alcohol in test tube, the free alkali combined with the free oil also present, resulting in soap still acid and hence did not react on the phenolphthalein. We next placed the soap on water bath and after being dissolved, added by degrees more of the 37.2° lye diluted with alcohol until the total quantity used, had reached 34.5 ounces, when neutralization was completed. Caustic soda used, amounted to 19.03 per cent., equal to 18.17 per cent. of c. p., and corresponding to a saponification equivalent of 255.

On The Structure of Soap.

By Dr. A. A. Shukoff, St. Petersburg.

[The following communication, the result of experiments in the laboratory of A. M. Shukoff's soap works, appeared in the European trade press some time ago. Owing to delay in obtaining original photographs and subsequent lack of space, we have not been able to print it sooner. Ed. A. S. J.]

Some time ago I published a short article on the formation of the mottle in Eschweg soaps, in which I endeavored to give a rational explanation of this formation, by starting from the conception that Eschweg soap is not a homogeneous substance, but consists of a mixture of two kinds of soap—a grain soap (Kernseife) and a paste-soap (Leimseife). This conception of the character of the soap is not at all hypothetical, but is thoroughly proven by the separation and isolation of the two constituents from the finished, normal Eschweg soap. Every mottled or filled paste-soap, as well as Eschweg soap, separates into 2 or 3 layers on being kept at rest for a more or less prolonged period of time, at a temperature above its melting point. The temperature required for such separation must of course be below its boiling point, but otherwise may be anywhere between the boiling and the melting point. The higher the temperature, the more rapid is the formation of the soap, and the more rapid is the separation.
In our investigations we used a temperature between 80 and 90 deg. C. (176-194 deg. F.). The time required to effect a sharp separation varies greatly; ordinarily the beginning of the separation can be observed either at the limit of the upper or the lower layers as early as within a few days. But to secure a well defined formation of the distinct layers, sufficient to obtain a needed quantity of each for separate analysis, requires weeks and even months. In spite of very prolonged tests, we have not succeeded in separating the entire mass of soap into two layers—there always remained a third, middle layer, which still contained the two constituents mixed. This must probably be attributed to the great tenacity of the melted soap; with soaps that are thinly boiled, or that perhaps had already settled in the frame, this middle layer is far less considerable. The tests were made in large test tubes (of about 1 1/4 inch diameter and 8 inches in height) placed into a water bath kept day and night at a given temperature by means of steam (or ordinary kerosine lamps would do very well). To prevent the evaporation of water, the test tubes were closed with corks, which were provided with a glass tube drawn out into a fine capillary point; however, the surface of the soap dries out in a few days, so as to form a tight fitting cover which prevents further evaporation.

When the separation of the layers is sufficiently sharp, the test tubes (after cooling) are broken and the separate layers analyzed. Simple as these tests are, they require a very long time—we have had samples separating for over six months—and besides the test tubes frequently break after standing for months, necessitating starting all over again. The glass is strongly affected by the mostly alkaline soap at this high and prolonged temperature.

Thus the soap may be divided into 3 layers; an upper, a middle, and a lower one. The analyses of these 3 layers show, however, that there are really only...
two components; the middle layer must be understood as consisting of an unseparated mixture of the two others; it also shows distinctly the structure characteristic for a mixture, of which more further on.

From the analysis of the three layers, results of which follow, we see that the upper layer contains 68-70 per cent. pure soap and 0.7-2 per cent. uncombined alkali, whereas the lower layer contains 21-39 per cent. pure soap and 8-1 per cent. uncombined alkali:

**Table:**

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<thead>
<tr>
<th>Pure Soap Layer</th>
<th>Uncombined Alkali Layer</th>
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<tr>
<td>Upper %</td>
<td>Middle %</td>
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<tr>
<td>68.8%</td>
<td>21.4%</td>
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<td>67.6%</td>
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<tr>
<td>67.6%</td>
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<td>69.5%</td>
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<td>69.1%</td>
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<tr>
<td>76.7%</td>
<td>35.5%</td>
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<tr>
<td>70.5%</td>
<td>39.4%</td>
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The upper layer, therefore, is a pure grain soap (Kernseife), on account of its large proportion of pure soap and the inconsiderable amount of foreign salts; certain conclusions on that point. Concerning the fatty acids of the two soaps, only inconsiderable differences are noticeable; in the separation of the soaps the several fatty acids are therefore not separated. The fatty acids of the grain soap do show a somewhat higher melting point and lower iodine number, but the differences are too small to assign to them any significance whatever; this, moreover, agrees with what we already know about the fatty acids in the grain and the precipitate of settled soaps. As to the quantity of the several constituents of the grain and the paste soaps, they can be readily calculated from the analysis of the several components and the analysis of the entire original soap, and it will be found from this calculation that grain soap and paste soap are present in about equal amounts. All analyses cited refer to tallow—coconut Eschweg soap filled with soda and silicate, and it is of course self-evident that with a change in the fat composition and in the filling, the results will change. It would be particularly interesting to investigate the palm kernel oil Eschweg soap mostly used in Germany. In Russia palm kernel oil is used only exceptionally, but I hope to receive samples of this variety through the kindness of some German colleagues, to enable me to repeat with them the same investigations. All the facts stated evidently prove that the conception of Eschweg soap as a mixture of grain and paste soap (Kernseife and Leimseife), is undoubtedly correct. A further consequence of this understanding leads to the idea of a structure of soaps, by which I mean a definite distribution of the several constituents of a substance.

In later years the idea of a certain structure of materials formerly considered as homogeneous—as cement, steel, metallic alloys—has been applied with much success. The fact that these materials are not homogeneous has been determined in a variety of ways,
partly even by the same method of standing for a long time in a melted condition; but the exact knowledge of the structure usually requires laborious microscopic examination. These views have led, in theoretical as well as practical respects, to highly important conclusions and the suggestion occurs readily to apply the same ideas to Eschweg soap. From the very start we find the conditions here favorable, since even without the aid of the microscope we can observe the structure by means of the naked eye. The soap has a fibrous structure; the individual fibers are thick and short, and all have the same vertical direction; the size of the separate fibers reaches several millimeters, as is seen from the accompanying pictures which are all of natural size. This structure depends on the separation into grain and paste soap. The grain soap is separated in the form or more or less regular, globular, little grains, and this process occurs in the liquid soap even before crystallization commences. As a result of the force of gravity, the uppermost globular grains partly fuse with the lower ones and thus results the formation of the short, thick fibers mentioned above. The entire formation of the structure is finished before crystallization begins, for long before the commencement of the latter the soap is so gelatinous that we can scarcely assume any changes in it. The subsequent crystallization almost completely covers the structure, so that on a soap cut into bars we may distinguish the several more or less clearly prominent groups of crystals, but no structure following any definite law. If we could impede the crystallization of the Eschweg soap, we should be able in the solid soap, that is to say at ordinary temperature, to observe the structure. Now, there are certain soaps in which crystallization has been so impeded, i. e., the glycerine transparent soaps; in resting at a warm temperature they also divide, like Eschweg soap, into two layers, and they therefore also consist of a mixture of two soaps and must have a certain structure. On observing a piece of transparent soap, preferably when holding it up against the light, one sees plainly—especially on slightly turning it or changing the angle of vision—the fibrous structure caused by the individual, thick, short fibers. All transparent soaps show more or less plainly a structure; it is very well seen, for instance, in the well known No. 4711 of F. Muchens, Cologne.

Once the eye has been trained to discover the structure in a transparent soap, it can also readily do the same with the hot, transparent Eschweg soap; a piece may be cut from the still hot soap in the frame, or the hot soap is observed in a test tube (placed in a larger tube filled with hot water to prevent too rapid cooling). In the latter case the color spread throughout the soap is apt to interfere with the observation, so that it is necessary to let the sample rest for some days in a warm place. The structure and the single little globules of grain soap are seen beautifully at the borders of the layers into which an Eschweg soap is separating. But in a solid, cut piece of soap the structure may likewise be noted by proceeding in one of two ways: A piece is either cut from the hot soap still in the frame and allowed to cool without turning it, or the hot and still transparent "black" but already solid soap, is cut with a very thick, so-called telegraph wire. The success of either plan depends largely on the consistency, or in other words, on the temperature to which the soap has cooled off.

Fig. 1 shows a piece cut out of the frame; below are seen the projections caused by the flowing off of the liquid soap; a little above this smooth place the soap appears like grained—these are the little single grains of soap which, owing to their tenacity, could not flow off, while the paste soap being more liquid, has dropped away and thereby brought out the grain. On such pieces the presence of a structure can be very well observed; but a deeper insight into it is afforded by the wire cuts made in the hot soap. In executing such cuts with a thick wire in soap of a certain consistency, the more solid particles of grain soap give more resistance to the wire and are not cut, the wire simply slipping over them, while it cuts smoothly through the softer paste soap disposed between these particles of grain soap. In this way very instructive pictures of the soap structure are secured.

Fig. 2 represents such a horizontal cut. All fibers consequently show in cross-section, as single, more or less round formations. Fig. 3, on the hand, shows a vertical cut and the separate fibers appear in longitudinal section, as short and thick fibers. From these two cuts is also seen, as said above, the vertical direction of the single fibers that might indeed have been expected as a result of the force of gravity. The several dark stripes in the pictures are due to the jerky drawing through of the wire which cannot be prevented.

What phenomena may now be explained by means of this structure?

In the first place, of course, must be mentioned the marbling which is so peculiar to Eschweg soap, and until now so mysterious. As I have previously stated in another place, the marbling is consequent upon the sinking of the coloring matter in the thinner paste soap between the single fibers of the grain soap; that to this cause the marbling is to be chiefly attributed, is perhaps best illustrated by our test by coloring an Eschweg soap by cinnabar and lamp black, as described in the Seifensiedere Zeitung, 1900, No. 42. In that test we colored a rather thin Eschweg soap with
a mixture of the two coloring matters just named; if now the marbling was connected with the gravitation downward of the color, the heavy cinnabar must be expected to go to the bottom more rapidly than the light lamp black. On cutting the soap it was seen that such was indeed the case; the entire cinnabar was at the bottom, while the lamp-black formed a regular marble. But it is not easy to explain the apparently quite irregular configuration of the marble. Above all, this irregularity is only an apparent one—with thin soap inclining to settle, one can plainly observe the prevalent grouping of the separate spots of marbling in vertical, parallel rows. Every experienced soapmaker probably knows that a horizontal cut always shows a closer configuration, with a roundish form of the several spots of marbling, while vertical cuts expose a more branched design, consisting of single courser and longitudinal spots. All this corresponds well with the vertical direction of the fibrous structure; yet the irregularity of the marbling appears to depend on still other causes. Probably the great difference in the solubility of cocoanut (or palm kernel) oil soaps in salt solutions at different temperatures, comes into play here. Cocoanut oil soap is far more soluble in salt solution at high than at low temperatures, and accordingly, in cooling an Eschweg soap, continually new portions of grain soap must separate from the paste soap. This continual separation must self-evidently contribute greatly to the irregularity of the marbled portions. Further investigations will probably sufficiently answer this question also.

In the second place, the solidity of the soap is also to be considered; it is hardly worth while to remark that a grain soap boiled from the same fats as used in Eschweg soap, and containing the same proportion of water, will be quite soft. We have made from the fatty acids separated from an Eschweg soap, a soap containing the same proportion of water as did the original Eschweg soap; the product hardly deserved the name soap, but was rather a solidified, gelatinous soap solution. The solidity of Eschweg soap therefore depends entirely on the structure—as is true also of many other substances. This also explains the independence of the hardness of this soap from the hardness of the stock employed; on the other hand, it is known that the hardness of grain soap depends entirely on the titre of the fats; fats of higher titre, i. e., richer in stearine, and therefore themselves harder, yield harder grain soaps than do soft fats.

The need of any foreign salts whatever—ordinary salt, soda, silicate, etc.—which are indispensable in the formation of an Eschweg soap, is explained only by our theory; that is to say, the salts accomplish the separation of the original homogenous soap into grain and paste soap, something like what happens in thinning out a grain soap for settling. But to make an Eschweg soap we must have fats which dissolve readily in salt solutions—that do not, like thinned grain soap, readily separate entirely in the presence of little salt and form two layers. The separation must rather cease in its first stage; the two constituents must not separate in the frame, much less in the kettle, but must remain intimately mixed. This can be attained only with soaps from cocoanut and palm kernel oil, which are grained with difficulty by salt, and whose salt solutions can contain large quantities of soap. When an Eschweg soap has enough salt solution, it boils thick and woolly, because the grain soap begins to separate from the homogeneous mass. If such a soap is framed, the color starts to sink in the separated paste soap between the more solid particles of grain; the paste soap becomes thicker and thicker through cooling and after some hours, reaches a consistency where the coloring matter can no longer move—the marbling is finished. Everything therefore depends on the right consistency of the paste soap; if it is too thin (has too much salt and too little soap in solution) the color can go to the bottom before cooling impedes its movement; with ordinary treatment the marble is sunk or quite absent from such soap; but if this soap is framed cool and further cooling promoted, the paste soap may be cooled off so as to prevent sinking of the color. If the soap is too thick from the outset (having too little filling) the color cannot spread sufficiently through the too rapidly thickening paste soap and the result is a soap colored uniformly blue throughout; but if such a soap is framed very hot—boiling if possible—and well covered up, the paste soap may be kept liquid long enough to give the color time to spread and a regular marbling may still be obtained.

These examples may suffice to demonstrate the usefulness of theory in explaining different phenomena. There are many details which still await an explanation, but I hope that in further building up my theory, these difficulties will also be gradually overcome.

**The Latest Use For Soap.**

Some months ago we published a list of uses to which soap is put, and invited our readers to help us add to the list. Although in a short time the list seemed completed, the world evidently still moves and a soap manufacturer just furnishes us an additional item which we hasten to record. To the said soap manufacturer there came the other day the cashier of a local bank, for the purpose of examining the new vault built in the factory, and contents (said to consist of casks and barrels of the coin of the U. S., such as soap manufacturers and
bank cashiers seem to delight in.) The conversation drifted to the burglarizing of bank vaults which for some time had been going on in the vicinity and the cashier related how, on a recent visit to one of the vaults so cracked open, he learned the details of how a job of that kind is accomplished. It seems the burglar uses a piece of soap to "putty" up the crack between the door and the casing all around except for a small space through which the nozzle of a syringe is inserted; the syringe is loaded with nitro glycerine; the injection is made, a fuse attached, lighted, and the burglar runs around the corner while the nitro does the rest.

Soap, for this purpose, is said to be superior to putty and has the further advantage of being unsuspicous when found in the pockets of a burglar, whether he be of the old-fashioned variety whose need for soap is evident, or whether he be one of the more modern species who sally forth on their expeditions in a Prince Albert coat and patent leather shoes, and in whose pockets a pound of putty would appear slightly unnatural.

We have this on good authority; there is, of course, a difference in the adaptability of various soaps for this purpose and we hear a special brand of "Burglar" soap is to be placed on the market—have in fact been notified not to register that "taking" brand for anybody else. (The aforesaid casks and barrels of coin, we hear on equally good authority, have since dwindled down suddenly to a paper box with 30 cents, but whether that is due to the present prices of tallow or to a practical demonstration on the part of some disguised "Bank Cashier" who may have found the soap on the premises too handy altogether, history telleth not.)

The Use of Colors For White Soaps.

Any one who has not heard of it before, or does not understand the explanation, will find it hard to believe that a coloring material, added to a differently colored substance, could under any circumstances whatever result in a white product. And yet this is not only an old story, but a fact practically utilized in various manufactures. Thus we have mentioned before that sugar manufacturers add ultramarine blue to yellow colored sugar, in order to improve the natural shade. Blue and yellow really, when mixed, give a green shade, but this green is very weak in the case cited and actually causes the sugar to approach white. In an analogous manner glass manufacturers combine a pink color with a naturally yellowish glass, to obtain a colorless article.

As is well known, the white light of the sun can readily be dissociated into red, orange, yellow, green, blue, and violet, by passing this light through a glass prism or (less perfectly) through a simple glass of water. Similarly, by combining again all the colors named, in due proportion, the result is again a simple white. Theoretically, therefore, to make a yellow soap turn white, we would add the colors missing from the foregoing list, i.e., red, orange, green, blue and violet. In practice, however, a useful result is obtained more readily by following the practice of the sugar manufacturer, of simply adding blue.

It is unnecessary to go further into the explanation of these facts, since they are widely known and moreover fully described in books on physical sciences. The object of mentioning the subject here is to extract (from the Seifensieder Zeitung, Augsburg,) the following practical points made by a writer for that paper:

A white cocoanut oil soap was to be filled with a previously prepared solution of potash and sugar; this filling, having been kept on hand for some time, had turned yellow, and to overcome this effect a few drops of a methyl violet solution were added to it so as to give the filling a barely noticeable violet color. On crutching the filling so prepared into the soap, a surprisingly good result was reached, no yellowish color being noticeable.

In another test an off-color cocoanut oil was used altogether, and the lye was colored in the manner above described. The result was a much whiter soap than could be obtained from the yellowish oil and ordinary lye alone.

It is, of course, necessary to use extreme care not to overdo this addition of methyl violet, and to adapt the quantity used entirely to the intensity of the yellow color to be overcome. The actually blue color of some sugar seen now and then, is an illustration of the readiness with which too much color may be employed. The writer above quoted uses a 1/2 per cent. solution of the coloring matter for his purpose, adding it drop by drop to the lye (or filling) until it shows just the least amount of coloration.

Pure Food vs. Pure Soap.

The purity—or lack of it—of our food supply has been mentioned in the course of the argument on the adulteration of soap. The need for a more thorough supervision of our food is emphasized in the following from the Chronicle-Telegraph, and may well claim our attention at this time:

No small amount of interest has been created in Pittsburg in the announcement by Jesse K. Cope, dairy and food commissioner of Pennsylvania, that after August 1st, no meat which is preserved by the use of borax shall be sold in this state. According to the statement of leading chemists, borax and other articles are used in large quantities.
Commenting upon the prevalent use of borax, or borate of soda, in the preservation of beef, Dr. H. C. Stiefel, chemist, said to-day:

"Beef is not all of the trouble. If borax was eaten with beef alone, a man might survive, but in the course of a full dinner a tremendous quantity of borate of soda, salicylic acid, formaldehyde, copper, aniline dye, benzoate of soda and other chemicals are used and may be taken into the stomach."

Dr. Stiefel then illustrated his sensational statement by exhibiting samples of food stuffs turned in for analysis, together with the quantities of preservative, flavoring and coloring matter extracted from them. The exhibit is far from reassuring, and goes a long way, he said, toward explaining why Americans are becoming a race of dyspepatics. For example, one man may take for dinner the following:

Soup, containing formaldehyde
Oysters, formaldehyde
Fish, formaline
Roast beef, with borax
Green peas, with copper
Corn, with benzoate of soda
Lima beans, with sodium sulphite
Beets, with boric acid
Quince preserves, salicylic acid
Tea, cuprum
Milk, formaline and cottonseed oil
Ice cream, with aniline and formaline

The same man may sit at supper or breakfast with a Hamburger steak containing sulphite of soda, or sausages treated with borax. With these he might use catsup rich in benzoate of soda and aniline dye. Jelly, composed of anything except pure fruit juice, which is not cheap, washed down with a glass of beer, containing a prodigious amount of salicylic acid, might be eaten.

"After such a diet," said Dr. Stiefel, "a man's stomach must contain an apothecary shop or a chemical laboratory. He must be full of ingredients at war with each other and all as much opposed to the ferment of digestion as they are to that of decay. None of these things are poisons in themselves, but undoubtedly they are harmful, taken internally in such quantities. They retard, if they do not actually prevent, digestion, and they induce dyspepsia surely.

"Tomatoes are the only canned vegetable in which these preservatives are not frequently found. They contain enough natural acid to preserve them. Fruit preserves are loaded with salicylic acid, meats with borax, oysters, fish, extracts and sauces with formaldehyde. Many of these things are prescribed by physicians medicinally, but that fact is evidence that they are neither needed by nor wholesome for, people who are well."

The Journal-News of the same day reports and comments editorially on testimony brought out at the Congressional hearings, to the effect that coffee also is in a great measure most wonderfully and fearfully made; that America alone consumes more "Java" and "Mocha" than is raised altogether, the deficiency being made up of lower grades; the deficiency thus arising in the other grades is said—on no less an authority than that of Dr. Wiley of the department of agriculture—to be made up of artificial imitations made almost entirely from cereals and molasses. Now these may be wholesome enough, but they are not what the coffee drinker pays coffee prices for. Dr. Wiley adds that one unscrupulous concern has manufactured a coffee-berry from peas and sawdust. This comes near to infringing the patent of the wooden nutmeg producer of whom we have heard. The sawdust coffee berry can not be recommended as an article of diet, and the coffee drinker has abundant reason to object to it.

Steam In The Soap Factory.

Until comparatively recent years, the boiling of soap by means of steam (instead of over an open fire) was in general use only in English speaking countries. In continental Europe, only the largest factories employed steam for the purpose, and but recently the comparative merits of steam and open fire for soap making, were the subject of much discussion in the German trade press. It would be a difficult matter for an American or an Englishman to write on such a question, being entirely used to steam alone, and the views of those new to this convenient and—with us—indispensable agent, are not without interest to our readers who hardly are in the habit of giving a second thought to the matter. As an example, we quote the following from the Seifensieder Zeitung:

The use of steam rather than direct firing has many and great advantages, and has now superseded the latter in all but a small minority of factories, and all of these work on a small scale.

The advantages are made obvious to anyone who has had the opportunity of witnessing the working of a soap-making factory possessed of a properly arranged and managed steam installation, and no one who has forsaken direct firing for heating by steam-pipes will go back to the old plan if he can help it. It may be confidently asserted that whenever the use of steam heating is spoken against, as is occasionally done, the fault lies not in the use of steam, but either in the steam boiler being of insufficient size or in the piping being badly proportioned or arranged, or in a combination of these errors.

The first requisite is a boiler of ample dimensions, and water-tube or other boilers containing only a comparatively small amount of water at a time are to be
avoided. The larger the mass of the water in the boiler, the more regular is the output of steam and the easier it is to meet variations in the amount of steam being used, and in the firing of the boiler, for the large body of water acts as a store of heat. This is of the greatest importance in a soap-boilers’ where the quantity of steam in use varies suddenly and largely, and is also a saving of fuel.

The pressure in the boiler should in no case be allowed to fall below eight atmospheres, and much economy is lost by permitting lower pressures. Not only is the storage of heat greater, but much drier steam is to be had, and it can be blown into the pans direct without fear of diluting the soap overmuch. The boiler must also be well walled in, to prevent loss of heat. Leaving off work in the evening with six atmosphere pressure, the gauge should not indicate less than four the next morning, if the boiler is properly protected from radiation. It is very advisable to purify and soften the feed water if necessary with soda and caustic lime or soda, before admitting it to the boiler, to minimise the chance of incrustation. The cost of the necessary softening plant will soon be repaid by the saving in fuel and the lessening in the deterioration of the boiler. Not only does scale waste fuel by being a bad conductor between the water and the fire, but it causes the boiler to undergo strains from differences of temperature which are unnecessarily great, as well as actual overheating of parts of it. All these things are most prejudicial to the plates and seams, and render expense for cleaning and repairs much greater than is otherwise necessary. With a water-purifier no scraping of the plates is ever necessary, all that is required being that the boiler should be blown out at rare intervals. All patent nostrums for the water are of doubtful efficacy. Care, too, must be taken that no excess of any purifying substance is used. Soda in the boiler attacks the seams especially, and makes packings and valves leak. It must also be borne in mind that nothing exists which will purify all waters indiscriminately. In all cases the feed water must be analysed once and for all, and the proper quantities of the proper purifiers fixed from the result of the analysis. The boiler should be as near the pans as possible, and all exposed piping should be carefully cleaned. The holes in the coils in the pans where direct steam is used must permit of the escape of steam sideways and downwards as well as upwards, so as to prevent any deposition on the bottom of the pan. Coils are inadmissible when crutching has to be done, as for example in filling soft soaps. Every possible use should be made of the steam. Oil drums and barrels should be blown out with it so as to gather every drop of oil, and also caustic soda drums. It can also be used for bleaching palm oil, which it does excellently, and is also available for heating the work-shops and offices when required. It is unnecessary to speak here of the advantages of a steam engine for grinding, centrifuging, and the other hundred and one requirements of a large factory.

Cotton-Oil Exports From Marseilles To The United States.

Consul-General Robert P. Skinner, writing from Marseilles, France, says:

The statement, received with some surprise in the United States, that peanut oil has been shipped to America, in spite of a large domestic crop of ground-nuts, is to my mind less striking than the circumstances that cotton oil of French manufacture has been successfully exported from Marseilles to the United States, in face of the fact that this city is at the present time the most important market for American cotton oil in the world. The digest of invoices at this office shows the following consignments of cotton oil from this port during the last four quarters and during October, 1901:

- December 31, 1900: $1,900
- March 31, 1901: None
- June 30, 1901: 3,680
- September 30, 1901: 1,753
- Month of October, 1901: 1,900

I have taken the pains to procure a sample of the last consignment of cotton oil thus forwarded to the United States, and, after submitting it to local experts, find that there is a difference of opinion with respect thereto. One experienced manufacturer gives it as his opinion that it is nothing more or less than American oil, or at the most a compound; while other experts, notably two of very high reputation, pronounced it a pure cotton oil, crushed from Indian or Egyptian seeds. These experts are very definite on the point that this article is not of American origin and is not mixed with olive, sesame, or other vegetable oils. The merchandise from which the sample is drawn was invoiced at 42.50 francs per case of 10 gallons. Reducing these figures to the terms commonly employed in this market in transactions of this kind and calculating each gallon at 3.4 kilograms, the f. o. b. price would be 125 francs per 100 kilograms ($24.12 per 220 pounds), while on the same date American winter edible was quoted at 63 francs (12.15) per 220 pounds. I submit the figures without comment.

These are three Marseilles firms (C. A. Verminck & Co., Montmeyer & Rodochanachi and Darier de Rouffio) who buy American cotton oil on the market, refine it, and resell it, at a profit. Darier de Rouffio buys Egyptian seed, and produces an oil quoted at 85 francs ($16.40), while the highly refined American oil of the same description brings but 75 francs ($14.47) and
"choice winter American edible" 63 francs ($12.15). This manufacturer by no means confines himself to the sale of oil of his own crushing, as his purchases of American cotton oil for subsequent refining are probably more important than his own output. It has furthermore been represented to me that the quoted price of $16.40 is open to revision and that purchases have been made at from 69 francs to 72 francs ($13.47 to $13.89).

The manipulation to which this oil is subjected is not at all mysterious, nor does it appear that the Marseilles manufacturers are in possession of any process not quite as well understood in the United States. Indeed, one of the gentlemen to whom I am indebted for information assures me that the cotton oil being exported from here to the United States and fetching high prices is not so good as many brands of American edible oil, he cannot account for the frequently repeated operation on any ground of commercial propriety.

The refining of the American oil consists merely in the extraction of the margarin by precipitation. The oil is placed in chambers where the temperature is below the freezing point, and then returned to chambers where the temperature is 12° C. The chilling of the oil precipitates the margarin, and the subsequent heating fails to effect a recombination of the elements in the oil, which remains cloudy unless the margarin is withdrawn. It is the careful straining of the American oil under these conditions which produces the winter oils now so generally known, and when the operation is properly performed, the product will stand any reasonable amount of cold weather without becoming cloudy, for the reason that the margarin is no longer present.

Such tremendous strides have been made by the American oil manufacturers that their brands are known in this market not only among large buyers, but by small grocers and even actual consumers. These small dealers buy American standard oils, a barrel at a time, and draw the oil off by the gallon or quart, in the same manner as molasses is sold in the United States.

It is only fair to say that a number of well-in-formed people think that the refiners here are a step or two in advance of the American manufacturers, and the presence of the industry and the prices obtained give reasonable ground for the assertions. On the other hand, I am told elsewhere that the refining of American cotton oil in this market is bound to become less and less important.

During the past year large quantities of American oil sold to Marseilles soap manufacturers have been resold upon arrival either for direct consumption or for further refining, the soap manufacturers having found it possible to replace this oil with cheaper vegetable oils of local manufacture.

Thus, the steady advance of the American cotton-oil industry threatens the soap industry with a new danger in the loss of a raw material once cheap, but now too valuable for their purposes. While cheaper seed oils are at present procurable, there is no immediate prospect of a reliable supply from year to year of a low-grade oil which they can use. So long as cotton oil remained available to them, they had the satisfaction of knowing that they would not be hampered by any lack of raw material, as the large acreage devoted to cotton oil in the United States gave assurances of a yield of oil the amount of which could be calculated with a degree of accuracy. There are so many elements of doubt with respect to seed crops of India and of the cast and west coasts of Africa that it is not possible to assume anything more than is warranted by the actual stock on hand.

One of the most interesting incidents in the oil trade during the past six months has been the arrival of several hundred tons of decorticated peanuts from the United States, the first ever imported from America. The quality is understood to have been very satisfactory, and there will be a market for as many as can be forwarded from the Southern states. It has always been understood heretofore that the cost of labor in the United States would prevent our successful competition with the African and Indian exporters. While amazing improvements have been made in the United States in the matter of perfecting the manufacture of oil, there are processes followed in Marseilles which our manufacturers might, perhaps, profitably study. A number of concerns are successfully engaged in clarifying American cotton oil, copra, and other oils, which are sent to the important oil-consuming markets for edible purposes, and bring very high prices. As an instance of what has been done, I might mention that all of the English cotton oil sold in Marseilles is manufactured from Egyptian seed, the British oils being regularly quoted at a price materially lower than that obtained by prime American oils. In spite of this recognized inferiority of Egyptian seed, at least one Marseilles firm buys this raw material in Egypt, converts it into oil in Marseilles, and refines the product with such skill that the entire output of the factory is marketed at over 2 dollars more per 220 pounds than the very best American cotton oil known to the trade.

**Determination of Caustic Alkalies.**

The determination of caustic alkalies in presence of neutral carbonates, and of neutral carbonates in presence of bicarbonates, is a double problem which is frequently presented in the laboratories of manufactories, and a sketch of the principal approved methods in use for its solution may be found useful.

We shall consider the salt to be tested as containing only an alkaline salt, potassium or sodium, and free
from a mixture of both. A previous gravimetric determination of the potassium by one of the known processes (Schloesing's perchlorate or potassium chloride) is requisite for use in the final calculation.

I. Determination of the Free Alkali in Presence of Alkaline Carbonate.

The principal methods employed may be reduced to three: a. Total alkalimetric percentage, estimated in alkaline carbonate. On the other hand, determination of the contained carbonic acid by the gravimetric method of Fresenius and Will, estimating the latter in alkaline carbonate. The percentage of carbonate in the product examined may be directly obtained, and by difference from the figure furnished by the alkalimetric titration, the carbonate corresponding to the free alkali can be calculated, and consequently, the percentage of the latter.

A modification of this process, due to Mohr, consists in determining at first the carbonic acid of the carbonate present, by weight; then converting into carbonate the free alkali, heating the substance to be tested with one-half part of ammonium carbonate, until the residue contains no trace of ammoniacal salt. The carbonic acid is determined, and by difference from that found above, the carbonic acid corresponding to the free alkali is obtained, and consequently the latter.

b. Precipitation of the alkaline carbonate by barium chloride. This process admits of numerous modifications:

1. Precipitate the solution of the product to be tested with a slight excess of barium chloride in 10 per cent. aqueous solution, which converts the carbonate and alkaline hydrate into chlorides, with precipitation of barium carbonate and of caustic baryta in solution.

Filter rapidly, precipitate by carbonic acid the caustic baryta in solution; and the barium carbonate collected, weighed after washing, drying, and calcination, or simply titrated alkalimetrically, allows of estimating the percentage in corresponding free alkali.

The last, calculated from the total alkali (oxide and carbonate), determined by alkalimetric titration, allows, by difference, of obtaining the combined alkali; that is to say, in the state of carbonate.

After precipitation with barium chloride, dilute to a determined volume, let stand and titrate with normal chlorhydric acid an aliquot part of the supernatant clarified liquor, estimating in alkaline hydrate the alkalimetric percentage thus obtained. By difference from the total alkali of the product tested, the percentage in carbonated alkali is obtained. This is Lunge's method.

2. As by the last process, but after addition of barium chloride, filter, dilute to a determined volume, and titrate an aliquot part of the solution obtained with normal chlorhydric acid in presence of methylorange or phenolphthalein.

4. Titrate the solution, cold, after precipitation with barium chloride in presence of the precipitate, and estimate the percentage in caustic (Lucion and De Paepe), operating in dilute solution.

For example, 20 or 25 cubic centimeters (or 10 cc. if concentrated) of the solution diluted with 250 cc. of cold distilled water, with the addition of 50 cc. of 10 per cent. solution of barium chloride, titrated directly in presence of the precipitate, making use of phenolphthalein as an indicator. By difference from the total alkalimetric degree, the percentage in alkaline carbonate may be calculated.

5. Titrate the solution directly, with tests by touch of nitrate of silver, disposed in drops on a saucer, until the brown coloration produced at the outset gives place to a white precipitate. At this moment all the caustic is satisifed, of which the percentage can be easily estimated.

The carbonate is calculated by difference from the total alkali (oxide and carbonate) determined by the alkalimetric degree of the product tested. This is the English method.

According to M.M. Lucion and De Paepe (Bulletin of the Belgian Association of Chemists, 1901, No. 1) the second method (Lunge's) would furnish the most precise results. Still, the other methods are operated in practice satisfactorily.

(To be continued.)

Rosin Bleaching.

Commercial eolophony has usually a brown color, which is often so dark as to unfit the rosin for many purposes. A French patent has been taken out for the following process for bleaching it. The rosin is heated with three times its volume of water, and an amount of caustic soda—ininsufficent to saponify it—to a temperature not exceeding 200 deg. C. On subsequent dilution with cold water the coloring matter remains in the lye, and unless too much alkali has been used, there is no loss of rosin by saponification. The bleached rosin forms a sediment at the bottom of the boiler. After the lye has been run off, carbonic acid is passed through the boiler. This not only decomposes any small amount of soap that has been formed, but prevents the rosin from darkening again by oxidation. Even better results are got by carrying out the treatment in a vacuum pan, as lower temperatures can be employed, and the lye can be driven out more easily. Working with a vacuum, even very dark eolophony can be made nearly white.

Geo. A. Schmidt of Chicago, is away on a European trip; this accounts for the missing of the continuation of his article begun in the March Soap Journal.
Metal Polishes.

(From the Oil and Colorman's Journal.)

For domestic use, no articles in the oilman's list are in more frequent demand than black stove polishes and pastes or powders for cleaning bright metalwork. It is not surprising, therefore, that numerous brands and makes of these articles are offered to the public. As the materials used in the making of stove and metal polishes are inexpensive, and as the machinery (if indeed machinery is required at all) is simple, and is adapted for hand-power, the preparation of these indispensable articles of every-day use offers a legitimate field for the small manufacturer, as well as for the dealer who has sufficient space at his disposal in which to carry out small manufacturing processes of this nature.

Stove Polishes.

The articles which bear this name are frequently referred to simply as "blacklead," a term which indicates sufficiently clearly their principal ingredient. Most of the black stove polishes are offered in the form of solid sticks, cubes, cakes, or balls, which are usually wrapped in paper, and often possess a highly-glazed surface. The paste and liquid polishes are less used now than formerly, and are not wholly satisfactory, as it is exceedingly difficult to prepare a paste or a liquid from which the fluid medium will not rapidly evaporate. To the solid forms, therefore, attention will in the first place be directed.

The base of the ordinary solid black stove polish is blacklead, which is also known as plumbago and as graphite. In composition graphite is an impure variety of carbon. It is a mineral, and possesses a certain degree of metallic lustre, which can be augmented by mechanical means after the substance has been powdered—a fact to which its utility as a metal polish is due. Graphite occurs in various parts of the globe in crystalline masses, and exhibits considerable variations in purity as well as in physical properties.

There are numerous uses in the arts and manufactures to which graphite is put. Among the chief of these are the manufacture of "lead" pencils, the manufacture of crucibles, retorts, and other utensils used in dealing with refractory metals, the compounding of lubricants, and lastly in the branch of industry we are now dealing with—the preparation of black stove polishes.

Fine Cumberland graphite, of specific gravity 2.94, suitable for making of pencils, contains (according to C. Mène) 91.5 per cent. of carbon and 7.3 per cent. of ash. Less pure varieties may contain from 80 to 70 per cent. of carbon, and from 11 to 20 per cent. of ash. It should be noted that as the carbon decreases the ash increases in quantity.

It is obvious from what has been said above that the various varieties of natural graphite will possess different values according to the purpose for which they are required.

For the purpose of making stove polish it is not permissible to use any graphite that may happen to come to hand. It is necessary to select the article with some care, and often to blend two or more grades together, in order to bring the product up to the desired standard. There are two points of pre-eminence importance in selecting graphite for stove polish making. One is the softness of the graphite; the other is its capacity to produce a highly-lustrous surface after it has been reduced to a fine powder. It often happens that a sample of the native mineral exhibits one of these properties in a noticeable degree, and is lacking in the other; hence the buyer has to be on the alert, otherwise he may find that he must either turn out an inferior product, or that the expense involved in reducing the raw material to the proper degree of fineness is so great as to curtail in no small measure the profits of the manufacture.

The finest quality of graphite which is offered for sale in considerable quantities goes by the name of "Ceylon blackhead." Whether the whole of the material so designated is derived from the Ceylon mines is, perhaps, open to question, as the description has become, to some extent, a trade name for a somewhat hard but brilliant polishing graphite. Softer and more easily handled qualities are derived from Central Europe (Austria, Hungary, &c.), but these grades often, and indeed, usually, lack high polishing properties, and must therefore be blended with a higher grade lead of the Ceylon variety. Large quantities of graphite are found in America, both in the United States and in Canada, and the material is excellently suited for stove polish making, as it combines the softness of the Continental grades with the lustre of the Ceylon graphite. For this reason many American makes of stove polish are exceedingly difficult to beat in point of quality. An additional advantage secured by the American manufacturer consists in the fact that he is in a position to avail himself of the large quantity of "gas black" produced in the country. This material besides possessing great staining properties which render it valuable as a paint pigment, is somewhat granular in texture, and is capable of taking on a certain degree of polish when rubbed. Hence when it is introduced as an ingredient of stove polish, it improves the color without injuring the polishing properties of the product.

The raw materials then with which the black stove polish maker starts are blackleads of varying grades, and American gas or carbon black. It is true that many makers, especially of the cheaper and commoner varieties, use other substances as well in their polishes. For example, water, glycerine, vinegar, acetic acid, sulphuric acid, green copperas, treacle, are specified in considerable quantities in many recipes. It is advisable, how-
ever, to limit the use of such assistants as much as possible, inasmuch as, although certain of them such as water and glycerine do not injure metalwork, the majority are powerful corrosive agents, and the habitual use of polishes which contain them in considerable quantity is likely to result in damage to the metallic surface under treatment. It is often found that the graphite which is being used contains sufficient moisture and is of a sufficiently soft texture to enable the material to be moulded with ease in the hydraulic press; on the other hand, it may happen that the material is somewhat dry and granular, and will not bind well, this being especially noticeable when a considerable proportion of carbon black has been added. In such cases the addition of a proportion of liquid binding material is necessary, and a mixture of water and glycerine will be the least hurtful to the metal. It will usually be found that the better and purer the quantity of the raw material used, the less chemical matter is it necessary to introduce into the stove polish.

(To be Continued)

Gum Tragacanth.

This is imported from Persia, Greece, Turkey, and the East generally. It exists in the form of flat flakes, sometimes curved in the form of a semi-circle, or in straight ribbon-like pieces, some of which may be as much as 3 inches in length. The flakes are generally white and horn-like, and marked by ribs and striations.

Gum Tragacanth is collected from the surface of trees of the Astragalus species, sometimes the stems are cut to further produce a flow of the gum. This gum is not entirely soluble in water, unless submitted to a previous treatment with alkali. It is usually steeped for about 24 hours in cold water, and finally boiled for about six hours, when it expands enormously, absorbing about fifty times its own weight of water. The mucilage is used in calico printing and in the manufacture of adhesive pastes, etc.

QUESTIONS AND ANSWERS.

In this column we shall print questions of general interest submitted by subscribers and invite replies to the same from our readers, which will be printed in the next issue of this paper.

Question No. 18: What is the cause of the top layers of soap in the frame cracking open? I am referring to soap made cold. D. R.

Question No. 19: What test is used to find out how much free fatty acid is contained in a certain amount of cotton oil? Will you please put the reply in common English, as I am not familiar with chemical terms.

ANSWERS.

To Question No. 14: Peanut oil resembles cottonseed oil more than any other soap oil, but it does not so easily cause yellow spots in the surface of the bars as does cottonseed oil which contains very often an unsaponifiable substance forming yellow spots and causing a bad odor on exposure. Peanut oil is, if anything, less readily saponified, but when properly made the soap is superior in appearance and odor; it is also harder than soap from C. S. oil, though of course softer than tallow soap.—K. D.

To Question 15: For filling collapsible tubes is made a little machine furnished by makers of the tubes which work on the principle of sausage filling machines; when enough tubes are filled, a pair of special piners is used to fold the bottom ends. Suitable tooth soaps might be made after innumerable recipes; here is an example:

- Dry, well-made, neutral soap 1 lb.
- Precipitated chalk (English preferred) 4 lb
- Orris root, about 1 lb

These ingredients are made into a paste by adding enough of glycerine and water (equal parts) to make up the desired consistency. If the usual color is desired, a sufficient amount of a solution of carmine is added to the chalk which is then sifted and well mixed. For perfuming an ounce of oil peppermint or wintergreen, or a mixture of the two is a popular favorite, it appears. In place of the glycerine, honey is sometimes used.

To Question 16: In former years when corn oil was sold at a price materially lower than tallow or cottonseed oil, considerable was used in connection with the hard fats in making the ordinary soaps. The price of corn oil is now relatively too high to allow of its use to advantage. Corn oil may be used in place of lindseed oil for potash soft soap (oleate of potash) and is exported to Europe largely for this purpose. M.

To Question 17: It is always difficult to say where the error has been made, if one knows no details of manufacture but only that the finished soap has a certain fault. It seems reasonable, however, to guess that the sweating of your soap is due to the use of an excess of lye. In your coconut oil soap you say you have no such difficulty; but the soap containing tallow sweats— you must remember that tallow calls for less lye than is required to safonify coconut oil soap. That coconut oil is the only soap stock that can be saponified by the cold process is of course an error; this error dates from the time when the cold process was less well understood than it is to-day, when lyes were not readily obtained in a pure state, and when mechanical aids for crutching were not what they are to-day, moreover, the book containing this error is really little more than a translation from German sources, a country where
crutching machines are even in this day few and far between, and hand crutching no doubt is peculiarly unsatisfactory with a soap made largely of tallow. For information useful in this country, allow us to recommend to you the book "American Soaps," which is the only book extant describing the cold process in detail.—Ed. A. S. J.

To QUESTION 17: Tallow, unless it is rancid, will not saponify readily with strong lye; coconut-oil will. Your cold process soap very probably contains considerable free alkali and free fat, and the "sweating" is due to these combined materials coagulating. The only correct way to make soap is to boil the materials for 3 or 4 days in a big kettle.

M.

ANSWERS IN BRIEF.

D. A. of W.: We know of no toilet soap made to our own knowledge of palm kernel oil. Generally speaking that oil enters into laundry soaps more than into toilet soaps.

T. S. of A.: We cannot see that it would serve a useful purpose to compile tables showing the temperature at which different mixtures of oils and fats are best saponified. There is a very simple principle underlying the operation the observance of which is far more convenient and useful than any such table could ever be.

L. of N. Y.: It was very kind of you that you came near answering some of the questions printed in this column: if you and others would come just a little nearer yet, it would be very acceptable, however.

M. S. Co.: A trade-mark is the property of the first user, even without registration; the same is not true, however, of a non-copyrighted print. The exact status of the case depends therefore on details with which we have not been made acquainted.

F. L. of Mass.: If any one troubled with his soap wishes to withhold from us details of manufacture, he has the privilege to do so—we only wish he would then keep the rest of his troubles for himself also. How any one can expect a correct reply to be based on an incomplete statement of facts passes our comprehension.

B. C. in Canada: With the understanding that we are in no sense dealers in supplies of any kind, we are quite willing to execute any little commission for our friends so located that they cannot get required and unusual things in another way. But whether we could get a Twaddle hydrometer very readily we never tried, the Beaume scale being used altogether in this country.

J. C. of N.: A lye of 1,320 specific gravity corresponds to one of 35° B.

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Havener, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

TRADE-MARKS.

38,018. Shaving-soap and shaving-cream. Fred B. Chadderton, Darien, Conn. Essential feature.—The representation of a capped tube crossed by the representation of a razor and by the representation of a shaving-brush.

38,019. Soaps and oils for treating and softening leather, hides, and hair. Edwin A. Warren, St. Paul, Minn. Essential feature.—The word "Limberine."

38,020. Laundry soap. Maple City Soap Works, Monmouth, Ill. Essential feature.—The words "Monday Morning."

38,084. Soap. Maple City Soap Works, Monmouth, Ill. Essential feature.—The words "Maple City."

38,121. Washing compounds. Phoenix Chemical Co., New York, N. Y. Essential feature.—The compound word "Next-To."


LABELS.

9,046. Title: "Eclipse Laundry Soap." (For Soap.) Gettysburg Steam Soap Co., Gettysburg, Pa.

AROUND THE SOAP FACTORIES.

News items sent us by our readers will find prompt attention in this column.

The Silicate of soda and sal soda plant of the Central Silica Co., of Fortville, Ind., has been acquired by the Grasselli Chemical Co. of Cleveland.

A tallow rendering plant will be erected by B. O'Brien of St. Bernard, La.

The plant of the Pacific Coast Borax Co. sustained a heavy damage by fire last month.

The "soap mine" has found its way into our Consular Reports. The U. S. Consul at Montreal reports that such a mine (really soda and borax lakes) has been located near Ashcroft, B. C. About 275 tons of the material incrusting the shores of the lakes have been cut into cakes of 50 lbs. each and experiments are said to have proven the compound to remove grease and dirt quicker than soap.
The Oakley Soap & Perfume Co. of New York, have made as assignment to John A. Oakley. The factory is located in Jersey City.

The Premium Soap Co. has been incorporated in Sioux City, S. D. Incorporators: A. Somerville, E. T. Cushman and L. Stephens.

Decatur, Ill., is to have a $400,000 corn oil mill, to turn out 125 barrels of oil daily; it is being erected by the Pratt Cereal Mill Co.

We are in receipt of a little pamphlet entitled "L'évolution de la Chimie des Parfums," by M. A. Hoffmann, a manufacturing chemist at Rouen, France. It is an outline of the practical work done by chemists in explaining the nature of perfumes and devising other artificial ones.

The Resined Chemical Co. is sending out a pamphlet descriptive of the resined soap made by this firm, in which the following passage attracts our attention:

There are so-called "medicated soaps," which, if long employed, must surely prove ruinous to the health of the skin, the beauty of the complexion, and the growth of the hair. There are "tar soaps" so effective upon the growth of the hair as to deprive, after a few applications, a dog's back, and yet these same soaps are recommended to prevent the hair from falling out, and for the cure of dandruff and all diseases of the scalp and skin— as well as for fleas.

The Louisville, Ky., Soap Co. has taken out a permit to build an addition to its plant on Bergmann street, between Clay and Shelby. After it is completed the plant will have a 350-foot front, 80 feet deep and four stories high. The cost of the addition for which a permit was taken out will be $60,000. Many additional workmen will be given employment as soon as the extension is made.


Bowles Colgate, until about a year ago head of the firm of Colgate & Co., died on the 21st ult., aged 56 years. Five years ago his father, Samuel Colgate, died.

Fire last month damaged the rendering plant of the Goodwin Mfg. Co. of St. Louis, Mo., to the extent of nearly $50,000.

The National Soap Manufacturers' Association, at the Buffalo meeting last month elected the following officers for the ensuing year: James McMahon, President; A. S. Kirkman, Vice-President; Wm. Peel, Treasurer; F. C. Bushnell, Secretary.

The Green Bay (Wis.) Soap Co., has sustained some damage by fire.

A meeting of candle manufacturers was held in Syracuse, N. Y., last month. There is the usual talk of an impending combination.

The Markets.

Tallow.—New York City 6c in hides; sales of country make at 6$ to 6$4c as to quality. Western markets report latest sales at 7c for prime packers, and 7$10c asked.

Grease.—Prices have somewhat improved since last report. "A" white, 7c; "B" white, 6c; yellow 5$4c; bone and house, 5$6c. At Chicago: "A" white 7c; "B" white 6c; yellow 5c.

COTTONSEED OIL.—Sales of prime yellow in New York at 44c and the same bid for further supplies.

CORN OIL.—Firmer; 66610c as to quality.

COCONUT OIL.—Ceylon, held at 7c for spot; 6t10c for stock to arrive soon; Cochín, 81$4c asked for spot and 7c6c for supplies under way.

OLIVE OIL.—54$05c for spot, as to quality; 5$10c asked for stock to arrive.

PALM OIL.—5$405c for prime red oil; 5$c for stock to arrive; 5c60c for Lagos. This oil, which has come more largely into use on account of its favorable price compared with tallow, bids fair to become a permanently increasing factor in soap making. Palm kernel oil, 6t to 7c. Red oil, 6$3 to 6$4 asked for saponified.

Latest Additions to Our Brand List.

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SUPPLEMENTARY LIST OF THE BRANDS OF SOAP MANUFACTURED IN THE UNITED STATES Including also the Brands of Foreign Manufacture Registered as Trade-Marks in this Country.

NOTE: This list is compiled with the greatest possible care, but the publisher does not assume any responsibility other than to correct and to complete the list according to data obtained from official sources or furnished by the trade. Brands registered in the patent office as trade-marks or labels are given with the name of the party registering same. Brands or names marked * are those which were found to be used by more than one firm or the owner of which could not be ascertained.

*SEE THAT ALL YOUR BRANDS ARE ENTERED IN YOUR NAME.
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SPACE ON COVER DOUBLE RATES.

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OFFICE OF PUBLICATION:

322 Windsor Place, MILWAUKEE, WIS., U.S.A.

The American Soap Journal and Manufacturing Chemist is devoted to the interests of all manufacturing industries of a chemical character, and is an absolutely independent publication. It is the only newspaper of its kind in America and has also a large foreign circulation.

For Subscription and Advertising rates see above.

Communications on industrial subjects, news items, and any information suitable for printing in these columns, are solicited and will have due attention.

Readers in search of machinery, supplies etc., not advertised in these columns, are invited to write us and we shall endeavor to supply the information.

Address all communications to

DR. HENRY GATHMANN, Publisher,
322 Windsor Place, MILWAUKEE, WIS.
U. S. A.

Subscribers who have been participating in moving exercises of May 1st will please send in their new address, to avoid delay and loss of their Journals in the mail.

And now the United States Soap Co. has been incorporated under the laws of the State of Maine. Its capital is one million dollars, and the object is reported to be a combination of the soap interests of the country. Up to the hour of going to press the company is said to have absorbed one entire soap factory, which seems to be combining with itself and all by itself. Long may it prosper.

As an offset to all these reported combinations, a Chicago man has conceived the plan that in this "lande of ye tall" thynyes" a Consumers Commercial and Industrial Association with a capital of $25,000,000 was about the proper coper. This combination purposes nothing less than to combine all retailers and consumers into one large association for mutual benefit. The grocers, for instance, are made stockholders without paying a cent, in return for which they become organizers of their town; the consumers of such a town pay five dollars each for admission, which latter entitles them to 5 per cent. discount on all purchases. The accumulating $5 bills are used for making purchases (of soap and many other things) on a large scale, that shall readily permit of the discount aforesaid.

This plan seems to be the nearest approach to a perpetual motion model that has come to our attention for years.

The Pickering Mfg. Co., of Buffalo, N. Y., is advertising for toilet soap in another column of this paper, and desires to correspond with manufacturers.

Pennsylvania (like some other states) has a law against the manufacture and sale of adulterated linseed oil, but it is said to be a pretty dead statute, owing to lacking energy in prosecuting offenders. The Philadelphia Paint Club now intends to start some useful proceed-ucations. As this question is closely akin to the proposed bill against adulteration of soap fats, we take occasion to print (from Drugs, Oils and Paints), on another page, a portion of a circular issued by the club named.
The Eastern Soap Manufacturers’ Association, which is a branch of the National Association, held a meeting in New York on May 20. It was one of the best-attended meetings they have had, and was the first meeting held since the “National” association absorbed all of the other associations. There was considerable business transacted, and the members seemed to have every confidence that the association would become very beneficial. The board of directors of the National Association met in Chicago on the 23d, and the Southern Soap Association did the same in Nashville, Tenn., on the 28th.


We should gladly have printed further details of the proceedings of the meetings, but none are available for that purpose.

Now and then the question arises in a manufacturer’s mind, how nearly he may approach the external appearance of a competitor’s goods, without laying himself liable to the charge of actually imitating. If the manufacturer intends to make a determined out-and-out attempt to profit, as far as the law will let him, from giving his goods the external appearance of some other well-known brands, he is not likely to take any one into his confidence in advance, but asks no incriminating questions and goes ahead. Hence we have rarely been consulted and have never given advice on any such problem. But such articles as soap are put up in certain conventional styles to which every manufacturer conforms more or less; the average sizes and the usual shapes of all soaps have a certain degree of similarity based merely upon practicability, and not at all with a view of imitating one another. When soaps were first wrapped in separate paper for each cake, others followed because it was a practical method of putting up soap and not with any intent to pass off their own goods for those of competitors. There is therefore quite legitimate room for studying certain opportunities of adopting given styles of putting up goods, and from that point of view we have occasionally felt justified in advising enquirers.

An interesting point in this matter of imitation is the manner in which the courts proceed when a defendant convicted of too closely imitating the goods of a competitor desires to know to what extent he must change the appearance of his goods to be on “the safe side” thereafter. The courts in such cases simply refuse to give advice; we find this interesting, because we now and then have occasion to follow the example of the courts in somewhat similar problems. As expressed in 112 Fed. Rep., 1000: “Where the attempt is made so closely to imitate a competing article as to confuse and deceive purchasers the courts will not be nice in limiting the scope of the relief granted because some of the imitations if practised singly and without fraudulent intent might not constitute unfair competition; and, when unfair competition has been found, the courts should not give their approval in advance to any suggested or proposed changes, leaving to the defendant the responsibility of deciding for himself what changes are necessary to avoid further infringement.”

Some time ago the finding of indictments by the Federal grand jury against a large number of cotton oil mills in Mississippi for alleged violation of the anti-trust laws was reported and created quite a sensation. Now the learned judge who, in his charge to the jury, spoke in unsparing terms against combinations formed in restraint of trade, has discovered that the acts charged in the indictments are not violations of the law anyway, and so the prosecution has been dropped.

What is that line about marching up a hill and then marching down again?

If we were asked to find an argument to show why a retailer should carry extensively advertised brands of soap on which he can make no profit, we should probably have “given it up.” But after reading the following notice in a drug journal, we are reminded of the moral taught by Columbus’ celebrated, albeit now somewhat ancient, egg. Here is the argument, apparently written by the manufacturers of “Baby’s Own” soap themselves—(at least we do not think the editor of a drug paper would submit such an argument to his readers on his own account):

“Many a druggist sees his trade drifting to rival concerns, either druggists or department stores, and fails to realize that his store methods may be at fault. It is a common thing for instance for a druggist to say to a would-be customer: No, madam, we do not handle Baby’s Own Soap, we cannot make any profit on it, we have some other lines, but if you want Baby’s Own, we cannot supply it. Now that woman will certainly think that if Mr. So and So sells Baby’s Own Soap and yet Mr. Druggist cannot do so at the same price the chances are that it is the same with perfumes, brushes, sponges, etc., and when these articles are wanted the other man will surely get the order. Does not this reasoning seem about right?”
The Ways and Means Committee has under consideration a bill, known as the Lovering bill, aiming to make an important amendment in the Dingley act. Under the present law manufacturers using imported raw materials in the manufacture of export goods are entitled to a drawback of duties on exporting the goods; this rational provision has been a valuable factor in our export business, but has brought about the anomalous condition that, so far as alcohol is concerned, it is far more advantageous to import it than to buy the domestic product on which the internal revenue tax must be paid and is not refunded, though the alcohol be used for soap, perfumes, etc., for export. There is a drawback regulation for domestic alcohol exported in original packages, but none for alcohol used in manufactured goods; this the Lovering bill is designed to rectify.

European manufacturers seem bound to supply the world with machinery for taking soap directly from the kettle and, by rapidly cooling it, transforming it into cakes without intermediate framing. This is no longer a new subject so far as milled soaps are concerned, but that is not what we now refer to. A "cooling press" has been patented in Germany, to which the soap is brought quite hot and where it is cooled to the thickness of the desired cakes between two plates kept cold by means of water; sixty dies form each plate, so that, when 20 minutes after running the soap from the kettle the slab has cooled, it consists of 60 cakes all adhering to each other at the edges, and requiring now to be cut apart in the ordinary way of cutting up the slabs, which can be done within a few minutes after the soap leaves the press. The machine is said to form faultless cakes of superior finish.

Sixty cakes of soap in twenty minutes by one press is not a large output, to be sure; but there are avoided the necessity of framing, the operations of slabbing and pressing, and of course all scraps of soap. The machine is probably too new to judge, whether it really represents a saving even in the country of its origin; in this country the efficiency of our presses and several other considerations are such as to permit no conclusions to be drawn from the results obtained in Europe by the new apparatus. It might be interesting to note what effect such a press would likely have here.

The National Laundry Journal says:

"There are those who affect to teach that an advertisement writer has no need to trouble himself about grammar so long as he makes himself understood. Such a statement is subject decidedly to qualifications. The rules of grammar come of long usage and have the sanction of the best scholars of each succeeding generation. They should be understood by those who write, and those who follow them are least likely to be misunderstood."

While we are not troubled with ungrammatical advertising copy, we often see such in some of our exchanges; now, we would not worry about the "sanction of the best scholars" and misunderstandings due to bad grammar in an advertisement are probably very rare. The important point, to our mind, about an ungrammatical advertisement, is that it must injure the standing of the advertiser in the eyes of the educated. If, for instance, a soap were praised in an advertisement in these words: "Our soaps are made on the latest scientific principles and hasn't got no alkali in theirselves"—could the reader possibly have any faith in those alleged scientific principles?

"The paper, type, press work and cover of the American Soap Journal and Manufacturing Chemist, of Milwaukee, make that journal take rank near the top, so far as appearance is concerned. And no doubt soap-makers find its text in keeping with its mechanical appearance."

The above is from the first issue of the Southern Drug Journal that has just made its appearance, and which bids fair very soon to occupy a place among the liveliest and brightest drug papers in the country.

Senator Pritchard has introduced a bill into the senate, relating to the registration of trade-marks; the object of the bill is to furnish greater protection by revising the methods of the patent office and establishing a much needed uniformity in the decisions of the courts, so that owners of trade-marks may be in a position to know more nearly "where they are at."

Under present conditions the character of a device or name admissible as a trade-mark is so ill-defined by law, that the patent office is allowed an amount of discretion that naturally led—as it inevitably must—to considerable inconsistencies, which later on were only accentuated by the courts.—Thus the law does not recognize descriptive words as valid trade-marks and the patent office ordinarily refuses registration to such marks; but occasionally it has been difficult to decide whether a given mark was strictly descriptive or not and, as a result, brands have actually been registered which to most people would appear to be descriptive and therefore not proper words to be monopolized by a single firm. The legal status of such a brand then is of a very doubtful nature, until it has passed through court proceedings as expensive as they are dubious in their final outcome.

Again, in order to be entitled to register a trade-mark in our patent office, the law has always required that the claimant should have used the mark in business with foreign nations or with our Indian tribes;
this provision was deemed necessary in order to permit the federal legislature and courts to concern themselves about such trade-marks. It is true, this provision was in many cases evaded by the simple formality of sending price lists to a few dealers in Canada or Mexico, but—if it is not found unconstitutional in the end—the present bill is certainly preferable, by which "any person domiciled within the territory of the United States, or in any foreign country which by treaty or law affords similar privileges to citizens of the United States, may register trade-marks if actually claiming to be the owner thereof."

Much confusion and litigation has also arisen from the occasional registration of trade-marks by certain manufacturers who adopted such marks only after some other firms had already been using such marks for a more or less extended period of time; this difficulty it is endeavored in the new bill to overcome by very specific provisions to guide the procedure of the patent office in every such case.

Another deficiency of our present statutes is the inadequate provision for a method of safely transferring the ownership of a trade-mark without affecting its validity, and, if the exact degree of protection conferred by the registration of a trade-mark was clear (?) to patent attorneys, it never was quite so to the owners of registered trade-marks.

These and a number of other deficiencies in our present system have long been notorious and relief has long been hoped for. The present bill has been worked out by a special commission of experts familiar with the entire subject and bids fair to become a most useful measure.

The difficulty first above mentioned—insufficient definition of what is a proper trade-mark—is taken care of in the following section of the new bill:

"A mark by which the goods of the person claiming to be the owner of the mark may be distinguished from other goods of the same class shall be refused registration as a trade-mark on account of the nature of such mark, unless such mark,

(a) Consists of or comprises immoral or scandalous matter;

(b) Consists of or comprises the flag or coat of arms or other insignia of the United States or any simulation thereof, or of any state or municipality, or of any foreign nation. Provided, That marks which are identical with a registered or known trade-mark owned and in use by another and appropriate to the same class of merchandise, or which so nearly resemble a registered or known trade-mark owned and in use by another, and appropriate to the same class of merchandise, as to be likely to cause confusion or mistake in the mind of the public, or to deceive purchasers, shall not be registered; And provided, That marks which consist merely in the name of an individual, firm, corporation, or association, not written, printed, impressed or woven in some particular or distinctive manner, or which consist merely in words or devices which are descriptive of the goods with which they are used, or of the character or quality of such goods, or which consist of the name of a locality, shall not be registered unless the applicant for registration states in his application that he makes no claim to the exclusive use of such mark as against others who may use the same without fraudulent or deceptive intent."

Regarding the transfer of registered trade-marks, the commissioner of patents is authorized under the provisions of the new bill to transfer on the records of the patent office the property right in any mark only if such transfer be a part of a transfer of the good will of the business in which such trade-mark has been used.

The following section relates to the protection afforded by the registration of a trade-mark:

"That registration of a trade-mark shall be legal notice of claim of ownership therein by the registrant. Any person who shall reproduce, counterfeit, copy, or colorably imitate any trade-mark registered under this act and affix the same to merchandise substantially the same descriptive properties as those described in the registration, or shall sell or expose for sale, have in possession for purposes of sale, merchandise of substantially the same descriptive properties as those described in the registration bearing, without authority from the owner thereof, a reproduction, counterfeit, copy, or colorable imitation of any such trade-mark, shall be liable to an action on the case for damages for the wrongful use of said trade-marks at the writ of the owner thereof; and whenever in any such action a verdict is rendered for the plaintiff the court may enter judgment thereon for any sum above the amount found by the verdict as the actual damages sustained, according to the circumstances of the case, not exceeding three times the amount of such verdict, together with the costs."

**A Question of Silicate in Soaps.**

*Editor American Soap Journal:*

Dear Sir: In your May issue your correspondent Na HO + KOH is quite right in stating that pure and moderately filled soaps are preferable in every way. Even in benighted countries manufacturers would much prefer to supply such soaps than heavily silicated soaps, but competition in the world's markets and the stubborn
Public which insists on having low priced goods, have decreed otherwise and have compelled benighted soap manufacturers (who are yet debating on the respective merits of open fire heat or steam for soap making and who have no crutchers or foot presses) to use silicate as the best water holder in soaps. I have yet to learn that steam makes better soaps than old-fashioned fire heat; it is certainly more expeditions than American soapmakers with steam heat, for a man who would take 6 or 7 days to make a batch of soap even with fire heat, would certainly have to look elsewhere for a job and probably come to this land of milk and honey.

In this land of milk and honey, we are told that 20 ozs. of soap may be had for 5 cents; well, in some benighted countries manufacturers have to supply 32 and 36 ozs. for 31/2 cents, packed, less 21/2 cent. discount.

The cold process soaps your correspondent refers to, are not, in soapmakers' parlance, soaps; they are merely mixings and compounds, for in point of fact they are not saponified. By soaps we understand boiled and settled soaps, some without resin and others from 15 to 100 per cent. resin, as compared to fats or oils.

In some of the benighted countries, such as England or elsewhere, soapmakers are asked to produce six pounds or more of soap out of each pound of fats or oils. I would be curious to know how your correspondent would achieve this without using silicate; he certainly could not do it with solids nor by his deprecated cold process.

Generally speaking, we find American agricultural machinery everywhere, as well as other American goods, except American soaps. I have seen none amongst the 450 million of Chinese, nor amongst the 300 million of India, nor amongst the 200 million Africans, etc., etc. American soap manufacturers leave these infinitesimal supplies to manufacturers of benighted countries who manufacture what the public wants and at the prices it requires it.

So far as I know, Sir, silicate is the best water holder for soaps yet discovered; manufacturers generally try to sell as much water as possible, for they find this cheaper than resin and even carbonates, with all due respect to your correspondent's opinions and thanking him for his reference. I remain, Sir,

Yours respectfully,

A. d'Estampes.

Made In Germany.

EDITOR AMERICAN SOAP JOURNAL:

Dear Sir: While in Europe, and not having with me a copy of my essay commenced in the March number of your valuable Journal, I am unable to say just where I left off and must put off finishing it till my return.

Meantime, if agreeable to you and your readers, I will chat a little on the state of the industry in Europe and on what an American can learn while traveling here. There is not much to be seen; European manufacturers are exceedingly jealous of their American colleagues (no matter what an influential press has to say to the contrary) and it is next to impossible to find out anything about their methods by actual observations; but that is not at all necessary either, as there are other ways to learn. In the May Soap Journal, which came to hand to-day, I find described the actual state of affairs—in fact my own experience. Some twenty odd years ago I wrote an essay for the Seifenfabrikant, pointing out the advantages of the use of steam, the crutcher, foot press, etc., etc. For my trouble I received a calling down; it might answer for Americans to use steam, but German soaps (Schmier- and Eschweiler Seife) had to be boiled down by fire, and so forth, and so on. My question why they put in so much water that it must be evaporated again, met only with an expression of surprise at my ignorance. To-day, twenty years later, they are beginning to use the very methods which they ridiculed then; but our more expensive machinery, our best crutchers, presses, etc., our methods of making floating soaps and thus work up scraps, they do not employ as yet. Consequently it is useless to try to get into factories. It is, however, quite interesting to observe what goes into and what comes out of factories; that enables an experienced man to judge what is going on inside. Reading their trade papers, conversing with soap salesmen and others connected with the business, do the rest. While we Americans are ahead of other nations in the practical execution of ideas, yet we can get new and valuable pointers by traveling and observing what is going on in our trade in the older countries.

What I have learned on former visits here has been condensed into a trade-mark which we use now. It pays to look at matters more closely and systematically. Soap manufacturers (and others) ought to analyze whatever enters into their products—not only chemicals and raw materials, but also the quality of physical and mental work and everything else necessary to success in life needs careful investigation. Manufacturers must not neglect to occasionally use the telescope, figuratively speaking, to look at their affairs from afar and observe them as a whole, so as not to forget that their business is but a branch of their lives. Those who forget this will find, sooner or later, that the trunk which supports and nourishes that branch, is in great danger of decay. Concentrating all one's energies all the time on making money and accumulating wealth, is dangerous; failing to understand such lessons has cost one of our best known, richest and most influential packers and soap
manufacturers his life. He too came here from Chicago to learn how to improve, and it is very interesting to listen to the opinions which "ignorant peasants" (that is what some "highly educated" and enormously rich Englishmen called them in my presence) express about the awful follies committed by the never-resting, continually working American millionaire. Here is the sum and substance of what I learned by listening to the idle talk of simple minded people here, as well as by consultation with some of the highest authorities—professors of the University of Giessen, etc. Some readers may say that is nothing new—many very good and extremely valuable ideas are not new, but they become very useful if they are communicated in a manner which makes us comprehend and follow the valuable advice.

Mr. A—— of Chicago did not do the latter and he suffered untold agonies, because his ideas of life were one-sided; he saw only the business side of it, he never realized that in the harmonious co-operation of all bodily functions lies happiness and the power to continue serving his fellow beings. As soon as people become one-sided, as our greedy, monopolistically inclined accumulators of wealth are fast becoming, Nature steps in and commands a halt.

In former essays written for the Soap Journal, I have said that many valuable lessons for soapmakers may be learned from nature. On former visits to Europe I have studied forest culture, as well as the modern methods of orchardists as far as the destruction of parasitic life on trees was concerned. I did so because mankind is in many respects like trees and, strange to say, people have given more attention to the influence of parasitic life on plants than on healthy human beings; (the study of germs and microbes causing disease is, as everybody knows, a very important branch of science). Knowing the methods employed to assist the growth of forests and to increase the productiveness of fruit trees by destroying, by means of washings, dustings, scraping off old bark, etc., leads one to make improvements in "skin" soaps.

Another lesson I learned seems to be far more important: fruit trees are in bloom now; those with a full and vigorous growth of branches, the untrimmed ones, that appear to make a much stronger growth, have not nearly as many blossoms, and I am told far fewer blossoms bring forth ripe fruit even if the blossoms start to form the same; they remain crippled and drop off before they are ripe. The best harvest is gathered from those trees which have been carefully trimmed, with less branches. Orchards thus kept by modern methods endure longer! The others are to the intelligent observer a certain sign that their owners are greedy and ignorant; they expect in their narrow-minded greed that the more trees they plant on a given space, and the more branches to each tree, the greater will be the harvest. Neither do they care to notice that forest trees grow crooked and furnish little or no useful lumber if too many branches are left thereto. Where many trees of equal vitality grow side by side in their native forests, the equal chances they have makes them grow simultaneously, and gradually the lower branches wither and die off, being deprived of air and light. Growing civilization has a tendency to make "scrubby"; "scrubby" not only the trees of the forest, but human nature as well. The human mind must come to the rescue in forest culture; the lower branches are cut off which cause the tree to grow straight. Let us hope that clear intellects will elect congressmen with well-balanced minds to devise laws that will chop off some of the superfluous branches growing on trusts which, while threatening to kill the general prosperity, also sap the life-blood of those on whom they depend for growth and support. Let more of our successful American business men leave the scene of their activity for a while and look at the follies they committed, from a higher standpoint, and they will find that the time so spent will greatly benefit them as well as the world at large.

Geo. A. Schmidt.

Florida Perfumes.

Jacksonville, Fla., May 13, 1902.

Editor American Soap Journal:

Dear Sir,—As my paper for the Hon. James Wilson cannot be ready for the issue of June, I would beg that you publish the enclosed article under the caption "Florida Roses in the Markets, etc.," in that issue. You will kindly publish it under the signature of the author, having obtained from the Times-Union & Citizen the permission to do so.

I would beg leave to state that the author of that article is unknown to me, but the simple fact that it is published by the leading paper of this state is a voucher for its reliability. Besides it is an endorsement of my repeated assertions ever since I began my work of pioneer of that industry. (I have secured 20 copies of the same which I intend to mail to as many firms interested in the matter.)

My reply to Mr. Eggers' communication appearing in your issue of May, will be embodied in my letter to the Honorable Secretary of Agriculture.

In requesting from your kindness the publication in full of said article, I would beg that the parts underscored be printed in type differing from the other parts, being particularly anxious to attract the attention of the readers to these parts.

Yours cordially, E. Moulié.
An Object Lesson.

Editor American Soap Journal:

Dear Sir—The balance-sheet of Messrs. Lever Bros., Limited, as published in the papers, should act as an eye-opener to American soap manufacturers; it demonstrates to them without the shadow of a doubt that notwithstanding the high prices of stocks, there are soap manufacturers who manage to earn profits.

It is a splendid thing to show nearly a million and a half of dollars clear profit available for repartition amongst the shareholders on last year’s operations; it would be curious to know how many American soap-making firms could show as much!

Yet Messrs. Lever Bros. started soap-making only a few years ago and are, comparatively speaking, new at the trade; but this only goes to show what brains, backed by a first-class product, can do in face of great difficulties even at soap-making.

Any dolt, the proverb has it, can make money when there is no possibility of doing otherwise, but it is in difficult times that brains and grit tell their tale.

The whole secret of Messrs. Lever Bros.’ success is that they made good soap; the public appreciates it and they get their price for it, while less enterprising confreres bemoan hard times, high prices of soap-making materials, reduce salaries all around and fill in resin and carbonates, etc., and make little or no profits on their inferior, low-priced productions.

Firms of Messrs. Lever’s stamp endeavor to get the best and most capable soap-makers that money can secure, and their unprecedented success is well deserved, for nothing is neglected to bring it about.

American manufacturers seem to think that any incompetent apprentice soap maker will do, provided he is willing to work for a low salary; this low salary, however, is only apparent and a snare, for incompetent men will waste in one way and another far more substance than would be required to pay a first-class man a fair salary for his services.

If American soap manufacturing firms think that they can successfully hold their own with their high percentage resin soaps, filled with carbonates, tallow, etc., against an article of such an undoubted merit as Sunlight Soap is, I guess they will not do so and they are doomed to disappointment.

I have no interest in Messrs. Lever’s firm or their soaps. Messrs. Lever have proved themselves capable and astute business men, but they are only men after all, and the success they have hitherto achieved can be duplicated by any firm which has a good soap maker to make their soaps, and brains in the direction of its affairs.

Sunlight Soap is sold here for about one-half of its usual price in England, Austria, Africa, etc., and this goes to show that Messrs. Lever make a determined bid for the American soap trade; their balance-sheet discloses that two out of their nine factories lost money during the year under review, and a fair guess would point out those in American waters.

American soap manufacturers who have brains and grit and determination to hold their own need not despair; all they have to do is simplicity itself; get the most capable and reliable soap makers that money can secure and pay them; make soaps better or at least as good as Sunlight Soap is and ask their price for it. That is not difficult to do.

They may find the demand rather slow at first, but they need have no fear of the ultimate results; a good article will always find purchasers. Messrs. Lever did not jump into prominence in a single day.

To achieve success, however, a little more than a spattering of knowledge in soap making is required; there must be no guess-work about it, no slap-bang operations, no passable kettle one time, a bad one the next, and an indifferent one the next.

Business carried on in such a slipshod sort of a way is doomed to an untimely end; let our manufacturers peruse Messrs. Lever Bros.’ balance-sheet and say to themselves that they can do just as well, and then be up and doing (not merely think that they can do so) and show their American grit and enterprise.

I remain, sir, yours respectfully,

A. d’Estampes.

[It has been the aim of the Soap Journal at all times to afford a hearing to all men engaged in the soap business, and even to invite expressions of opinion; it ought to be unnecessary, therefore, to say once more that opinions expressed by any contributor are by no means always our own. In the foregoing, for instance, we discover a marked inconsistency, in that the writer points out himself that on this side of the Atlantic the very same methods so successful in Europe have not produced like results. We believe, however, that there are those more able to controvert a number of views expressed in the above, than we could. We print the letter in hopes that it may not go unanswered by American soap makers.—Editor A. S. J.]

Bleaching and Utilizing Palm Oil.

Abstract from the Seifenfabrikant.

The high prices prevailing in the fat markets have affected palm oil to a less extent than some less valuable soap fats, so that just now palm oil constitutes one of the relatively cheapest fats and is often preferred—after bleaching—for the manufacture of light-colored soaps. Palm oil is worthy of much attention, since it yields a faultless soap of an agreeable odor; in point of yield it is equalled by but few fats. The palm from
which this oil is obtained is indigenous to Africa chiefly, but now largely cultivated in Central and South America as well; it abounds especially on the west coast of Africa throughout its extent; the best-known varieties of oil are Lagos, Old and New Calabar, Bonyu, Cameroon, Popotogo, Upper Guinea, Bonnin, Kongo, Zanzibar, Pomba, etc., the best and best-known being named first.

The melting point of the oil is between 27 and 42 deg C., the specific gravity is 0.945 and the saponification number 202 to 205; hence it ranks among the best fats. It is contained in the fleshy part of the fruit and oozes out of the latter on mere pressure with the finger nail. From this fruit the oil is obtained in Africa largely in a very primitive fashion, that is to say, by boiling and then skimming off the fat rising to the surface; such fat is even used for edible purposes. For the commercial fat even less care is often employed, for, to save the boiling, the fruit is left piled up to ferment, then pounded in mortars, the kernel removed, and lastly pressed in sacs. The press cake is then sometimes boiled in water also and the fat again skimmed off. There are but few at all large establishments in Africa for the manufacture of this oil; in general, where there is no slave trade, negro families occupy themselves with this work. Owing to the very impure condition of the oil so made, the latter is usually refined once more on ship board. For these reasons the less-known brands enter the market in a quite impure state, and the purchaser of cheap oil must always be prepared to find in it much impurity and had better have it examined for its real percentage of oil.

Fresh palm oil has the consistency of butter, has a dark yellow to yellowish red color and a violet-like odor, with a sweetish taste. As it readily turns rancid on exposure, while its color at the same time becomes lighter, it is rarely received in quite fresh condition. With its varying degree of rancidity the melting point also rises or falls. The causes which render palm oil liable to become rancid more rapidly than any other fat are perhaps to be found in the admixture of several readily changeable constituents of the flesh of the fruit.

For soap-making purposes the oil becomes adapted especially by bleaching it first, for without bleaching it forms a yellow soap. Owing to the unstable character of the coloring matter the operation of bleaching is easily performed by either light, air and heat, or by oxidizing agents as oxygen and chlorine. The method of bleaching selected depends in part on the arrangement of the soap factory; where there is steam at disposal, the process of air bleaching is simplest, and one of two ways in use; the older method consists in melting the oil, settling well, pumping into a clean reservoir, warming to 80 deg. R. (212 deg. F.), and then pumping air through it so as to keep it continually in motion, whereby the coloring matter is gradually decomposed. A very serviceable apparatus for this is Koerting's air aspirator. The steam apparatus for this purpose is usually made of hard lead, but if no acids are to be used (as in bleaching other fats), it may be of iron simply. This apparatus has a closed steam coil for heating and a steam injector to produce a partial vacuum, so that air will pass in through a suitable air pipe. On the other hand there are also pressure apparatus operating by air being forced through the oil instead of by suction. Here and there sulphurous acid may take the place of air in bleaching, but not often. For want of steam some factories, not wishing to employ chemicals, have various mechanical contrivances for exposing the melted and warmed oil to the air; the simplest of these is an iron sieve with small perforations, suspended over the kettle by a rope from the ceiling; it is lowered into the oil and drawn up when filled; the thin jets of oil falling back are thus freely exposed to the air. This operation is continued for several hours and is particularly effective if towards the end the temperature is raised still a little higher, say to 90 deg R. (232 deg. F.). With some care a very light colored oil results which, made into soap, retains the desirable violet odor that is nearly lost by bleaching with acids and bichromates.

Next there is the bleaching by fire heat, which is somewhat dangerous as to fire, however. The oil, after melting, settling and pumping over, is covered up and then heated to about 140 deg. R. (350 deg. F.); gradually the natural color turns into a brownish green and, with continued heating, changes to light yellow. Toward the last it is essential to heat slowly, as with too strong after-heating the oil would become dark brown instead of light yellow; it is for this reason also advisable to cool the oil off at once at the end of the bleaching operation. It may be observed that at 212 deg. F. the oil will apparently boil up, in consequence of the water contained in it; then a white, acid, penetrating vapor will form which indicates that bleaching is proceeding well. With this process the violet or orris-root odor is partly destroyed.

Lastly there are the methods of bleaching by means of acids; the most popular is carried out as follows: The previously melted and settled oil is allowed to cool to about 100 deg. F.; meantime a pound bichromate of potash (for each 100 pounds of oil) is dissolved in two pounds of boiling water, and for each two pounds of the bichromate there are weighed off (in separate wooden containers) 3%4 pounds hydrochloric acid and 1/4 pound sulphuric acid. The hydrochloric acid is crushed into the oil first, then the bichromate of potash, and lastly the sulphuric acid. Crutching is continued till a dark
green color appears; on now crutching half an hour longer a sooty green develops, when the oil is left to settle. Soon it is seen that the color is less green on the surface—the chrome compound is settling to the bottom. After a rest of 10 or 12 hours a nice light-colored oil results. This bleaching by chemicals is more expensive than the previously mentioned methods and more of its agreeable odor is lost. Too great heat in this process spoils the result. Lagos palm oil and the other better varieties are best amenable to bleaching.

In the same manner as last described are used permanganate of potash and acid. Hydrogen peroxide is also a very suitable agent for bleaching, 5 per cent. of the commercial 10-volume solution being simply cruchted through the oil from time to time; this process, however, requires several days.

Bleached palm oil can be used with excellent result in all hard soaps, and gives a good yield; it also is well adapted to replace tallow in figged soaps.

Soap, Powdered Soap and Soap Liniment.

By Prof. L. E. Sayre.

A close study of the text of the Pharmacopoeia, relating to castile soap, and that referring to the formulas of the preparations of soap, will reveal some inaccuracies which should be corrected in the next edition. To make this plain only portions of the text need be referred to.

Inaccuracy of Test for Alkali.—Castile soap is identified in the Pharmacopoeia, by qualitative and quantitative tests which apply to soap having, as a maximum, 36 per cent. of water in its composition. For this constituent the following test is applied: “On placing a small weighed portion of soap, together with about 10 c.c. of alcohol, in a tared beaker containing sand, evaporating the solution to dryness and drying the residue at 110 deg. C. (230 deg. F.), the loss of weight should not exceed 36 per cent.”

Now, the test for free alkali, is a quantitative test, which directs that the excess of alkali in 5 grams of soap should be fully neutralized by 3 c.c. of decinormal oxalic acid. It stands to reason, therefore, that a soap which is liable to vary from 6 per cent. to 36 per cent. in water constituent, would not be likely to respond to this test, unless due allowance be made for the variability of the water constituent. If we take, for example, 5 grams of soap from the outer portion of the soap bar, where it is dry and hard, and 5 grams from the inner portion where it is hydrated and comparatively soft, and apply the above test to both, we shall find a difference—in terms of oxalic acid—of 5 c.c. or more. This we have demonstrated by actual experiment. The excess of alkali will be in direct ratio, of course, to the amount of moisture, if the test be applied as directed by the U. S. P.

Furthermore, the test for alkali, itself, is an unsatisfactory one.

The objection we have to the present one is that it does not give the sharp end reaction. If the soap solution (which is an aqueous solution) be titrated, according to the directions of the Pharmacopoeia, with decinormal oxalic acid, the disappearance of the red color seems to be a gradual, sluggish, bleaching or fading out, rather than a sharp end reaction, and the red color seems to continue beyond the neutral point. This difficulty may be overcome by the use of alcohol instead of water as a solvent for the soap in the test. Even diluted alcohol is better than water as a solvent. If alcohol be employed, the point of neutrality is sharply marked and the accuracy of the result is all that could be desired.

Allen, in his scheme for the analysis of soap, employs the following method: Exhaust 10 grams of the sample with 100 to 150 c.c. of neutral rectified spirit, or, preferably, absolute alcohol, avoiding exposure to air. Add a few drops of a neutral alcoholic solution of phenolphthalein. If a pink color be produced, titrate cautiously with decinormal or semi-normal acid, the volume of which required corresponds to the free caustic alkali of the soap. (Allen's Commercial Organic Analysis, vol. II., part 1, 3d Ed., p. 277.)

The greatest objection to water as a solvent in this test is, that perfectly neutral soap, on becoming dissolved in water, is rendered alkaline, and this alkalinity is increased with increasing dilution, owing to the dissociating effect of water, which hydrolyses the soap into acid soap and free alkali.

Inaccuracy of the Term, “Soap in Fine Powder.”—In the formula for the official soap liniment, “soap in fine powder” is prescribed. As powdered soap is not official it is fair to assume that the pharmacist will dry the official soap and reduce it to powder himself. We have found that it is possible to reduce castile soap to the form of powder which contains 7 per cent. of moisture. The powdered soap of the market contains, according to our examination, from 1.5 to 3.2 per cent. of water. We have reduced to a fairly good powder a soap containing 7.08 per cent. of water.

That pharmacists will give a good deal of latitude to the interpretation of the term, “soap in fine powder” is evidenced by our examination of some of the soap liniments of the market. We find here a variation in soap constituent which would be readily accounted for by the above theory. Some pharmacists may claim that they follow out the direction of the Pharmacopoeia, if they, in making 1,000 c.c. of linimentum saponis, weigh out 70 grams of the official soap and then dry it in order to reduce it to powder. If they do this they will have between 50 and 60 grams of “soap in fine powder,” the amount varying of course in proportion to the moisture.
which was present. It may be said that the U. S. P. should not be called upon to provide against such stupidity. Why not? Is it possible to make the text too plain? If powdered soap were made official, and appropriate tests for identity and purity be added thereto, we feel that we should have an improvement, to say the least, of the text relating to castile soap.

Another good reason for making powdered soap official is, that we now have on the market powdered soaps other than castile, from which druggists endeavor to make the soap liniment and fail. We have one sample of powdered soap before us, a 4 per cent. solution of which is comparatively insoluble in boiling alcohol, and it does not gelatinize, showing the presence of sodium stearate or animal fats; others, beside gelatinizing will show, suspended in the gelatinous mass, a tallow-like flocculi.

In the various preparations of the Pharmacopoeia, where soap is directed, powdered soap, as a rule, may be employed. We therefore see no reason why this form should not be made official; it might entirely replace the hydrated form. The amount of moisture could then be stated as from two to three per cent., and the respective tests properly adjusted.

Sodium stearate is abundant in so many of the castile soaps of the market that we are still having the perennial complaint, that soap liniment will gelatinize. Of course this will not occur if the so-called animal fats are absent. But a fair percentage of pharmacists are not helped much by this statement. They learn in time to know the brand which serves their purpose and then have no more trouble.

Nevertheless the difficulty mentioned suggests the propriety of making soap liniment in another way—that is, to form a soap directly from some suitable oil and caustic soda. The saponification equivalent of cotton seed oil with sodium hydroxide, according to Allen, is about 14 per cent., and that of castor oil about 13.4 per cent. That is, 100 parts of cotton seed oil will be saponified by 14 parts of caustic soda, and 100 parts of castor oil will be saponified by about 13.4 parts of the same alkali. It is easy to calculate the amount of oil and alkali which is the equivalent of the soap contained in the official liniment and then to mix these two ingredients.

For experiment we have made soap liniment in this way—saponifying the oil in an alcoholic solution of the alkali—and have been pleased with the resulting preparation.

We are inclined to think that it would be an advantage if the Pharmacopoeia should give an alternative formula, at least, for making the liniment by employing one of the above oils. The liniment thus made may have a yellowish tinge, but this is no objection.—_Druggists' Circular._

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Two Tales.

A writer in the National Laundry Journal says:

I happened into a laundry not long ago and found another salesman there engaged with the proprietor. While we were talking, a man who runs a laundry in a small town, came into the office. He had been upstairs looking through the plant. We were both introduced to him, and the proprietor said: "These fellows are in here trying to swindle me into buying some goods. This fellow wants to sell me some machinery and the other one some soap." "Why," spoke up the visitor, "do you buy soap?" "Why, certainly," said the proprietor, "what do you think I wash with—belt grease?" "Why, I make mine," said the other. "Oh!" said the proprietor of the laundry, "you are running a soap factory. I thought you were running a laundry." "Well, I am," said the visitor. "Well, you can't be running a laundry if you are making soap," said the proprietor. "Well, I run a laundry, but make soap for my own use, on account of the saving." "Get out; saving h—I! Why, I use ten barrels to your one, and do you think I am throwing my money away? If there was any saving in it, I'd be making mine, you can bet." And the visitor very meekly placed an order with my friend for a trial order of soap. By the way, I want to mention the fact that I get a royalty for telling this story from a few of my friends in the supply business.

Speaking of soap salesmen, though, calls to my mind one that came to see me one time. Of all the going through and tearing your plant wide open, this fellow could do it. Now you have all heard them tell about the amount of moisture, etc., that's in the other man's goods. Well, you know what they tell you when they come around; but this fellow had them all beat. He was the limit. He had got beyond the water game; he didn't stop at a trifling matter like water or the moisture. He got down and told me about the air that was in the soap I was buying! told me about the air that was made by a process by which all the air was pumped from the soap, therefore I wasn't buying any air when I bought their soap. He had a very good, neutral-looking soap. To end a long story, I asked him the price and stated to him that that would tell me better whether I wanted to use it or not. "Seven cents," was his answer. At that time, good neutral soap about the same grade, was selling at from 4½ cents to 5 cents. I told him I would have to pass him up; that the price wasn't right, etc.; told him furthermore that I was busy; but as he hung on I asked him if he couldn't talk to me just as well back in the wash-room, as I had it on my hands that day. "Why, certainly," he said, "I am a practical man; would just as well be back there as anywhere." He had kept impressing me all the time as to his being a practical man, and I thought I would just give him a little
tri! I started the water into a washer and told him I was going to start a load, but I wanted to go down cellar and look at my gas heater, I had under the dry house, and asked him if he would cut the water off the washer when it was full enough. "Oh, certainly; go ahead." I did, and stayed down there about five minutes, giving him plenty of time. Came back and asked him if he had the washer full. "Yes," he answered, and sure enough it was. It was even up to the door. I told him next time he went into a laundry and quoted around about being a practical man not to put so much water in the washer. He picked up his little sample case and bade me a quick adieu.

An Oil Adulteration.

Following is an abstract of the circular of the Philadelphia Paint Club referred to another page, and copied from our contemporary, Drugs, Oils and Paints.

Dear Sir—It has been frequently demonstrated that "the life of paint is pure linseed oil." For this essential ingredient of paint no substitute has yet been discovered, and anything else is used to the detriment of the paint and to the loss of all concerned, except the manufacturer of the adulterant.

Whenever the price of pure linseed oil rises above 30 or 35 cents, however, unscrupulous persons attempt to reap an illegitimate profit by offering adulterated goods at a small concession below the schedule price of the pure oil. At such times circular letters similar to the following are received more or less frequently by all dealers and painters:

Linseed Oil Co., Manufacturers of Linseed Oil, Oil Cake and Meal.

Messrs. ____________

"Dear Sirs—We beg to advise you that flaxseed is advancing very rapidly, and we think we are in position to save you money on your purchases of linseed oil, providing you place your orders before a further advance takes place. We still have quite a quantity of seed purchased last fall at a much lower price than the present market. We quote you for immediate acceptance as follows: Raw linseed oil, 40c; boiled linseed oil, 42c. Delivered in one to five-barrel lots at your R. R. station. We will name you a special discount of two per cent. for cash if paid within ten days from date of invoice, or thirty days net cash.

At these prices you certainly can make no mistake in purchasing what oil you will need for the season, as we are inclined to believe that linseed oil will be worth 45c per gallon before the month closes. We ask you to favor us with at least a portion of your business. Bear in mind the fact that we guarantee our oil to give perfect satisfaction, or same can be returned at our expense.

"Hoping to have the pleasure of hearing from you, and being favored with your business, we remain, yours truly,

Linseed Oil Co.

"P. S.—If you are not in the market at the present time, kindly bear us in mind and wire us for prices at any time, at our expense."

Sometimes, and perhaps more frequently, the bait used is a postal card similar to the following:

Linseed Oil Co.

"Dear Sirs—If you will buy from us without compelling us to pay commissions to jobbers, or to send out salesmen, we will offer our best Russian linseed oil at 37c, for raw and 38c. for boiled, and will allow the freight to your R. R. station at 1 1/2 per cent. for cash against our draft, with B. L. Attached, but we give no credit to anybody. We are not connected with the American Linseed Oil Trust, and you can save about $3.50 to $4.00 a barrel by buying from us.

"We undersell all competitors, but for cash only.

"When ordering, please state through which bank we shall draw, with B. L. Attached. Yours truly, Linseed Oil Co."

It is, perhaps, unnecessary to say that such letters never emanate from legitimate manufacturers of linseed oil, or responsible dealers, but exclusively from unscrupulous persons desiring to take advantage of the presumed ignorance of buyers.

The common adulterants used for cheapening purposes are petroleum oils, corn and cottonseed oils and rosin oil. Skillfully combined, they readily pass muster with the inexperienced; but they are all exceedingly deleterious in their effect upon paints and varnishes.

Cottonseed oil and corn oil never dry perfectly, and inevitably leave the paint "tacky" and prone to blister; petroleum oils dry slowly by evaporation, keeping the painted surface soft and sticky for a long time, and finally leaving it porous, lusterless and prone to crack and chalk; rosin oils also dry very slowly, leaving the paint brittle, dead and quick to perish.

It is of far less importance what pigments are used for painting than that the oil shall be pure. The best pigment used with adulterated oil is less durable and less satisfactory than the worst pigment applied with pure oil. No dealer who values his reputation and no painter who wishes to hold his trade can afford to take any risks with this very foundation-stone of good work.

Linseed oil is a product so thoroughly controlled at the present day that prices are practically uniform, and any offer of concessions should be regarded with suspicion. The only safeguard is to buy from houses of known repute, and in case of doubt to exact a written guarantee of purity in such form that suit can be main-
tain in case a chemical analysis misrepresentation. All legitimate crushers' brands cover pure oil, and as a rule the oil offered by paint manufacturers is similarly pure, but there are in existence to-day several concerns, which for purposes of fraud, have adopted corporate titles closely simulating the titles of legitimate crushing companies.

It is always safest again, except where the purveying firm is personally known, to buy of firms whose place of business is in the same state as that of the buyer, since it is extremely difficult and expensive to prosecute a suit for damages against a firm or corporation in a foreign state.

There are several states (e.g., Pennsylvania, New York and New Jersey) laws against the manufacture or distribution of adulterated linseed oil. These laws close the home market to adulterators, but leave them free to pursue their nefarious trade in other states without much danger of interference from the home authorities.

The Pennsylvania law, which is similar in its provisions to that of the other states, is as follows:

"AN ACT
"TO PREVENT THE ADULTERATION OF AND DECEPTION IN THE SALE OF, LINSEED OR FLAXSEED OIL.

THE MANUFACTURE AND SALE OF LINSEED OIL REGULATED.

"Section 1. Be it enacted, etc., That no person, firm or corporation shall manufacture or mix for sale, sell or offer for sale, under the name of raw linseed oil, any article which is not wholly the product of commercially pure linseed or flaxseed. Nor shall any person, firm or corporation manufacture or mix for sale, sell or offer for sale, under the name of boiled linseed oil, any article unless the oil from which said article is made is wholly the product of commercially pure linseed or flaxseed, and unless the same has been heated to at least 225 degrees Fahrenheit.

PROVISIO.

"Section 2. Nothing in this act shall be construed as prohibiting the sale or manufacture of any compound of linseed or flaxseed. Provided, that such compound, if it imitates in appearance and is designed to take the place of linseed or flaxseed oil, shall not be manufactured or mixed for sale, sold or offered for sale, under the name or description containing the words 'linseed oil' or 'flaxseed oil.'

VIOLATION OF THIS ACT A MISDEMEANOR.

FINE AND PENALTY.

"Section 3. Any person, firm or corporation who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished for each and every such violation with a fine of not less than fifty dollars nor more than five hundred dollars, and, in default of the payment of such fine, shall be committed to the county jail for a period of not less than thirty days.

DUTY AND POWER OF SECRETARY OF AGRICULTURE.

"Section 4. It shall be the duty of the Secretary of Agriculture to enforce the provisions of this act. The said secretary and his assistants, experts and chemists, and others appointed by him, shall have access, ingress and egress to and from all places of business and buildings where linseed or flaxseed oil is kept for sale or stored. They shall also have the power and authority to open any tank, barrel, can or other vessel containing such oil, and may inspect the contents thereof and take samples therefrom for analysis.

FIXED PENALTY. HOW RECOVERABLE. INJUNCTION.

"Section 5. Any person, firm or corporation who shall violate any of the provisions of this act shall, in addition to the fines herein previously described for each offense, forfeit and pay a fixed penalty of one hundred dollars. Such penalty shall be recovered, with costs, in any court of the state having jurisdiction thereof, in an action to be prosecuted in the name of the people by the Secretary of Agriculture or by any of his assistants, and shall be devoted to the payment of the expenses of the department of said secretary. In any action commenced for the recovery of such penalties, an application may be made on the part of the plaintiff to a court of competent jurisdiction, or any judge thereof, for an injunction to restrain the defendant, his agents, servants or employees, from the further violation of this act during the pendency of the action; and shall be the duty of such court, or judge, to grant the injunction, in the same manner as injunctions are usually granted under the rules and practice of such court, upon proof by affidavit that the defendant has been guilty of such violation either before or after the commencement of the action. In case the plaintiff shall recover judgment for the penalty or penalties demanded in the complaint, the judgment shall contain a permanent injunction restraining the defendant, his agents, servants and employees from any further violation of the section or sections on which the recovery is obtained.

"Approved the 23d day of April, A. D. 1901.

WILLIAM STONE.

"The foregoing is a true and correct copy of the Act of the General Assembly No. 62.

"W. W. GRIEST,

"Secretary of the Commonwealth."

Under this law the dealer who sells the adulterated product, even though unwittingly, is liable to prosecution. Under these circumstances, it behooves him, not only to believe that he is buying pure oil, but to make sure of the fact, and to throw the burden of responsibility upon the seller of the oil. Under a reasonable inter-
pretation of the law it will be readily seen that purchase at a concession from the market price of a staple like linseed oil would constitute a prima facie suspicion of guilty knowledge of fraud.

This circular letter is issued under the authority of the Paint Club of Philadelphia for the purpose:

1. Of warning the consuming and distributing trade against the disastrous effects of adulterated oil.
2. Of placing them on their guard against the fraudulent practices now in vogue, particularly by pretended manufacturers in Ohio.
3. Of acquainting them with the law upon the subject, and of their personal responsibilities under the law; and
4. Of showing how the dangers involved may be avoided.

Very respectfully,
The Paint Club of Philadelphia.
G. B. Heckel, Secretary.

Florida Roses In The Markets.
Opportunity For Great Industry.

Florida roses in Yankee markets! And why not? Florida has so long held the banner as the "Land of Flowers" that it has only recently occurred to her nature-lovers that it is the hot-house flowers, the long-stemmed roses and carnations and mammoth bunched violets, that the wealthy consumers demand.

The day is not far distant when placards in glass-front establishments, as well as in the curbstone market stalls of northern cities, will read, "Florida Cut Flowers at Cut Prices."

Each year Florida is growing more practical, and this picturesque industry will appeal to both sentiment and hard dollars.

With the advent of Florida's palatial hotels, fashion has moved her social center to Florida for the winter months. Celebrities famous for wealth and talent, women known on both continents for beauty and wit, fill the magnificent east coast hotels. The social whirl is something to read about, and winter luxuries at staggering prices are among the triumphs of the season, and cut flowers come in for a point of prominence, and at enormous cost, when men and women of multi-millionaire fame vie with each other in these social functions.

Six million dollars' worth of cut flowers were consumed by the American people to do honor to the last Easterling, and thousands of dollars' worth of these luxuries were shipped to Florida by New York and Philadelphia florists.

Our millionaire tourists must have them, and the flower stands in the resort hotels are prepared to furnish them. With the wealthy tourist, the question is not, "How much will they cost?" but which will please femininity most, the American Beauty at $25 per dozen or the bunch of violets or the long stemmed carnations.

Let the reader pause on the threshold of many of Florida's magnificent dining apartments... Adorning the long row of damask-covered tables he sees great bouquets of roses—American Beauty, La France, Jacqumin, etc., and he wonders if the hotels afford such splendid decorations.

Many of these petalled emblems have cost more than $25 (few less than $10) per dozen. What more delicate compliment can the knight of Wall street pay to "meh lady" than to order such a tribute placed on her table, and how the dapper Sambo watches his rival waiter lest a more costly centerpiece finds its way to another table, which perchance may mean "dat de gemmen which gives de American Beauties" will likewise be more lavish in his tips!

And now the wherefore—if northern culturists find profit in raising flowers for Florida shipment, certainly Florida must find a great deal more profit in raising flowers, not only for her tourists, but for northern consumption. The raising of cut flowers in Florida for the United States' consumption must soon revolutionize the flower business, just as the Florida orange has revolutionized the orange industry. The practicability of cut flowers at cut prices is taking hold of certain capitalists, and the scheme of raising cheap flowers in Florida for northern markets is thrilling the souls of Yankee belles, while it strikes terror to Jersey and Long Island florists and at the same time brings the following comment from a New York daily:

"Apart from the usual proofs of common sense, no clearer evidence of how much northern florists fear the usurpation of their rights is needed, than in their touchiness upon the subject."

The northern florist who caters to the satisfaction of estheticism at the rate of $1 and $2 per rose during the wintry months, may well grow restless, for the most influential Florida nurserymen say there will be millions in the Florida industry.

Florida has the soil and the climate—northern hothouse plants grow and bloom in rugged health in open-ground culture—innocent of special care or attention.

In the North, hothouses must be kept heated during the long cold months at a heavy cost of coal bills. Florida would require skill, if any, artificial heat, and with the same trained and workmanlike preparations of flowers for market, as displayed by northern florists, the most timid must see in the industry a success.

The violet grows to perfection in the open air in Florida, and since the realm of fashion decrees the modest flower to be a fitting accessory to my lady's attire, thousands of belles must wear them at a cost of from
$2 to $10 per bunch, and as for the rose, so luxuriantly does it grow in Florida, being cultivated on almost any soil and at any point, that one might believe it native to the soil.

The cost of forcing roses in the winter is great, and the prices paid for the forced buds astounding.

From the stars upon the horizon, what roses can rival the Marechal Niel, La France or the Jacquesimont? They are the armor-bearers of Florid's field.

The Marechal Niel, blooming shyly at the North, can be seen in Florida, covering a long veranda with its deep-colored buds. From a single bush 100 to 300 daily may be plucked. This rose has been a mine of wealth to nurserymen ever since its introduction.

Listen, ye bland florists of northern markets, and then ponder upon the outcome of the gold mines in Florida's blushing soil. On Easter morning it was the writer's privilege to attend the Sunday school services in a South Florida town. The fragrance of the Marechal Niel filled the room. Great clusters of the peerless flower adorned the pulpit and chancel, while it seemed every wee tot came bearing buds or clusters.

Growing in such riotous splendor on their mother's trellis, little value was attached, only as the childish fancy was pleased for a little while, and as the school hour progressed these children plucked the scented petals, one by one, and cast them at their feet. Passing out of the church we made a mental comment on the rose-scattered floor.

Florida is destined to become, and soon, an American Riviera, when smiling maidens and blooming matrons may laugh in the faces of northern florists while they luxuriate in cheap, fresh Florida roses. Northern cities will revel in "cheap flowers," just as Parisians do now.

Beauty, who wears the flowers, and madam, who decorates her ballroom, will prefer, even though cost were not a consideration, the Florida-grown flowers, for an aroma of tropical romance will belong to the southern blooms.

It is estimated that there are $12,000,000 invested in the floral establishments alone that handle cut flowers. It will be easily seen that the flower business in Florida promises quick returns and sure profits, and will put the radiant blooms of the rarest flowers within easy reach of every northern ballroom, parlor and dinner table.

One mine of wealth to the great flower trade in northern cities is the rental of palms and tropical plants for wedding, church and banquet decorations—the plants frequently renting at a sum equal to half their value. In the rich hammocks of Florida grow rarer exotics, exquisite feathery grasses, palms, magnolias and sweet-scented jessamine that would fairly paralyze a professional florist from the frost-bitten north.

If the growing of flowers in Florida for northern markets will not make a paying industry, what will?

Minnie Moore-Willson.

The Purity of Otto of Rose.

E. J. Parry criticises in the London Chemist and Druggist the paper of E. M. Holmes on otto of rose read at a meeting of the Pharmaceutical Society of Great Britain, portions of which were printed in the Circular for February. "Otto of rose," he writes, "like most expensive oriental products, has always been and still is liable to gross adulteration, but too frequently statements are made, innocently or from interested motives, that this adulteration is universal. The most recent utterance on the point is by one whose bona fides is above suspicion, and whose authority as an expert in materia medica gives anything that he says great weight. ** Mr. Holmes appears to consider that otto of rose cannot, for practical purposes, be got pure. As I was not present at the meeting, I do not wish to read into the paper more than the author intended to imply; but it seems clear that he considers adulteration of otto to be practically universal, and that the Bulgarians are alone responsible for it. That adulteration is extensively practiced has been acknowledged by all, and I have emphasized the difficulties in the way of investigation of the oil on account of this fact in my book on The Chemistry of Essential Oils (pages 288-290). Since those pages were written, however, I have had repeated opportunities of examining a very large number of samples obtained from various districts in the Balkans, and from different sources (many being from those who had no interest in the industry), and from the information obtained I have come deliberately to the conclusion that adulteration is considerably less than has usually been considered. The fact should not be lost sight of, that, as in the case of adulteration of oil of lemon (which practice is carried on to an enormous extent in this country, and which we always credit the Sicilians with) a considerable amount of "reducing" of otto of rose is done in England. Formerly, when the exportation of otto was almost entirely in the hands of the Turkish merchants, they were the chief if not the only sinners, and the less honest among the producers followed their example; but as the trade got more and more into the hands of the producers, the quality of the otto improved generally, so that to-day one can obtain pure otto of rose in quantity if one cares to pay a fair price for it, or one can obtain adulterated or pure lavender, spike and thyme oils from the South of France. In both cases it is a matter of the firm one buys from and the price one pays." Mr. Parry presents
in support of his contention observations of his own on rose oils from various sources. He concludes that the “whole question of adulteration of otto of rose must necessarily resolve itself largely into one of price.” He thinks that all large consumers who use otto of rose and understand its value can get genuine otto which has not been tampered with.

From The National Laundry Journal.

If the price of tallow continues to soar upward, the price of soap must of a necessity soar also. The big packers are out for all they can get, and some of them are manufacturing soap for laundry purposes also. If they succeed in thrusting the price of tallow up to a top notch there will be so little profit in soap making that some of our best advertisers will be thrust out of the market. It is charged that there is a soap combine and that the big soap makers are in it. Of this we know nothing, but we feel an injustice will be done some of the smaller laundry soap makers unless they can organize for self-protection. It is through the natural course of events that come with prosperous times in all lines of business, still a halt should be called against excessive prices of articles that enter into the prosperous life of a necessity and cannot be controlled or prevented by the smaller dealers and manufacturers. But laundymen need soap and must have it at any cost, therefore they must stand the blust of it by taking the bitter with the sweet.

Determination of Caustic Alkalies.

(Continued.)

II. DETERMINATION OF THE ALKALINE CARBONATE IN PRESENCE OF SODIUM BICARBONATE.

The principal processes in use are:

1. Take the alkalimetric percentage of the sample examined, and determine on the other hand the carbonic acid according to the process of Fresenius and Will, or some other. These two elements allow of the calculation of the percentage in bicarbonate and in neutral carbonate.

Instead of determining the carbonic acid gravimetrically, it may be precipitated, after addition of a slight excess of ammonia, by the chloride of barium or of calcium, and the earthy alkaline carbonate precipitated may be titrated alkalimetrically.

2. The process of Mebus consists on one hand of the determination of the total alkalimetric percentage. On the other hand, a quantity of pure caustic soda, free from carbonate, equivalent to the alkalimetric percentage found, is added to another part of the matter tested.

The bicarbonate is converted thus into neutral carbonate, and if the sample is is exclusively composed of bicarbonate, all the soda will be converted into neutral carbonate.

If contrariwise, there is neutral carbonate in the product examined, a corresponding quantity of the caustic soda will remain free, and will be determined alkalimetrically after precipitation of the carbonate by barium chloride, either on an aliquot portion of the filtered liquor; or simply, according to Lunge, after having diluted to a determined volume, shaken and allowed to rest, on a volume of the clarified liquor; or, still again, by one of the processes mentioned above for the determination of the alkalies in presence of alkaline carbonates.

Soda may also be added in solution, titrated in excess, and after treatment with barium chloride this excess determined, which allows the estimation of the soda employed in the conversion of the bicarbonate into neutral carbonate.

2. Take the total alkalimetric percentage of the matter to be tested; on the other hand, determine the bicarbonate directly by addition of a titrated solution of soda, with tests by touch with nitrate of silver until a dark brown spot appears (Lunge).

Such are the principal operative methods now in use. But a new method has been tried, applicable both to the determination of the alkali in presence of carbonates, as of carbonates in presence of bicarbonates.

This is based on the employment of acid sulphate of potassium, which reacts, cold on, neutral alkaline carbonates, according to the reaction Na2CO3 + KHSO4 = NaHCO3 + KNaSO4.

The alkaline bicarbonate and the neutral alkaline sulphate are without action on the customary alkalimetric indicators.

We believe a priori that this method is applicable to alkalies in presence of carbonates. At first, it is necessary to prepare a titrated solution of acid sulphate of potassium. Then, the process may be by mixture in definite proportions of titrated solutions of caustic potash and sulphuric acid, or by using pure acid sulphate of potassium, taking care to titrate the solution of the latter with a typical titrated solution of caustic soda. This titration may be made by pouring the alkaline solution into a known volume of solution of acid sulphate having the addition of phenolphthalein. For tests of great precision, it is preferable to determine gravimetrically the sulphuric acid and the potassium of the acid sulphate.

Having thus a titrated solution of potassium bisulphate, the operation may be conducted as follows:

A. DETERMINATION OF THE FREE ALKALI IN PRESENCE OF ALKALINE CARBONATES.

Determine the total alkalimetric percentage in the ordinary way; then, titrate, cold, an aliquot portion of the aqueous solution of the matter to be analyzed having
the addition of phenolphthalein, with the solution of cold sulphate up to decoloration.

A double reaction will take place; on one hand, the formation of neutral sulphate by the action of the free alkali on the acid sulphate, with elimination of water; on the other hand, the formation of neutral sulphate and of bicarbonate by the action of acid sulphate on the neutral carbonate.

A known weight of the product to be tested is dissolved in a determined volume of water; an aliquot portion is taken, to which are added some drops of alcoholic solution of phenolphthalein and titration is effected with the titrated solution of bisulphate until decoloration. The necessary data for eliminating the percentage in alkali and in carbonate are thus obtained.

Supposing the product to be tested a sodium salt, there will be, according to what has been stated, two simultaneous reactions, which have been explained above, and which we unite in one equation: 

\[ 2NaOH + Na_2CO_3 + 2KHSO_4 = 2KNaSO_4 + NaHCO_3 + H_2O\]

whence 272 grams KHSO_4, corresponding to 69 grams Na, it being claimed that the acid sulphate is without action on the bicarbonate formed.

On the other hand, the total alkalimetric percentage gives, on titrating with a solution of sulphuric acid:

\[ 2NaOH + Na_2CO_3 + 2SO_4H_2 = 2Na_2SO_4 + CO_2 + 2H_2O\]

whence 196 grams SO_4H_2, corresponding to 92 gr. Na; that is to say, to the total quantity of sodium present (in the state of oxide and carbonate).

By difference between the sodium determined by the acid alkalimetric titration and the sodium detemined by the acid sulphate, we have the sodium found in the product examined in the state of carbonate, and consequently the percentage of carbonate. The percentage in alkali is determined by difference.

3. DETERMINATION OF CARBONATES IN PRESENCE OF BICARBONATES.

Dissolve a known weight of the product to be tested in a determined volume of water and titrate, cold, an aliquot part of the solution, having the addition of phenolphthalein in the solution of bisulphate, until decoloration.

Thus the sodium is obtained in the state of carbonate, and by difference from the total sodium determined by the ordinary alkalimetric titration of the product, the sodium in the state of bicarbonate is determined. For the titration, it is recommended to pour the bisulphate into the alkaline solution, and not the opposite; otherwise, the bicarbonate formed may, in presence of a great excess of acid sulphate, possibly undergo a partial decomposition.

Tests have been made by using decinormal solutions of bisulphate, and as indicator phenolphthalein, operating the titration cold.

In view of the approximate results of the process, it, in our opinion, deserves the attention of chemists. There would be occasion to study the action of the bisulphate in more or less concentrated solution on the bicarbonate formed, and ascertain precisely the modus operandi for obtaining an absolute concordance of data. This appears to us the more important, because the bicarbonate is not a stable salt in aqueous solution; the stability depending on concentration and temperature.

An example of the process may be cited. A decinormal solution of neutral carbonate, having addition of phenolphthalein, and titrated with the bisulphate until decoloration, at the temperature of 25 deg. C., became rose colored again at the end of five minutes; it took on a red coloration at the end of half an hour. By the same titration, operated until decoloration at 1 deg. C., the solution became red again, on heating over a Bunsen burner, by renewal of neutral carbonate in consequence of decomposition of the bicarbonate.

We think that helianthine may also be employed as an indicator. This is insensible to the action of carbonic acid, which in certain proportion acts on phenolphthalein.—Revue de Chimie Industrielle.

**Cartridges In Soap.**

Writing to the London correspondent of the Liverpool Courier, a correspondent states that he had been paying a visit to Notre Dame, and was rambling through a little street at the side of the cathedral—Rue de Cloître—when he perceived in a chemist's shop an object resembling a huge square Gruyere cheese with an elaborate label. The object was a block of common soap, perforated and honey-combed. According to the label the block was an "echantillon" of many that had made their way into the Transvaal and the Free State for "nosschermains les Boers." It was soap serving as the receptacle of smuggled cartridges.

**Transfer of Trade-Marks.**

So far as the transferability of a trade-mark is concerned, the Circuit Court of Appeals held in the Severn case (supra) that a trade-mark is not of itself property that can be transferred, and the right to use it cannot be assigned except as incidental to the transfer of the business or property in connection with which it has been used. A transfer of the right to use it in connection with a different article or one of a different manufacture would result in deceiving the public as to the article or its origin, which it is the sole legitimate purpose of a trade-mark to prevent, and a transfer will not be protected for such use by a court of equity.
Metal Polishes.
(Continued.)

It is desirable now to consider the mechanical processes through which the raw materials pass in order to transform them into the finished and salable article. As a rule, three distinct operations are necessary. These are:—(1) powdering, (2) sifting, (3) pressing or moulding. All grades of blacklead or graphite which are to be used for stove polish making must be reduced to as fine a state of division as possible, in order to obtain the maximum lustre from the finished article. Only dry-grinding methods are applicable in this case, as it has been found that if the graphite is ground in water it loses its lustre. As a matter of fact, if so-called blacklead powder is examined under the microscope, it will be found to consist of innumerable flakes or facets, the surface of which has become burnished by the powdering process. For this reason the ordinary edge-runner mill has for long been considered the most suitable mechanism by which to effect the grinding. The runners should be stone—either granite or Derbyshire stone—and it is preferable to have the bed of the pan stone also, although it is quite permissible to have the latter of iron. The mill should not be too long, a diameter of two to four feet being ample in most cases. When very large mills are used, the powdered product is liable to be of extremely uneven composition, and the sifting process is thereby rendered more difficult. The proposition of water or glycerine which it may be considered necessary to add during powdering should be accurately judged, sufficient being added to prevent the material flying about in the form of dust, and not enough to cause the product to become pasty or to lose its lustre.

The process of sifting follows on the powdering process. It is well known that the quality of stove polish depends largely on the smallness of the particles of which it is composed; therefore, as the grinding under the edge-runner is certain to leave a proportion of particles of considerable size, it is necessary to remove these if a first-rate article is required. It may be said that at once that many stove polishes are made from materials that have not been sifted, and of course the necessity for this process will depend to a great extent on the care with which the powdering has been conducted, as well as on the quality of the article it is desired to produce.

There are various forms of sifters on the market. Among them are brush sifters, in which a spiral brush forces the small particles through a wire-gauze screen; centrifugal sifters, in which the powdered material is enclosed in a wire-gauze cylinder which is rapidly rotated, thereby causing the finer particles to escape; and, vibrating sieves or riddles, which, although the simplest in their action, are suitable only for the separation of moderately coarse particles.

The presses and moulding machines are so numerous in form that it is impossible within the limits of an article like the present to do more than simply refer to them. They vary not only in the mechanical devices adopted to produce the pressure, but also in their suitability for various classes of stove polish. There are hand presses actuated by a rack and pinion movement, by a lever, or by a screw; there are large power presses of varying construction, and there are numerous modifications of the hydraulic press.

The highly-polished blackleads of to-day owe their brilliant lustre in no small measure to the powerful presses now in vogue. Pressing and burnishing thus form one operation.

The following are selected recipes for cake blackleads, and may be taken as typical examples:

(1) Fine Quality Dry Stove Polish—Parts.
Selected Ceylon graphite 100
American gas black 10
Acetic acid, diluted with an equal volume of water 2

(2) Another Method—Parts.
Good Ceylon graphite 100
Austrian graphite 50
American gas black 5
Treadle 1
Glycerine, diluted with twice its bulk of water A sufficiency.

(3) Another Method—Parts.
Good Ceylon graphite 100
Powdered ivory black 20
Green copperas 40
Glycerine, diluted with twice its bulk of water A sufficiency.

METAL POLISHES.

The articles which are used to impart a brilliant polish to brass, copper, steel, and other metallic surfaces, may be divided into two classes:—

(1) Dry polishing powders;
(2) Polishing pastes and compositions.

Polishing Powders.—Numerous substances are used as scouring or burnishing agents for metalwork. Among these may be mentioned whiting, powdered rottenstone, powdered bathbrick, Tripoli powder, powdered pumice-stone, putty-powder (oxide of tin), powdered emery, powdered oxide of iron (coeleothar, crocus, rouge, &c.), calcined magnesia, bone dust, &c.

It is absolutely essential that any material which is selected as a polishing agent should be reduced to a state of impalpable fineness. The means to be adopted to secure this will, of necessity, vary in the case of different substances, and this is outside the scope of an article
like the present. As a rule, the various dry materials specified above can be purchased in a condition suitable for the purpose now under consideration.

The selection of a particular polishing material will depend on the quality of the product which it is desired to prepare, and will also be influenced to a very large extent by the nature of the metallic surface on which the polish is intended to be used. Thus for a hard surface, such as steel or brass, a selected oxide of iron, or emery powder, or powdered bathbrick is suitable; for a softer surface, such as copper, a less gritty material will have to be used, and whiting, putty-powder, or some similar substance may be chosen. For plate-powders, again, the materials have to be still more carefully selected, and there must be absolute fineness in the texture of the powder. Specially prepared rouge, which is a preparation of one of the softer oxides of iron containing a very small proportion of silica, or putty-powder, or finely powdered bone dust, will usually find a place in powders for this purpose.

The following are typical recipes for various classes of dry polishing preparations:

1. **Polishing Powder for Steel or Brass**—
   
<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colcothar</td>
<td>100</td>
</tr>
<tr>
<td>Emery flour</td>
<td>50</td>
</tr>
<tr>
<td>Rottenstone</td>
<td>50</td>
</tr>
</tbody>
</table>

   For softer metals increase the colcothar, and decrease the other ingredients.

   For brass or copper polish a small proportion of oxalic acid may be added, say, 5 per cent. of the other ingredients. It must then be remembered that the mixture is poisonous.

2. **Knife Polish**—

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emery flour</td>
<td>20</td>
</tr>
<tr>
<td>Powdered bathbrick</td>
<td>100</td>
</tr>
<tr>
<td>Powdered middle purple oxide of iron</td>
<td>20</td>
</tr>
</tbody>
</table>

   The proportions may be varied according to cost, and cheapening material, such as brickdust, is often introduced.

3. **Silver and Plate Polish**—

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Parts</th>
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</thead>
<tbody>
<tr>
<td>Paris white</td>
<td>50</td>
</tr>
<tr>
<td>Bone dust</td>
<td>50</td>
</tr>
</tbody>
</table>

4. **Silver and Plate Polish**—

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcined magnesia</td>
<td>20</td>
</tr>
<tr>
<td>Putty-powder</td>
<td>50</td>
</tr>
</tbody>
</table>

5. **Silver and Plate Polish**—

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcined magnesia</td>
<td>100</td>
</tr>
<tr>
<td>Finely powdered rouge</td>
<td>20</td>
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</table>

   **Polishing Pastes and Compositions.**—Owing to their convenience, and the absence of dust connected with their use, these materials are now extremely popular, and are used in large quantities. They consist, for the most part, of one or more of the dry powders already referred to mixed with sufficient oily or greasy matter to form a paste. There is great scope in the selection of a suitable medium with which to mix the dry material. Tallow, either alone or blended with one of the animal oils, is an excellent medium, as it possesses properties which render it an approved protector of metals, especially iron or steel. Crude paraffin scale unrefined paraffin wax also makes a good medium; so, too, does one of the thicker mineral oils solidified by the addition of a small quantity of paraffin wax. Stearine and stearic acid are used for the same purpose, but these substances are not suitable for the finer polishing pastes, as they are acid in nature.

   The process consists in melting the medium which has been selected and in stirring in the dry powder. The mixture is then run into the boxes in which it is sold. Small quantities of scented substances are usually added to mask the odor of the medium.

### A Poet In A Soap Factory.

The visit of a practical soap manufacturer to a soap factory of another firm, is always interesting to the former, even though not necessarily very instructive. But such visits are not frequent, and the impressions they call forth never yet found their way into print, and it is more than probable that they never will.

The general newspaper writer, on the other hand, who does not understand anything (to speak of) of the practical points to be seen on such an occasion, is invited—or invites himself—somewhat freely to such visits, is admitted more freely too, and at the end of his visit he breaks forth into an enthusiastic and very indefinite report for his newspaper, into which enter invariably the same expressions of "huge tanks", "absence of odor", "immense blocks of soap", "valuable perfumes", etc., etc., so that one such description seems to be a pattern for all the others. Such reports are fully as uninteresting as a corresponding report from the pen of a practical man would be interesting.

But recently a writer of a third variety—signing himself "Quiz" in the British and Colonial Druggist—visited one of the prominent soap factories in England. If he is a practical soap man, he does not show it, but he certainly appears to be a poet and his report is on a new and hitherto unexplored order altogether, so that we cannot resist the temptation to reproduce his description of what he saw. Here goes:

"Yes, this is the honeysuckle and these are the bees. And here we are in the hive. Rather a large hive, you say. True; but then there is an army of bees and tons—tons of honey. But, of course, I am only speaking metaphorically. You see, my honey is not sweet; yet it is sweet, for it is sweetly pure. And it looks, in its little tablet-blocks, nice enough to eat. But it is
not usually eaten, because it is—well, it is soap! And the bees? Are they all working bees? Yes, and hard ones, too, for they are as industrious over their soap as bees over their honey. They each earnestly take their part in its synthesis; they work and mould it into final shape, embellish it and send it forth, so that purity may be synonymous with Erasmie, Erasmie with perfection, and perfection with beauty.

And, therefore, the more striking the incongruous circumstances under which the Erasmie soaps are produced. For, whereas within their home purity and the sweetest odors prevail, without there are the dust and spent vapors of a large industrial center. That center is unromantic Warrington, the home, the spacious one provided by the colossal works of Messrs. J. Crosfield and Sons, Limited, whose enormous output of toilet soaps is practically entirely taken by the Erasmie Company, Limited. What is the secret of the wonderful popularity of these saponaceous toilet products? Why does the name "Erasmie" call to the feminine mind in all parts of these islands, thoughts of delicious ebullition, and what is it in these products which has pinned unto them public favor in such bountiful measure? The questions are soon answered when you go to Bank Quay, Warrington, where you get insight into the vast undertaking, and find the key to the mystery in the striving after excellence that is evidenced on all sides. That the endeavor is successful in its object is attested by the elegantly fine appearance of the contents of those stacks of trays by the stamping machines, wherein are the Peerless, the De Luxe, the Elite, and the white Erasmie soaps. Are not these the perfection of milled soaps? Do not their uniformity and brilliancy, their color, their emollient characteristics, their fine delicate odors, and the gloriousness of the sheen, justify an affirmative reply?

"Let me wander through this palace of perfection and get an inkling of the processes which have for their ultimate purpose the dual functions of flattering the eye and deterring the body. After wending my way across the yard, taking care not to trip over those rails which permit three iron steeds to locomote around the works, I find myself looking down from a tremendous expanse of concrete—the first floor of a huge warehouse—on to a fleet of steamers in the Mersey below. These steamers are the property of the firm, and one—the "Gertrude"—was at the time loading up silicate of soda. They are important units in the great enterprise I am about to inspect. After watching "Gertie" gradually receiving her full of silicate, with the help of one of the several hydraulic cranes which jut over this riverside wharf, I proceed upstairs, to find another fireproof area as long as a moderate sized street, covered by barrels of tallow and oils. These barrels, if filled with a generally-appreciated beverage, would hold enough to keep a good-sized licensed house going for a week or two. I find on the third floor more tallow, and when, as I go higher, there is a fourth assortment of barrels of the same material, I begin to realize somewhat the stupendous undertaking before me in describing these works. However, I take off my coat, so to speak, and manfully mount another flight of stairs to the spacious flat roof, which contributes a fifth storage area to this extensive warehouse. From this dizzy eminence I survey the works below. I am fully prepared, after what I have already seen, to find an expansive array of roofs, but scarcely the far-stretching planes of glass and slate before me now. I am told of the lovely scenic views the surrounding country affords from this height, but, by reason of the fog, they are not then apparent. I also have specially indicated to me the lengthy top of the milling room, the glycerine department, the chemical works and the place where the salt is recovered. I observe the close juxtaposition of the main railway line to the works and the large tanks the firm’s engineer-employees have built for supplying water to the boilers. Also, I notice that the electric light is made on the premises. Later on, I pass through the printing works, and it seems to me everything appertaining directly or indirectly to soap-making is done within the bounds of Messrs. Crosfield’s works.

"The next time I am making a note I have just been looking into a big tank of tallow, and I have had explained to me the method of melting this substance out of the casks by steam pressure—one of the latest ideas of this country. The tallow, into whose liquid depths I have gazed, is, I am assured, like all that employed in the factory, the best white Australian the market can provide. From these tanks, the melted fat I see conveyed to the pans, where, in suitable quantities, it is saponified with the proper amount of alkali, by which means the glycerides comprising the tallow are transformed into salts of fatty acids—soap—and glycerine. At the time of our inspection, one of the big pans is bubbling full of Erasmie soap. There are 11 large soap pans erected between this floor and the one below it, and in those of 160 tons capacity we have two of the biggest in the world. But upstairs I stand in a passage flanked on each side by 16 more pans, about 100 tons capacity each. Up here they make that "Perfection", "Good Judge", and "Gipsy Brown", and the other varieties which have brought fame to Messrs. Crosfield.

"From these leviathans of the pan-world I watch the pumps elevate the liquid soap on the completion of the saponification process, and after separation from lye and glycerine, into a mixer, where it is thoroughly mixed; from there along the shoots a river of soap flows
to the cooling frames—large sheet-iron boxes with removable sides, each holding about 3/4 ton of soap. The serried ranks of these coolers seem endless—there are row upon row. I counted a few hundred and then got tired. Some soap had stood in these coolers for about three or four days—the period depends on the state of atmosphere and the quality of the soap. The sides were then removed and I stood beside a vertical slab of soap as tall as myself. From another which had been allowed further cooling, a workman made modest demands with a stretched wire of 75-lb. bars at a time, intended ultimately for export. I left him with his truck full of these, to see how the stock Erasmic soap is metamorphosised by the aid of suitable machinery, into those exquisite tablets which are acknowledged among the best for toilet use. I see, first of all, the soap now quite pure and wholly free from uncombined alkali, after it has been properly dried and cut into innumerable shreds by means of a large cutter. The shavings are then transferred to a revolving cutter, where the perfume and any other ingredients are added and thoroughly incorporated. Then, shortly afterwards, I see it in the form of a bar, getting longer and longer every moment. From the cutter the soap has been forced through the plodder or cannon—a kind of squeezing it by pressure through a die-plate—and the resulting traveling rod is cut, as it develops, into suitable lengths. Those lengths are stacked and conveyed to one of the many stamping machines in this department, where they are cut into cakes, stamped into the tablets of Erasmic soap so eagerly sought by the public.

"I look at those that have just resulted from this, the most scientific method of producing soap. I am struck by their beautiful glossy appearance, their wax-like finish. The artistic tinting cannot pass an observant eye, and the delicate odors of the various kinds are pleasing to the most sensitive of olfactory organs. It is a characteristic of this process that it produces a hard cake, which does not wear away rapidly when used, and another feature is that it allows the perfumes to be added in large quantity, without considerably increasing the expense, by reason of the avoidance of the losses arising from evaporation when the scents are added to hot soap. And more than this, by the very absence of heat the perfumes are finer, richer, and more lasting—as I find from samples taken from stock before me.

"It sounds simple to say the perfumes are added, and it is a simple operation when you have the perfume. But it is a case of first catching your hare. And in this instance that rodent wants a deal of catching, and the knack of doing so is only in the hands of those few who combine the gift of identifying rare odors with a genius for blending them and a complete odorographic knowledge. One of the many wonderful things in the wonderful palace I am passing through, and one wherein all laymen love to revel, is the perfume laboratory. Here seem congregated the scents of the universe—the loveliest odors nature can yield or science produce. Here, from the assortment at all hands of the world's perfumery delights, the genius of the blenders produce the charming odors by which the particular brands of soap we are interested in, have won fame. What a number of scents must constitute the "Peerless" perfume, which is worshipped by women and men! But a meagre acquaintance with the perfumers' art enables you to recognize some of the "scents divine all scents excelling" in this room, the value of the contents of which it would be difficult to estimate. Some indication of this, however, are those "jewels in a ten-times barred-up chest", which serves as a loyal preserver of the most expensive ones. Here I have before me a fortune in a small space, including about £5,000 worth of pure otto of rose and of musk. In this laboratory 250,000 kilos. of scent for the "Peerless" and other Erasmic soaps are made at a time. And, taking this as a basis, the quantity of perfumes used in a year must be enormous.

"Fascination makes me linger in this room longer than time permits, and I reluctantly leave its perfume-laden atmosphere to watch the lissom fingers of Lancashire's fair lassies imparting that covering to the Erasmic soaps which has associated unto them a high artistic standard, and which is the first means by which they appeal to the public. And then I have a peep into an art gallery in a cupboard, seeing some delightful designs for containers of Erasmic perfumes, face and bath powders, and smelling salts. And I must mention also Messrs. Crosfield's glycerine, which pleased me by it being perfectly colorless, odorless, brilliant, and of taste agreeable to the most sensitive palate. Its specific gravity is 1.86, and it responds very satisfactorily, we understand, to recognized chemical tests.

"As I made my way to the station—after discussing with Mr. Baxter, the manager of the Erasmic Company, Limited, the firm's motor cars, and their non-cutting arrangement with retailers—my reflections were of the power the Warrington potter has over his clay, and the surprise that the company should reap successfully wherever it sows was not that of Quiz."

**How To Loosen Jammed Glass Stoppers.**

1. Hold the bottle or decanter firmly in the hand or between the knees, and gently tap the stopper on alternate sides, using for the purpose a small piece of wood, and directing the strokes upward.

2. Plunge the neck of the vessel in hot water, tak-
According to Teschemacher, the leaves of a palm, probably the dwarf palm (Chamaerops humilis), are imported into the United States from Cuba in very large quantities, the wax with which the leaves are covered being employed by hatters for stiffening purposes.

The list now completed contains all the true waxes used to any appreciable extent in commerce. There are, however, a considerable number of other waxes that occur in smaller quantities, and hence are either not used at all, or are used only to a limited extent; most of these waxes are of vegetable origin.

**PISANG WAX.**

This is very similar to carnauba wax and palm wax in its properties; it is the product of a palm indigenous to the Dutch Indies. The wax is secreted on the underside of the leaves, and in order to obtain it the trees are felled, the leaves cut off, and scraped with wooden knives, which removes the wax in scales. It is melted down and strained through a fine sieve to remove the impurities.

Pisang wax varies in color from white to pale green; it is translucent, hard, and glossy, has a semi-crystalline fracture, and is easily pulverised. The specific gravity of this wax is 0.965, and its melting-point is 79 deg. to 81 deg. C.

On treating the wax with hot alcohol part of it dissolves, the solution yielding a deposit as it cools; this portion has a melting-point of 78 deg. C., while that which remains in solution in the cold alcohol melts at 68 deg. C. The wax dissolves readily in carbon bisulphide, amyl alcohol, or turpentine, when heated.

**ANDAQUIES WAX (Vela de Andaquies).**

This is the wax of a peculiar species of bee, which inhabits South America in the vicinity of the rivers Orinoco and Amazon. It is used by the natives in the manufacture of candles, etc.

In some respects it is different to beeswax, the specific gravity being 0.917, and the melting-point 72 deg. to 77 deg. C. By treatment with alcohol it is separated into three fractions. On treating the wax with boiling alcohol about half of it remains undissolved; this melts at 72 deg. C. On cooling the hot alcoholic solution about 45 per cent, separates; this portion has a melting-point of 80 deg. C., while that which remains in solution in the cold alcohol, amounting approximately to 5 per cent., is an oily product. The behavior of this wax with alcohol is somewhat similar to beeswax; the portion insoluble in boiling alcohol may be myricyl alcohol, which has a melting-point of 62 deg. C., and the portion soluble in hot alcohol, but precipitated on cooling, may be ceric acid, which has a melting-point of 78 deg. C.

*(To be Continued.)*
QUESTIONS AND ANSWERS.

In this column we shall print questions of general interest submitted by subscribers and invite replies to the same from our readers, which will be printed in the next issue of this paper.

Question No. 20: Can you tell us if corn oil is a product that can be thoroughly saponified? J. D.

Question No. 21: Where can I get a formula for a boiled linseed oil soap? I have a very good receipt for making a common yellow soap, but it requires some kind of acid besides the alkali to dissolve the grease in the water. If you know of an acid that is used, would you kindly give me the name of same? H. B.

Question No. 22: Can you give me particulars of making soap for removing superfluous hair, such as is sold as "Depilatory Soap"? S. E. F.

ANSWERS.

To Question No. 18: The cracking of cold process soap in the frame might be due to unsuitable selection of stock and filling, and insufficient combination, but more often probably it is from the use of too high frames. Try a lower frame in which the soap can cool more quickly.—K. D.

To Question No. 19: This question has been answered by mail and space is lacking this month to print the reply in this column. A correspondent, however, points out that a suitable method is described in Wiley's "Determination of free fat acid in a fat" in Principles and Practice of Agricultural Analysis, Vol. III, page 394. Benedict, page 39, etc., also contains an account of methods for the same object.

ANSWERS IN BRIEF.

S. G. B. d. D. of Belgium: If it had not been for the great distance and consequent loss of time, we should have asked you the same question. The report is evidently what at the seat of its origin would be called an "Error."

J. D. L. of P. E. I: We are collecting an assortment of such terms at present and hope to get together enough of them, with their explanation, to make a creditable showing in these columns some day in the near future. Meantime we have replied by mail.

R. R. R. of Cal.: The pamphlet is a reprint from a newspaper or bulletin of a society, we forget which. At any rate it is hardly for sale and we have sent you our copy for perusal.

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.


TRADE-MARKS.


LABELS.

9,101—Title: "Nailitza or Grease Extractor." (For a Cleaning Preparation.) Theodore H. Price, New York, N. Y.

9,123—Title: "Federal Family Soap." (For Soap.) Kirk Bros. & Co., Chicago, Ill.

AROUND THE SOAP FactORIES.

News items sent us by your readers will find prompt attention in this column.

The old Burbeck soap factory building at Peabody, Mass., has been bought at auction by George E. Marsh, of Lynn.

The directors of the Granite City Soap Co., Newburgh, N. Y., had an informal meeting on May 20. The regular annual meeting has been postponed until fall.

The Supreme Court has decided that the word lanolin, designating a prepared wool fat, is descriptive of the article, and therefore not the exclusive trade-mark of any one but free to be used by anyone making the article.

The Larkin Soap Co., Buffalo, N. Y., are reported as planning improvements in their plant.
The Le Maire Perfume Company has been incorporated at Chicago, Ill., to manufacture toilet preparations. Capital, $20,000. Incorporators, A. W. Strong, C. H. Ripley, G. H. Simpson.

The Lockwood Soap Co., capital $15,000, has been incorporated, to do business in Kansas City, Mo. Incorporators, J. E. Lockwood, F. Hammond and C. S. Fredericksen.

A soap and cottonseed oil factory is to be erected for Sr. C. del Valle at Pinotepa, in the state of Oaxaca, Mexico.

California is once more agitated over the proposition to establish a factory of perfumers’ raw materials. J. Jacobs of Tacoma, Wash., is named as one of the leading spirits this time.

The A. M. Todd Co., Ltd., of Kalamazoo, Mich., have begun to run their business on the profit-sharing plan.

Charles Engel, in years gone by a well-known soap maker for several prominent firms, died in Newark, N. J., on the 11th ulto., at the age of 67. The last years of his life were spent in several parts of the South America and the West Indies, whence he returned, not long ago in poor health.

The tallow works of Robert Stern & Son, at Secaucus, N. J., were destroyed by fire on May 4. Loss $30,000.

The driver of a United States mail wagon in this city has been arrested for rifling the contents of mail bags. The discovery of the thefts was due to sample bottles of perfume mailed by A. J. Hilbert & Co., whose odor about the driver’s clothes led to the first suspicion.

A plant has been erected for the skinning and extracting of oil from porpoises to be caught around the mouth of the St. John’s River, Florida.

The Proctor & Gamble Co. intends to increase its capital stock from $4,500,000 to $6,000,000, for the purpose “of procuring facilities for economically obtaining raw materials.”


The Soapul Mfg. Co., Joplin, Mo., capital $25,000, has been incorporated to manufacture soap, by D. D. Eldred, W. S. Paul, A. H. Rogers and others.

The George W. Norton Soap Co.'s factory at Somerville, Mass., was damaged by a fire last month, to the extent of $10,000.

Among the members of the Governing Committee elected at the recent sixth annual meeting of the Interstate Cotton Crushers’ Association at Dallas, we notice the following familiar names: W. E. McCaw, Macon, Ga.; E. H. Ferguson, Louisville, Ky.; William Pect, Kansas City, Mo.; W. B. Albright, Chicago.

The Executive Board of the Manufacturing Perfumers’ Association of the United States had a meeting on May 1st and 2d.

The Louisville Cotton Oil Co. recently was the subject of the following remarks in the Courier-Journal of Louisville:

This company possesses unusual advantages in the way of shipping, being situated at an angle between two of the great Southern railroad systems. It is well equipped with its own tank car line, and its products are equally well and favorably known in Europe as America, some of its brands having a world-wide reputation, notably “Louisville” Butter Oil, “Progress” Butter and Cooling Oil and “Royal” Prime Summer Yellow, all manufactured expressly for edible purposes, the manufacture of which necessitates a precipitate from which is made their “Louisville Star” soap for fulling and scouring woolen clothes, famous for its purity, commanding a premium in the English market as well as at home. At the plant everything has a remarkably neat appearance and shows the result of good management upon the part of the officers and splendid service on the part of their 100 employes now on the pay roll. As a new establishment, the company’s success will compare most favorably with that attained by any other similar concern in this country. It was established in 1898, with Mr. J. J. Caffrey as president, and Mr. C. P. Fink as secretary and treasurer. Its present directory consists of J. J. Caffrey, president; C. P. Fink, secretary; G. W. Tarleton, W. C. Garland and John P. Starks, all of whom are prominent in Louisville’s business success. The Puck Soap Manufacturing company of Des Moines, Iowa, has issued a trust deed for $60,000 to J. A. McKinley covering all property owned by the soap company. The deed was executed for the purpose of issuing bonds.
The Beaumont Soap Co., of Mayfield, Ky., was incorporated only a little over a year ago and began business with a capital of $10,000, manufacturing laundry soaps. On April 8, 1901, they engaged a soapmaker, put in a first-class milling plant, and at once commenced to make toilet soaps. The business, under the management of Mr. E. S. Beaumont, prospered, and the capital has since been increased to $50,000. The company sells its products to Canada and Mexico, competing in price and quality with the largest manufacturers. A few months ago they also installed a glycerine extraction plant made by Joslin, Schmidt & Co., of Cincinnati, at a cost of $6,000, which is giving them entire satisfaction. Early in May they declared a dividend of ten per cent. in cash, which, considering the short time they have been in business, seems certainly a wonderful result. They also have connected with their plant a first-class job printing office and print all their laundry soap wrappers, etc., themselves. W. A. Mott is their chemist and soapmaker.

Swift & Co. have been granted a permit to operate a rendering plant in the vicinity of Harrison, N. J.

The Gibson Soap works, Nos. 122 and 124 North Front street, Kingston, N. Y., are one of the oldest and best known industries in Ulster county. The late Alexander Gibson established the business in 1819, and it was conducted successfully by his founder and his sons for over fifty years, each year showing an increase of business. S. D. Gibson carried on the industry for several years before his father's demise with marked success, and now turns it over to William E. Burbans, formerly of the Kirkman Soap company, of Brooklyn. The latter gentleman has had twelve years of practical experience in the soap business and is fully equipped to maintain the well earned reputation of the Gibson people. Mr. Burbans will continue the manufacture of the Gibson brands of soap and the buying of tallow, etc., at the old stand, 122 and 124 North Front street.

The five-story lard refinery of Armour & Co., at Chicago, erected only in the last two months, was destroyed by fire on May 22, in the course of which a number of persons—mostly spectators—were injured by the giving way of a "hog run" on which they had gathered. The fire started on the upper floor of the building with the simultaneous explosion of three lard tanks, and could not be checked until the building and machinery were practically destroyed. The loss is estimated to be $850,000 or more.

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A number of the leading concerns of this country and abroad have recently adopted the Twitchell Process of extracting glycerine from fats. This process, although of recent origin, has found great favor among those who handle fats or oils in any form, both in this and foreign countries. A simple, inexpensive and safe process of recovering all the glycerine from fat, has long been a desideratum and the Twitchell Process seems to fulfill these three requirements. Its adoption, as stated, by certain firms, is a guarantee of its practicability and, as it will interest all our readers, we take pleasure in calling particular attention to the details of the advertisement of this process on another page of this paper.

The Markets.

Tallow.—New York City in hhds. 6‡; in tierces 7‡ asked; sales of country-made reported at 63-7‡. Prime packers in Western markets held at 7‡. Swift & Company.

Grease.—"A" white, 7‡; "B" white, 63-7‡; yellow 5‡-6‡; bone and house, 6‡-6‡.

Cottonseed Oil.—Prime yellow 45‡-53‡; small sales of off-yellow at 43‡.

Corn Oil.—6‡ asked for car-load lots; smaller quantities 62-6‡.

Coca Nut Oil.—Small sales of Ceylon at 7‡ to 8‡; Cochlin held at 9‡ for spot; for stock to arrive in June and July 8‡-8‡.

Olives Fruits.—5‡ to 5½‡ for spot, as to quality. Palm Oil.—Prime red 5‡; Lagos 6‡; palm kernel 7‡; supplies moderate.

Latest Additions to Our Brand List.

341 Home Soap Co., N.Y.
345 Columbia Ref'r & Mfg Co., Ltd., New Orleans.
Premium, Davenport (Iowa) Soap Co.
Premium W. Powder, Davenport (Iowa) Soap Co.
Hunt Maples 135
Federal Family 1
Fertig 129
Dactyle 11
Marvelline 300
Geyser 245
Belli's Brown 343
Rage 233
Flip 245
Long Shot 35
White Pine Castile 341
Sorosis 340
Gee Family 340
Gusser 310
Blue Castile 340
Faeine 310
Green Olive Chip 340
Sentinel 310
Peach Blue 340
Blue Monday 310
Gold Seal Soap Flour 340
Chlorine 340
Rex Liquid Soap 340
Rex Cherokee 340
Green Seal Chip 340
Blue Chip 340
Blue Olive 310
Blue Coco 320
Limberine, E. A. Warren, St.
Paul, Minn.
Next-To, Phoenix Chem't Co.
New York.
Plant lever Bros., Limited
Port Sunlight, England,
Success Scouring Sand Soap
Taycon Soap Co., Phila.
Empress Eugenie 115

Beauty Belle 21
Iroquois Maiden 113
Floral Feast 115
Flannel 2
Fragrant Honey 2
Fairbank's Primrose 2
Scouring 2
German Fam. 2
Glycerine 2
Mottled Germ'n 2
Olive 2
Naptha 2
Jewell 2
Lakeside (Scouring) 2
Lion 2
Michigan Family 2
Rockford Scouring 2
Santa Rex Castile 2
Star Mottled 2
Sweet Blossom 2
Twin 2
White Fairy 2
Windmill 2
World's Fair 2
Ring Solomon's Rock Oil 8
298
Syrup Jenkins, N. Y.
Cleanser 280
Eucryl Enery Ltd., Hall,
England.
Dermatite 327
Nehilotam Corn Oil 8
189
Preventionette, Willard Chem.
ical Co., Maben, Mass.
Passion Rose 328
Violet 328
Pink 328
Lilly 328
Trash Mover 326
Evergreen 286
Yellow Palm 340
Green Palm 340
Palm Soap Flour 340
Palm S. Powder 340
Antillia 2
Blue Cond 2
SUPPLEMENTARY LIST OF THE BRANDS OF SOAP MANUFACTURED IN THE UNITED STATES Including also the Brands of Foreign Manufacture Registered as Trademarks in this Country.

NOTE: This list is compiled with the greatest possible care, but the publisher does not assume any responsibility other than to correct and to complete the list according to data obtained from official sources or furnished by the trade. Brands registered in the patent offices of the various countries are also included, and the parties registered with the name of the party registered thereon with the name of the trademark. Brands or marks which were found to be used by more than one firm or the owner of which could not be ascertained.

SEE THAT ALL YOUR BRANDS ARE ENTERED IN THIS LINE.
The American Soap Journal & Manufacturing Chemist.

A MONTHLY JOURNAL OF THE MANUFACTURING CHEMICAL INDUSTRIES.

DR. HENRY GATHMANN, Publisher.
2707 North Ave., Milwaukee.

MILWAUKEE, WIS., July 1, 1902.
VOL. XII. No. 11

THE
AMERICAN SOAP JOURNAL
AND
MANUFACTURING CHEMIST.

SUBSCRIPTION:
United States, Mexico, and Canada, $2.00 a year
Foreign Countries in the Postal Union 2.50 "
PAYABLE IN ADVANCE.

ADVERTISING RATES IN REGULAR ISSUE:

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SPACE ON COVER DOUBLE RATES.

For Rates and other Information concerning small advertisements of WANTED and FOR SALE, see Announcement at the head of that page.

OFFICE OF PUBLICATION:
2707 North Avenue, MILWAUKEE, WIS., U. S. A.

The American Soap Journal and Manufacturing Chemist is devoted to the interests of all manufacturing industries of a chemical character, and is an absolutely independent publication. It is the only newspaper of its kind in America and has a large foreign circulation.

For Subscription and Advertising rates see above.

Communications on industrial subjects, news items, and any information suitable for printing in these columns, are solicited and will have due attention.

Readers in search of machinery, supplies etc., not advertised in these columns, are invited to write us and we shall endeavor to supply the information.

Address all communications to
DR. HENRY GATHMANN, Publisher,
2707 North Avenue,
MILWAUKEE, WIS., U. S. A.

To all to whom these presents shall come, Greeting:

If you are a regular subscriber to the American Soap Journal, this item does not particularly interest you. But if you receive an occasional copy of this paper without having ordered it, you will know that it is sent you as a cordial and personal invitation to look over the sample carefully and figure out whether, in the course of the year, you can extract from the twelve monthly issues enough information, entertainment, inspiration and consolation, to warrant you in ordering the paper sent you regularly.

The cost, $2 a year (ten shillings and sixpence for England, Scotland, Ireland, Cape Colony, India, Australia, etc.) is certainly insignificant enough. To soap makers in foreign countries especially we wish to say that a large number of their neighbors have been subscribers for this paper for as long as ten and twelve years, uninterruptedly. If they thought it worth while all these years, why not you?

In remitting please use a Foreign Money Order.

Manufacturers of patent medicines, foods, and various other articles handled largely by department stores, and other enemies of the ordinary retailers, have frequently been requested by the latter to cease supplying the "price-cutters," in order to put an end to the ruining of retail profit. There are many instances where relief from this evil has thus been obtained. We do not lay very much of such incidents in regard to soap, although department stores often enough offer tremendous bargains in soap. Is this because so many of these bargains are in private brands, or is it because soap manufacturers are too busy with troubles of their own, without looking out for the retailer to make a profit?

Starting from the proposition that the consumers of soap, generally speaking, know very little about the differences between several grades of soap, and further following from this that to this circumstance is due the widely prevailing unwillingness of the public to pay a fair price for soap, a manufacturer in Berlin (Sofensieder- Zeitung, No. 22) calls upon the trade in his country to adopt the custom of printing on the wrappers, boxes, barrels, etc., such designations as "guaranteed filled," "containing per cent. fatty acid," etc. This, he argues, if done by a number of representa-
tive manufacturers, would soon start consumers to look into the merits of different soaps and cause them to more readily pay for soaps according to said merits. Misrepresentations as to the fatty acid contents, on such wrappers, etc., would be fraud and as such punishable by law without the necessity of any new legislation. The poorest qualities of soap, under such circumstances, would disappear more or less from the market, while makers of the better qualities could not so easily undersold by competitors offering a lower quality sailing under the guise of an equally good article. In conjunction with such move the same writer urges a systematic plan of instructing buyers in the practical meaning of such designations as he proposes to use.

A peculiar counter-piece to the foregoing is described by Oils, Colors and Dyes of May 21st. According to the latter the Plymouth Mercantile Association of retail dealers have evolved a scheme to inform themselves—for self-educational purposes—about the true inwardness of the different articles they handle daily; with this end in view they have been making several visits recently to candle and soap factories in the vicinity.

There is food for reflection in thinking what dealers might be made to learn by manufacturers in this way, and what effect such visits may have upon securing for a factory the support of local dealers.

Laundrymen without exception make their own soap. If you don’t believe it, ask them. But they do it only “in a Pickwickian sense.” That is to say they call it “making soap,” when they dissolve their washing materials in water to make a detergent solution. It sounds a little strange, not to say anything of a suspicion of sarcasm, till you get used to it, to hear a laundryman speak of his fine formula for making soap and then find him explaining how he takes so many pounds of soap and so many gallons of water to make it.

According to Consul General Lay there are over a hundred factories engaged in soap making in the single city of Barcelona, Spain. Their aggregate output per annum is 25,000 tons.

Between such competition and a duty of about $25.50 per ton on common soaps, none of the latter is imported, but toilet soaps from England and France still find their way to Spain in spite of a duty of 42 cents per kilo (2.2 lbs.). In these grades also, however, Spain is said to be making rapid headway.

According to Oils, Colours & Dyes “a cottonseed oil factory is to be established in the State of Oaxaca, U. S. A.”

Who’s been bringing a new State into the Union? Did we have a war with Mexico lately?

On another page we print the specification of a new process of making soap, invented by an Italian residing in Egypt, and just patented in the United States.

We don’t blame the inventor much—the sun must be pretty hot in Egypt at times—but our patent office ought to “go way back and sit down.”

On another page we reprint, from the laundry trade journals, an advertisement of the Conkling Chemical Co. In doing so we by no means intend to hold the advertisement up as a model, nor to unreservedly endorse all the statements made therein. We merely print it as we find it, as a specimen of what is doing.

The United States Soap Corporation announced last month is being talked about in many places, but though many columns are written and much speculation indulged in, little of a tangible nature is coming to light. This being exactly the fourth time in the history of the Soap Journal that we followed a trust rumor for months, so far without any result at all, we are not over-sanguine in our expectations to soon have any very very startling news.

Meantime it is announced that the “Corporation” will erect a factory in Lincoln, X. J., to be completed by October 1. It is also announced that it intends to buy up the Egyptian Salt and Soda Co. And several other things are also announced.

For the present we content ourselves with printing on another page what a New York correspondent for the daily press is sending out. For those who like that kind of thing better than they do anything else, that article is just what they will enjoy most.

Are the old days returning when everybody was making soap at home? We are led to ask this question by a somewhat sudden and not inconsiderable influx of enquiries for small books on soap making. These enquiries have certain peculiar characteristics, to-wit: They are invariably from perfect strangers to us, living in very small towns that could not possibly support a soapmaker; they are looking for a line of cheap books with “good formulas for making soap;” and they are invariably addressed to our former Chicago address.

It is not difficult to argue out that all these enquiries must have some common starting point and indeed, tracing a few of them back, we find that there is on the market a cheap book on soap making in which the author (quite unknown to us until recently) takes occasion to refer to the American Soap Journal of Chicago. The above mentioned enquiries are all the result of this little book, sold apparently quite widely, by some of the so-called mail-order houses.

The enquiries show, therefore, that numerous men throughout the country are not only buying a cheap book
on soap making, but that they are actually looking for
more literature of the same sort. Hence the query. Is soap making at home to be revived?

For a time we hardly thought the foregoing item
worth mentioning—we had noticed it for months before
this. But there are signs that instead of fading out
again, this sort of thing is rather going to spread. Last
month, for instance, we were in receipt of a letter from
one of the “mail-order” houses in the East, asking us
if we could supply a book on soap making suitable for
the mail order trade and to quote price thereon per 1,000
copies, including free circulars for our correspondent
to mail. While we, of course, neither have nor care to have
any such business, it is safe to say that here as in other
cases a supply will come forward as soon as the demand
becomes known. We may look forward to a list of cheap
mail order books on soap making.

A subscriber writes: “I have also been trying to use
a product called Compound Soap Oil, in my laundry
soap, but I failed to make it work. The refinery gives
instructions to add about 10 per cent. in stocking the
kettle (which works allright) and when the soap is done,
to add from 50 to 75 per cent. in the crutch which
then leaves the soap in a soft and sneary condition.
Can you throw any light on this? Compound soap oil is
a production from coal oil, thick, black in color with a
greenish shade.”

We have no means of knowing how many kinds of
“compound soap oil” there may be offered to the trade,
but from the foregoing description take this particular
specimen to be one of the first cousins of the less eupho-
nious but more familiar mineral soap stock. Taking this
for granted, we direct the following remarks to this
kind of material (should any one market a more legiti-
mate and suitable “compound soap oil” he is of course
not included in any sense in the following). So far as
the technical question is concerned, we have already
replied by mail and need not print our reply; a few general
remarks are, however, strongly suggested by this inci-
dent:

Large business houses, headed by broad-gauged busi-
ness men accustomed to base all the details of their trans-
actions on certain sound and immutable principles, con-
sider it self-evident that it is through the prosperity of
their customers that they themselves prosper; they are
almost, if not quite, as solicitous of their customers’ wel-
fare as they are of their own; if they find one of their
customers showing a tendency to overbuy or to buy in-
judiciously, their creditman is apt to be heard from.

There is another class of firms that delight in loading
down customers with an over-supply of goods; that con-
sider it smart to sell a customer articles which it is
against his interest to buy; who look for new customers
while the old ones are going to the wall.

Take another point of view altogether, there are
firms who, for their main products, have a certain circle
of customers whom they treat in the manner first de-
scribed, but who adopt for the sale of some otherwise use-
less by-product the tactics described last.

Has this anything to do with the question?

We can picture to ourselves a refinery that sells its
chief products on the soundest of principles, carefully
watching its customers and ready to curtail or shut off
credit on the first sign on the part of a customer that he
buys, or in any other way acts, injudiciously. We can
see in our mind a waste product accumulating in that
same refinery which is useless, except for what can be
got out of it somehow. Lubricating oil and axle-grease
makers are supplied and still a waste remains. Here
the soap manufacturer is suggested as a possible user
and the refinery sees a chance to find a customer who is
good enough while he lasts. This is not saying, mind
you, that every user of a mineral soap stock is com-
mitting an error! We are now only speaking of the par-
ticular class of cases, suggested by our correspondent.

We now come to another phase of the same subject:
Time and again the American Soap Journal has been
asked by manufacturers of various raw materials to help
them out with information on the proper use of their
products in the soap factory (and elsewhere). Shortly
after, such manufacturers suddenly pose as experts and
attempt to tell soap makers how they should make their
soap. Once more we conjure up a picture, and see an
oil refinery casting about for information how the larg-
est possible proportion of its waste products could be
worked into a soap. “Crutch it in,” they are told, some-
where or other, and straightway they tell prospective cus-
tomers that 50 to 75 per cent. of their waste is a good
thing to crutch into a soap. Many soap manufacturers,
we dare say, do not entertain the thought for a minute,
but others there are who cannot help thinking that the
manufacturer of an article ought to know its uses, and
so they buy the waste, and experiment to their cost, and
then they either discard the stuff, or use it with great
care, or—and that is the real point we aim at—they
use it to the detriment of their goods and their reputa-
tion.

If anyone take offense at these remarks, let him ask
himself “honor bright,” how he would feel if asked to
believe that 50 to 75 per cent. of any unsaponifiable,
greenish-black, soft, sneary mass crutchted into an hon-
est soap, besides ten per cent. previously used in the
kettle, can be made serviceable.

Josh Billings once remarked: “In life, as in cards,
the glory is not so much in winning as in playing a poor
hand well.” To a soap manufacturer laboring under
especially difficult circumstances this saying ought to be a sermon and a consolation.

Coining fetching soap brands, and subsequently money, is an art in which some of our correspondents propose to introduce the system of the division of labor; that it to say, they would like us to coin the fetching brand and are willing in turn to—coin the money. For our own part, having no use for money, we are willing to oblige; with this end in view we had looked around for ever so long for a “sure combination” and at last got the man that broke the bank at Monte Carlo to work out, at an enormous expense, the plan that appeared in our Soap Journal for January. It seems, however, that furnishing that article has not quite satisfied all—what is wanted are ready-made names that will leave our correspondents nothing to bother about. In hopes to satisfy them, we shall just carefully open the safety valve and blow off a little of our surplus inspiration.

The fatal error made in the article alluded to above was, of course, that, in place of citing the brands in use today, it did not enumerate all the brands not as yet in use; then all could have taken their pick. Just to see how that plan would work, we suggest the following promising brands as being open so far as we know. As soon as all the brands named below are used up, we shall be ready to open the aforesaid safety valve another notch or two, and let out another bunch of names not yet appropriated.

In group 1—brands designating fats and oils used in soap—we miss Elbow grease, Fat of the Land, Texas Olive (for a cottonseed oil soap), Snake Oil (for medicinal soap), Cod Liver Oil Hygiene.

While we have, in another group, Anco Tar, Black Crow Tar, Borax Tar, Canada Tar, etc., the brand Tar & Feathers is still anxiously awaiting a taker. For a sand soap or a silicated toilet soap the word “Skinflint” would seem to be a gold-mine. For a carpet soap “Cleanoleum” might do nicely.

The “Beat M All” group naturally suggests “Beat the Dutch,” and how it happened that Admiral, Chief, King, Captain, Commodore and others were all discovered and the “Palm Colonel” overlooked is simply inexplicable; he is herewith presented as a candidate.

Among names indicating special hygienic value “Soaporific” ought to prove a winner; we have seen the word used on a wrapper in describing the good qualities of a soap, but not in the form of a brand.

The names Mineral Toilet, Mineral Water Mediicial, etc., readily suggest “Vichy-Vashy” as almost clamoring for admission into the same group.

Of all the brands consisting of various combinations of the word “Baby,” hardly one could hold its own against a soap named “Warm Baby Soap.”

“Black-Hawk,” suggests “Black-in-the-Face” and of course other personal names are open by the thousands—among them we think “Billy Patterson” is entitled to consideration; “Carrie Nation” also involuntarily suggests effectiveness in promptly cleaning out. If Billy Patterson is adopted as a result of this suggestion, the question as to “who struck Billy Patterson” will thereafter be answered that the Soap Journal did it.

In group 21—animal names—we miss Razor-Back (warranted to settle the business for a shaving soap), Lobster, and under Inanimate Objects it seems a sign of our falling behind the times that “Automobile” has not as yet been claimed. Likewise, for a floating soap, “Airship” is as natural as for a non-floating soap “Submarine Boat.”

In the class of 2-1-5, 3-4-10, 16-1, it is really laughable to think that 4-11-11 and 7-11 should beg for discovery.

Well, good morning, how you vasch?

Success In Soap Manufacturing.

Editor American Soap Journal:

DEAR SIR: I have just read with much interest a letter, in the June Journal, by A. D'Estampes, in which he says that the secret of Messrs. Lever Bros' success is “They make good Soap.” It is my humble opinion that the gentleman has told the plain truth, and given the American manufacturer the true Key to Success. It is a fact that the American soap maker of today has direct his efforts towards using as much Rosin, Silex, Tale and Silicate of Soda, etc., as possible. There are a very few exceptions, according to the samples I have analyzed in the last year. As to what you call “marked inconsistency,” let me say, Messrs. Lever Bros. sell Sunlight soap cheaper here than they do in England, in order to give the American people a chance to discern the difference between a first-class soap, and the highly rosin, heavily-filled article that they have been in the habit of using (especially since tallow has increased in value), and when the people have all tried and know what a really good and pure soap will do, it is going to be a hard matter for the manufacturers of highly rosin and heavily loaded soaps to sell their product (5 bars for a nickel) to any of the eighty millions of the cleanest people on “God's grassy earth,” and then Lever Bros. will be able to raise the price on their “Sunlight” and make money in this country also.

It is a fact that the few firms who make a soap comparable with “Sunlight” are now prosperous and actually do pay their soap makers and chemists reasonable salaries. The road of success in the laundry soap business is not paved with Rosin, Silex and Silicate of Soda, put together by man who has helped some soapmaker.
for six months, but it is paved with first-class, clean and sweet materials combined by a man who "knows the reason why," who keeps every kettle to a certain "hardness point" and who does not let his nigre rise in the kettle.

Respectfully yours,

KENTUCKIAN.

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**High-Speed Soap Making.**

*Editor American Soap Journal:*

Dear Sir: Are American soap makers slow? One not knowing the facts might be brought to think so from reading Mr. d'Estamps assertion, that a man who would take 6 or 7 days in Europe to make a batch of soap "would have to look elsewhere for a job and probably come to this land of milk and honey."

Does the American soap maker really take 6 or 7 days to make a batch of soap? I should think not. On an average he probably finishes a batch in 3 days; if it takes three to six days or more after that to leave it alone to let it settle and cool, he makes during the same time another batch in a separate kettle; besides the longer time is needed only on account of the large size of the batch and if a single boil takes us a little longer than the time taken by foreign soap makers with their little kettles, we can make many times as much soap in say a month, as they can. If we thought best, we could avoid the long settling and cooling easily enough by having smaller kettles.

Because we take a certain time for making a batch, that is not saying we cannot do it faster: I have myself stocked and finished a 50,000 pound batch of settled resin soap in 10 hours; withdrawing spent lye, one wash and strengthening change, and rather pride myself on that for a record. "Time is money," soap makers know as well as anybody.

Yours truly,

CRACKER-JACK.

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**An Object Lesson.**

*Editor American Soap Journal:*

Dear Sir: Referring to a letter from my pen, under above heading, in your last issue, I wonder what drew upon me your charge of inconsistency.

Was it because I both advocate the more extensive use of silicate as a filler in soaps and, almost in the same breath, advocate the making of good soaps such as Sunlight soap which apparently last year returned to stockholders in that company nearly one and a half millions of dollars?

Or was it my statement that Sunlight soap was sold by Messrs. Lever Bros., here for about half the price it sold elsewhere?

If the latter, there is very little doubt that Messrs. Lever Bros., know their own business best and perhaps, being aware of the large profits they reaped elsewhere, thought that they could well afford to sell at a loss here to capture the market and rise afterwards—which is throwing away the proverbial sardine as a bait to catch the salmon. The balance sheet published by this firm sets forth that two of their nine factories showed a loss. [This is where our remark about inconsistency was intended to apply, as the writer appeared to point out a losing game as a guide for others to follow. The foregoing explanation of course shows the subject from an entirely different standpoint again.—*Editor A. S. J.*]

I for one think that it is a very injudicious thing for any business man or firm to sell at a loss in the hope of recouping later on. The public does not believe that manufacturers will supply it at a loss. A rich Englishman made a bet with a friend that he could not sell $500 at two cents each—that from 9 a.m. to 4 p.m. he could not sell 1,000 at two cents a piece; the bet was made and from 9 a.m. to 4 p.m., standing on London Bridge in London, they sold only one solitary gold coin at two cents to a little girl. Many people handled the gold coins and said "how like the real they looked"—but they did not buy them, thinking them spurious.

I hold the humble opinion that Sunlight soap would have sold just as well at eight or nine cents as at five cents, in proof of which Messrs. Swift & Co.'s Wool Soap retails in New York at eight cents per cake; soapmakers know that almost any soap can be made to float. If Messrs. Swift & Co. can sell at eight cents per cake, why cannot other manufacturers, be they Messrs. Lever Bros. Ltd., or any one else, do the same?

Make good soap and ask your price for it; no firm can sell for long at a loss and will soon get tired of that game. Many manufacturers seem to pin their faith to one single kind of soap; some use different brands for the same soap or next to it. Now a successful business cannot well be conducted nowadays with a single soap, for there are so many different minded people. Such world-wide known soap manufacturers as Jos. Crossfield & Sons, Ltd., Wm. Gossage & Sons, Ltd., Knight & Co., Ltd., Cook & Co., and scores of others, could never have attained the prominence they have done, on a single kind of soap.

Such manufacturers make soap at all prices, the very best kind it is possible to produce as well as the commonest kinds—goods for the money! In proof of this Messrs. Wm. Gossage & Sons, Ltd., made Messrs. Lever Bros.' famous Sunlight soap for Messrs. Lever for quite a long while. It must be patent to everyone that, if they could make Sunlight soap for Messrs. Lever Bros., they can and do make just as good for themselves.

In business sentiment and pride are out of the question; producers must try and meet the public demand and manufacture what the public wants. Of course, the public would want very good and very cheap, but as that
Soap Making in Mexico.

(Continued.)

"Better late than never," as the old saying is; my excuse for not continuing my long-delayed article on Soapmaking in Mexico before this, is that I have been quite a few thousand miles away in the meantime, and was lucky (or unlucky) enough to see Martinique and Mount Pelee a few days after the eruption, and also an oil mill in Brazil, since last writing.

On the way back to the United States the steamer took in coal at Barbados, where we first heard of the catastrophe in Martinique, which is 150 miles north of Barbados. The latter presented a lazy, grayish-brown color, due, we were informed, to the fine durit fallen at the first eruption of Mt. Pelee. I obtained a little of it and it is an ideal product for scouring and polishing soap, of even fineness and very gritty. It covered the whole island to the depth of half an inch and it was calculated that there was about a million and a half pounds of it; how incalculable is the amount thrown out over Martinique and surroundings!

At St. Pierre not much was to be seen, as we did not land; the mountain and ruins of the town were covered with steam from the hot mud and it cleared up only momentarily in places, with a gust of strong wind.

But to return to my subject: In the City of Mexico there are, according to the directory, 44 soap factories, but among these there are only 3 or 4 that represent what we would call "factories" here. Every butcher renders his scraps and makes 100 or 200 lbs. boiled down soap, generally with a few per cent rosin; the soap is cut in pieces as small as half an ounce each. The same is true in the larger haciendas and in the smaller towns.

The consumption of toilet soap is very limited and for the greater part consists in medicated soaps—especially sublimate soap and cyanide of mercury soap considerable transparent soap is imported from Germany, but altogether the consumption is so small that there is not room for another toilet soap factory there. The largest consumers are the bath houses that use half ounce cakes of cold made tallow and coconut oil soap—some as much as 7,000 to 10,000 cakes per week.

All in all, Mexico is not a very inviting field for soap makers, as the poorer classes of people use very little soap, having a kind of hemp which lathers freely and does dissolve some of the dirt of which there is plenty in that country. For shaving, the barbers use the powdered, boiled-down laundry soap, which is sharp enough to take the hair off without the use of a razor.

Fire in an adjoining building on June 13 caused a small amount of damage to the Vacuum Soap Co. of Philadelphia.
A Startling Advertisement.
THE FOLLOWING RECENTLY APPEARED UNDER THE NAME OF THE CONKLING CHEMICAL CO. OF CHICAGO.
SOMEB where, June 1, 1902.

Gentlemen: I regret to report that I have not the pleasure of enclosing with this mail the order of my old customer, Snaky Snoggrass. The facts briefly are as follows: When I made the last contract with him, about ten months ago, the price of tallow was very nearly two cents per pound less than it is today, and, as you are aware, we have made up the soap for “Snaky” accordingly.

Anticipating that under these circumstances I would not receive a very cordial welcome, I thought it advisable to call him up by ‘phone, and I can assure you that the ‘phone saves me in these times when tallow is so very high in price many unpleasant and disagreeable receptions for the ‘phone is a safety valve, so to speak, which is fully appreciated by your humble servant.

“Snaky” was in no amiable mood, in fact, he was much worse than I expected he would be, and inquired, in very severe tones, “what sort of stuff I had been sending him lately for soap?” I replied that the soap was all right, and that he must be a “little off.” “Oh!” he says, “not much; for the first lot you sent me was poor, the second was bad, the third worse, and the last was simply rotten.”

Taking in the situation very carefully, I came to the conclusion that there was only one thing left for me to do, and that was to invite him to dine with me and open up, as usual, a cold bottle, for there is nothing that calms “Snaky’s” nerves so well as a cold bottle of sparkling wine.

There was a time when “Snaky” was willing to listen to any suggestion I chose to make, but of late he has changed considerably, and he frankly tells me that in the future when I wish to tell him how to run his business I must open up a cold bottle, when he will sample the bottle while I tell him what to buy. After I had given him my views very fully on matters in general, he very quietly called my attention to the guarantee sent out by the manufacturers of the Red Heart Soap, and he tells me he has about come to the conclusion to insist upon the same guarantee in the future on any soap he buys.

I explained to him that it was all nonsense to pay any attention to guarantees, for they cut no ice. He could not see it in that light, however, but another cold bottle may change his mind. If anyone thinks I have a cinch filling old contracts for soap on an advancing tallow market, I wish they would exchange places with me for the next few months, for, confidentially between ourselves, “Snaky” is about right on the quality of the soap we sent him. It was the best we could do, however, at the price we got for it, even if the last we sent him was “loaded to the guards.”

You will remember that we figured it out in this way:

- 100 lbs. of tallow @ 7c. ........ $7.00
- 90 lbs. of caustic lye ............... 1.00
- 50 lbs. of silicate of soda ........... .33

Total .................. $8.33
Cost of barrel ....................... .23
Labor estimated at ................. .20
Cartage, etc. ......................... .24

$9.00

At a careful estimate the soap would cost us about 33^1/4 cents per pound net, for the mixture makes 240 pounds at a total cost of $9 net.

As we sell the soap to “Snaky” as per our yearly contract at 41^1/2 cents per pound, we are still making a profit of 34 cents per pound, or $1.80 a barrel on an average, or providing it weighs 240 pounds, it of course contains much moisture.

Altogether this is a good combination, for the strong caustic lye whitens the chip, in fact it will bleach it to a queen’s taste and be comparatively neutral.

The caustic lye in combination with the silicate makes a nice, hard chip that will not shrink but will rattle in the barrel, or, if desired, all around the wash-room floor.

“Snaky’s” neighbor, the gold-brick man, who has helped me many times to secure his order, says that as a cold made adulterated soap schemer I am not only entitled to the cake but the whole bakery should be included as well.

Ever yours to command,
SLIPPERY SLICK.

Popular Enterprise.
BY A NEW YORK CORRESPONDENT FOR THE DAILY PAPERS.

The incorporation of the United States Soap Corporation under the laws of the State of Maine has opened up a new era in Trusts and industrial combinations. Heretofore Trusts and industrial combinations have invariably been made by enterprises which had already accumulated fortune and entered into combination only that greater economy could be effected in production and prices so held up that enormous profits could result. Some of these combinations have gone to the wall because, in their greed, they defied public opinion, and others are in constant battle with the administrators of the law adding, through their effort to ride roughshod over the consumer, an element of expense in the maintenance of an immense legal staff often larger than the economies of combination.

The United States Soap Corporation has apparently
avoided every one of these difficulties, and yet, as the New York Sun of last Sunday says, "Its charter has given it very sweeping powers." Indeed, the charter of the Corporation, granted and approved by the State of Maine, gives to this new Trust every privilege that is granted to the United States Steel Corporation. The last-named Trust, famed as the "Billion Dollar Trust," has resulted in earning immense dividends, and Andrew Carnegie can give away million dollar libraries as easily as the man with the average income can buy a penny newspaper. The annual sale of soap in the United States aggregates more than that of steel, and the incorporators of the United States Soap Corporation have, therefore, a greater opportunity to make money than the great coterie of millionaires who held the stock of the Steel Trust.

The Soap Corporation has been very quietly and secretly effected. Even the trade at large had no intimation of it until it quietly announced that Frank E. Stripe, a lawyer, of 21 Park Row, acting for a coterie of leading capitalists had secured the charter in the State of Maine. The capitalization, it was then found, was $1,000,000. Examination of the charter showed that this might be increased to a hundred million or a billion whenever the directors of the new Trust see fit. As they are men aggregating many millions the stock is very strongly held, and as the Wall Street Journal says, "it is managed by men who have been successful with every enterprise they have undertaken." The Banker and Investor, a journal which had done more than any other in the financial world to show up weak and catch-dollar enterprises, says that "this new Trust stands unique and alone in financiering, and the reliability and soundness of judgment of the men who have engineered it assures it a great future."

The officers and organizers of the new Trust will not talk about their plans or purposes, but your correspondent is in a position to know much of them and takes no hesitancy in saying that in the chartering of the United States Soap Corporation the State of Maine has given birth to a baby giant among the Trusts and to the first Trust that will meet with universal support and will have no trouble or conflict with the laws. The original stock of the Soap Corporation was all subscribed for and taken by the organizers before the charter was obtained. As soon as the organization became known there were many applications to Lawyer Stripe at his offices at 21 Park Row for stock, but they were all quietly told that the stock was taken.

Your correspondent has correct information to the effect that the Corporation has set aside a few thousand shares of its stock to be distributed to small investors all over the United States. Their object in so distributing their stock being directly contrary to the recognized course of financing any trust heretofore established—that is, to secure the public support in this way they plan to secure stockholders in every city or town, which stockholders will not only use their articles but also be constant agents recommending the goods to their friends, ever anxious to extend the sales and thus increase their dividends.

The United States Soap Corporation will establish new plants throughout the country, and then it will invite all the great soap makers to join the combination, showing them the advantages it offers. That it will soon be a monopoly there can be no doubt. It will be the first popular Trust because it will constantly increase its holdings in stock among the people at large and will never be forced into the necessity of a move to advance prices. Lawyer Stripe, who is the treasurer of the corporation, now holds the first allotment of stock for public subscription. He has not even advertised it, as he does not wish to be swamped with orders which he cannot fill. This allotment of stock, consisting of a few thousand shares only, will be issued in small lots at various centres, at fifty cents a share, par value one dollar. A capitalist cannot buy it though the effort to do so has been made, as it is a part of the Trust stock allotted to popular subscription.

Already a number of Soap companies have made application for entering into the corporation, and the Board of Directors is kept busy considering their propositions and placing valuations on their factories.

**A U. S. Patent of May 20, A. D. 1902.**

To all whom it may concern:

Be it known that I, Tommaso Parziale, a subject of the King of Italy, residing at Alexandria, Egypt, have invented certain new and useful Improvements in the Manufacture of Soap, of which the following is a specification.

This invention relates to the manufacture of soap having an oleaginous base, and in carrying out my invention into effect the quantity of cotton-seed oil it is desired to saponify is introduced into a zinc vessel and very fine flour containing gluten added in variable quantity. This quantity of flour may vary between ten and fifteen per cent., according to requirements and with respect to the climate and the prevailing temperature in order to produce a larger development of ammonia-gas (XII) for the saponification of the substances which the cotton-seed oil contains. This material renders the soap hygienic and economic. The source of the ammonia-gases is to be found in the chemical reaction between the nitrogenous matters of the flour and the caustic alkali. The mixture thus prepared cold is now left to stand for five to six hours. The purpose is to avoid the formation of small lumps. The rest after mixing serves to facilitate perfect amalgamation. Thereupon a
solution is added of a caustic base or sodium hydrate, (soda of 30° Bnnc.) about fifty per cent, by volume and the mixture is thoroughly agitated. When the mixture is to be poured, the mixture is placed in special boxes, in which it is left for three days, after which time it may be cut in the usual manner.

To the solution of caustic soda or sodium hydrate (formula NaOH) may be added silicate of soda, alum, tone, cocoonaut-oil, suitable perfume or essence, and the like, according to whether it is intended to prepare a cheap soap or one that is perfumed. There may be added silicate of soda or talc, besides other oils or essences, etc., according to whether cheaper soap has to be produced or perfumed soap. This will facilitate the development of an ammoniacal gas. This proportion of talc and carbonate of lime may be from twenty to thirty per cent. If it is desired to obtain a soap as hard as that manufactured from olive-oil, twenty per cent. of silicate of soda is added.

It is inamniter whether the vessel is of iron or zinc.

The ammonia-gas is derived from the chemical reaction resulting from the combination of the nitrogenous matters (in floury condition) with the materials of the alkaline and caustic base (NaOH). To increase the development of this gas, it is only necessary to add to the nearly-condensed soapy mass two per cent. of a hot solution, consisting of one-half water and one-half alum in a well-mixed condition. As a consequence of this last addition and the reaction brought about thereby after about three days the soap has lost all its causticity, because the excess of hydrates has evaporated as gas, and thus a neutral soda oleate is obtained.

Zinc is the material of which the vessel is formed, since this metal is less liable to corrode through the action of the caustic alkali.

The mixture of oil and flour after having been worked in a cold state must rest from five to six hours, so that there may be brought about an absorption of those parts which are the most difficult ones to be absorbed—above all, the glycerin—in order to facilitate the reaction of the saponification.

I claim as my invention—

The process described consisting in mixing cold cotton-seed oil and flour containing gluten together, allowing the mixture to stand and then mixing with the said mixture caustic soda, substantially as described.

TOMMASO PARZIALE.

Saponification of Fatty Acids by Soda Ash.

(EXTRACT FROM THE SEIFENFABRICANT, 1902, pp. 321, ETC.)

The Saponification of fatty acids by means of carbonated alkali is nearly as old as fatty acids have been known—soaps have been made in this manner 30 years ago. More recently manufacturers have gone back to this process to some extent, which has become all the more satisfactory since today a much purer carbonate of soda is obtainable than formerly. The saponification by soda ash, that is to say by carbonate of soda, is certainly cheaper than by caustic soda. It is claimed that 19 pounds of soda ash together with two pounds caustic soda will saponify 100 pounds fatty acid; whether these are reliable, practical figures I do not know—much as I have tried and weighed, I always found I required more than nineteen to 20 pounds soda ash. Little differences do not affect the main result—the carbonate saponification is at all events noticeably cheaper than that by caustic.

In the following are detailed the results of a test I made: The stock consisted of 2,000 pounds olive oil fatty acids with 9 per cent neutral fat. Having determined the saponification number as 298.6, I calculated the alkali required for saponification. First, however, let me describe the determination of the saponification number; this is important and every soap maker using the carbonate saponification process really ought to have a certain knowledge of chemistry, if he hopes to work exactly. It is to be supposed, that the more the process is introduced, the more will soap makers be required to enlarge their chemical knowledge, for they must be able to examine the fatty acids produced, to determine how much neutral fat is still contained therein, and how much soda ash and caustic respectively are required for saponification.

The determination of the neutral fat in a fatty acid is a somewhat difficult operation and requires familiarity with chemical manipulations; the saponification number also calls for experience and skill in analytical work. I will briefly describe it: The saponification number is the number of milligrams of caustic potash (KOH; potassium hydrate) required to saponify a gramme of a given fat or fatty acid; from this is then calculated the amount needed for 100 pounds of fat and from this again the alkali required for the entire stock in the kettle. The saponification number varies rather considerably in even the same class of stock, and all the more, of course, with different fats. Its determination consists in weighing off with the greatest exactness a quantity of the fat (or fatty acid) and saponifying the same with an exactly measured quantity of caustic potash in alcoholic solution; the latter is used in excess to make sure of a thorough saponification and then the excess remaining uncombined is determined by analytical methods, in order to find by difference the amount really used up in the saponification. The number of milligrams of caustic potash found to have actually been used for saponification is the saponification number. Of the details I will only mention that the test is made with alcoholic potash lye and that the excess remaining is ascertained by the use of half-normal hydrochloric acid. For soda
soap it is necessary, next, to calculate the amount of soda required instead of potash; this is simple, as we need only remember that 56 parts (or pounds) of caustic potash correspond to 40 of caustic soda.

Having, as already stated, found the saponification number of my stock to be 208.6, I know that 100 pounds will call for 20.86 pounds of pure caustic potash; figured over on the above basis of 56 to 40, these 20.86 pounds of potash correspond to 14.82 pounds of pure caustic soda, needed to saponify 100 pounds of my olive oil fatty acids. But, as we want to use soda ash instead of caustic soda, we must calculate further, as follows: 40 parts caustic soda correspond to 53 parts pure, 100 per cent. carbonate of soda (Na₂CO₃); hence the 14.82 pounds of caustic soda required correspond to 19.63 pounds of chemically pure soda ash. Thus 100 pounds of the stock call for 19.63 pounds of 100 per cent. carbonate of soda; the commercial soda ash, however, is not chemically pure, and of the impure article correspondingly more will be needed. If our soda ash contains 96 per cent. actual carbonate of soda, the 19.63 pounds required become correspondingly 20.43 pounds of the commercial article.

Coming back to our stock of 2000 pounds fatty acid with 9 per cent. neutral fat, i. e., 1820 pounds pure fatty acid and 180 pounds neutral fat, according to the preceding figures we shall need:

1820 pounds fatty acid \( \times 0.2043 = 371.82 \) pounds soda ash.
180 pounds neutral fat = 180 pounds 26 or 27 per cent. caustic lye.

The best method of conducting the saponification of such a stock is not exactly self-evident, however, since we necessarily do not run the fat into the kettle first and then add the lye as usual, but are obliged to adopt the opposite proceeding; we must dissolve the soda ash to the degree of 33-34° and reserve to the last of the boil the caustic lye needed for the neutral fat contained in the fatty acids. Without this precaution we should find the neutral fat unsaponified to the last, mixed in the soap, for if the caustic were added at the beginning, it would be transformed into carbonate by the escaping carbonic acid from the soda ash; it would therefore be incapable of saponifying neutral fats.

When the soda ash solution has been prepared and brought to a boil, the warm, fluid, fatty acid is run in gradually while constantly boiling—preferably by open steam, to assist in agitating the mass. When the fatty acid runs in, there occurs at once a rapid boiling up, due to the escape of the carbonic acid gas; this subsides only when saponification has been effected and the gas evolved has escaped; the last of the gas escapes only with some difficulty, under continued brisk boiling. When this has taken place, the caustic soda required (as above) is added and saponification completed as usual, adding caustic lye and water as circumstances may require. Soft, unsatisfactory soap results only if the carbonic acid has not been properly expelled.

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**Cocoanut Oil Soap.**

*(From Siebens'der Zeitung, Augsburg, Germany.)*

Whoever has had experience with cold made cocoanut oil soaps, knows that, when made from nothing but the oil and caustic soda lye, such soaps do not possess that transparency (translucence) which many consumers look for in an unfilled cocoanut oil soap. The belief prevails, especially among retail dealers, that the best sign of the best quality of this class of soaps consists in a transparent look, which is of course a mistake—for even filled soap may excel in this respect; in proof of this may be cited the transparent soaps made without glycerine and alcohol, where transparency is induced by the use of sugar solution and various salts. Of course no actual transparency is demanded of cold process soap; a translucent quality of the latter may be obtained in several ways.

When, in crutching, strong lye of say 40° B. is used, the resulting soap will not be translucent to speak of, even though the frame be subsequently covered for the purpose of promoting spontaneous heating. The more we dilute the lye (up to a reasonable point, of course), the more translucent will the soap be, since in consequence of the larger proportion of water the soap is more fluid during the spontaneous heating; for the same reason the soap will be correspondingly softer. We may say, therefore, that in the first place transparency is promoted by water. The tendency to softness due to the water may be overcome by substituting for the water certain solutions of substances that do not affect the transparency, as is actually practiced in a moderate way in the best qualities and more extensively in the case of filled soaps. Substances suitable for the purpose are sugar, potassium chloride, pearl ash, etc., as they do not disturb the translucence as do salt and silicate solutions.

Another aid may be had from potash lye; this is evident on comparing soft (potash) soaps—no matter what stock they were made from—with soda soaps, which will invariably be found to be less transparent. But potash lye is open to the same objection already noted—it tends to soften the soap and can be used only in limited amount therefore; it is also more expensive.

Certain oils and fats added to the cocoanut oil also increase the translucent appearance; among these are castor oil, olive oil, lard, etc. Each of these has its own peculiar effect on the soap in other respects.

In conclusion there follow some formulas for the best grades as well as for filled soaps:
90 lbs. coconut oil
10 lbs. castor oil
50 lbs. caustic soda lye, 38°B.
6 lbs. pearlash solution, 25°B.
4 lbs. chloride of potash solution, 15°B.

88 lbs. coconut oil
12 lbs. lard
46 lbs. caustic soda lye, 38°B.
6 lbs. caustic potash lye, 25°B.
4 lbs. pearlash solution, 15°B.

In using these formulas the oil is melted and strained into the crucible; when it has cooled to 100° F., the lye is crutched in; then the pearlash and chloride of potash solutions are added and lastly the perfume and color. When the soap has been framed, the frames are covered up well.

Lastly there follow herewith some suitable solutions for making filled grades: from 10 to 100% of these may be incorporated into a soap.

400 lbs. water, 60 lbs. sugar, 50 lbs. pearlash, 16 lbs. chloride of potash, 30 lbs. salt.

Or, 400 lbs. water, 64 lbs. pearlash, 64 lbs. sugar, 40 lbs. salt, 20 lbs. sal soda.

The water is heated, the pearlash, salt and chloride of potash dissolved in it, then bring to a boil and add the sugar. Of course the filling must be clear before it can be used.

For filled soaps of this variety it is best to use coconut oil alone, as other oils soften the soap too readily. If over twenty per cent of this filling is used, the soap will need a little extra strength.

**Carpet Soap.**

A specimen of an American carpet soap exported to Europe found its way to the municipal laboratory of the City of Breslau and, after examination, received the following verdict:

"This soap is to be used by making a stiff lather from a rather concentrated solution of the soap; this is then applied to the carpet and left to dry. After the drying the soap has become brittle and can be beaten out, the single particles so removed taking the dirt along.

The analytical data were as follows: Water 9.67 per cent.; residue on drying 90.33 per cent.; ash 22.2 per cent. (in the same 19.3 per cent. sodium carbonate determined by titration). The separated fatty acids showed: melting point 43-44°C; congealing point 40-41°C; acid number 214.15; iodine number 38.0.

"Accordingly this carpet soap is nothing more nor less than an honest tallow-soda soap. Its effect depends simply on the circumstances that with such soap a stiff lather is only obtained with concentrated solutions, which then remains and dries; soaps made with palm oil and other exotic fats on the other hand yield a strong lather with thin solutions, but this lather subsides again rapidly. On the same fact, the way, is based the secret of good shaving soaps."

**Petroleum Soap.**

According to a German patent, a petroleum soap is obtained by incorporating petroleum previously by the addition of vaseline oil with the soap during or at the completion of the saponifying reaction. The admixture of the vaseline oil serves to cover almost completely the petroleum odor, so that the soap only requires a slight perfuming, and the petroleum mixture being less fluid than its natural state lends itself better to the preparation of a harder soap.

**Where the End Justified the Means.**

If "it takes all sorts of people to make a world," it also takes all sorts of experiences to fill out life in a drug store to well-rounded symmetrical proportions. So said a pill-mixer at Winona, Minn., a few days ago, when a customer called for tooth-brushes and the sequel of this common, every-day occurrence worked itself out with startling effect. The druggist showed the man, his stock of brushes and the to-be purchaser concluded that what would best suit him was a manicure brush. This was something like the man calling for a cigar and concluding to take a tablet instead. But a sale was in sight and the druggist said nothing—whatever he may have thought of the surprising shift in the purchaser's preferences from tooth-brush to a manicure brush—and handed over the desired article. "Now," said the buyer, "gimme some Sapolio." The latter, too, was instantly his. Then out came all the customer's teeth and their owner proceeded then and there to cleanse the "grinders" with his Sapolio and manicure brush. "I tell you," he remarked, in the hisping, swoshy accent due to toothless gums, "there ain't nothin' on aird to clean store tooth like these 'ere things!" And never before was a druggist or devil so jarred as the proprietor of that Winona 'shop."

**Liquid Antiseptic Soap.**

A formula for a liquid antiseptic soap is given by M. I. Wilkert, apothecary at the German hospital, Philadelphia, (American Journal of Pharmacy), which is said to possess all the antiseptic and detergent value of the higher-priced proprietary article. It is as follows:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cottonseed oil</td>
<td>300 Cc.</td>
</tr>
<tr>
<td>Alcohol</td>
<td>300 Cc.</td>
</tr>
<tr>
<td>Water</td>
<td>325 Cc.</td>
</tr>
<tr>
<td>Sodium hydrate</td>
<td>45 Gm.</td>
</tr>
</tbody>
</table>
Potassium carbonate........ 10 Gm.
Ether ............................ 15 Ce.
Carbolic acid.................. 25 Ce.

To the oil contained in a bottle of sufficient size add
100 Ce. water and 200 Ce. alcohol; add the sodium hy-
drate and shake or stir occasionally until saponification
has taken place, then add the remaining portions of al-
cohol and the potassium carbonate dissolved in the
water; lastly add the carbolic acid and the ether and mix
or shake well. Keep in well-corked vials to prevent
evaporation of the alcohol. It is advisable to keep the
soap at a temperature of not below 10° or 12° C., so as
to prevent solidification, although this does no perma-
nent harm, as the soap will liquefy again if placed in a
warm place for an hour or more. This soap is a light-
yellow liquid with an ethereal color and alkaline reac-
tion. A few drops poured in the palm of the hand after
previous wetting will give with a very slight rubbing a
celery lather that stands up well for a considerable
length of time.

A modification of his formula, adapted to toilet use,
is had by omitting the ether and carbolic acid and sub-
stituting for them a few drops of an essential oil, such
as rose geranium or bergamot; this soap is recommended
as a satisfactory substitute for cake toilet soaps, and for
use in shaving, shampooing, etc., it is also said to be ex-
cellent for use in cleansing prescription utensils.

Composition, Properties and Application
of The Waxes.
(Continued.)

Shellac wax.

This wax occurs in small quantity in the ordinary
shellac of commerce, and hence is a product of the lac
insect (Coccus lacca). According to R. Benedict and
F. Tobar, it is present to the extent of .05 to 1 per cent.
Dr. John states that stick lac contains 3 per cent.
of the wax, and seed lac 1.06 per cent., and Buchner gives
the amount as 3 per cent.

The shellac wax is obtained by treating shellac with
a hot solution of carbonate of soda or borax, in which
the resin acids readily dissolve, leaving the wax and all
the impurities undissolved. By filtration of the solu-
tion, which is not an easy matter, and subsequent dry-
ing and heating of the residue, the wax may be melted
out.

The wax is a dirty white powder insoluble in cold
alcohol, but it is to some extent soluble in hot alcohol,
the solution solidifying to a jelly on cooling.

Cerosin (Cerosir).

The wax of the sugar cane is obtained by rasping
the bark of the cane, treating with boiling alcohol,
and then allowing the liquid to cool, when the wax separates
out; it is purified by recrystallising several times from
boiling alcohol. The violet variety of the cane is said
to yield the greatest quantity of wax. Cerosin is a
white crystalline product, very hard and brittle, melting
at 82 deg. C. It is insoluble in cold alcohol and ether,
but readily soluble in boiling alcohol.

Cean or Cork wax.

By removing the outer hard crust of cork, then ras-
ping the remainder, and treating it with hot alcohol or
ether, a waxy product is obtained. It crystallizes from
alcohol. It softens in boiling water, and falls to the
bottom. It is not affected by boiling caustic potash, and
in boiling it gives white fumes. The specific gravity
of this wax is stated to be .0816. The yield is from 1.08
to 2.05 per cent.

Straw and grasses also contain waxes, but the yield
from them is very small, not averaging .05 per cent.
These waxes have not been examined.

The wax of the cockeined insect is remarkable in
that it consists of an ester, coceryl ccocerate, a combi-
tion of coceryl alcohol, C14H30O2, with coceric acid,
C14H26O2.

Many plants are stated to contain waxes in small
quantities, but the presence of true waxes is doubtful,
seeing that waxes, fats, and resinous products have not
in the past been clearly defined; hence, it would serve
no useful purpose to give a list of these products now,
especially as they are of no importance.

There are, however, several products allied to the
waxes in their properties, and which find a use in com-
merce on a large scale for similar purposes, though they
are differently constituted; these products will therefore
be described.

Japan wax.

This is not a true wax; it yields glycerin when sapo-
nified, and is a glyceride or fat principally.

Japan wax is prepared in Japan and China from the
berries of several species of sumach trees, largely from
the berries of Rhus succedanea, which yield 22 per cent.
of this wax; also from R. venecifera, R. acuminata, and
R. sylvestris. It is imported into this country in small
square slabs.

Japan wax has a cream-white color, is moderately
hard, and breaks with a conchoidal fracture; in thin
pieces it is translucent, and when kneaded in the hand
it soon becomes soft. In appearance it is very similar
to bleached beeswax, but it may be distinguished by
being more easily molded between the fingers, and also
by its smell, which is not unlike that of tallow. It
becomes yellower by keeping, and a very thin white coat-
ing forms upon it; this is a peculiarity of Japan wax.

The specific gravity of Japan wax nearly approxi-
mates to that of water; Klein-stuck found that below 16
deg. C. it is heavier than water and sinks, while above
18 deg. C. it is lighter, and floats; between 16 deg. and 18 deg. it has the same specific gravity. This abnormality arises from the fact that the wax has a higher coefficient of expansion than water, and hence becomes more bulky and lighter by heating. It melts at 52 deg. to 55 deg. C.

Japan wax dissolves slightly in cold alcohol, more readily in hot alcohol; but it separates out almost completely when the liquid becomes cold, as a granular mass. It is very soluble in hot benzene and petroleum spirit.

The composition of Japan wax is not definitely known; according to Benedict it consists principally of palmitin and free palmitic acid; according to Parry it is a mixture of palmitin, arachin, stearin, and free palmitic acid; but it is obvious that neither of these statements is correct. In the first place, the melting-point of the fat is considerably below that of any of the fats mentioned, and in the second place the melting-point of the acids from it are only 56 deg. C., while that of palmitic acid is 62 deg. C., and those of stearic acid and arachidic acid are much higher; it is only possible to account for such a low melting-point by supposing that the acids were composed of approximately equal quantities of palmitic acid and stearic acid (a mixture of 50 per cent. palmitic acid and 50 per cent. stearic acid having a melting-point of 56.96 deg. C.), or by supposing that a lower member of the fatty acid series was present in considerable quantity. Allen states that it contains 8.94 per cent. of soluble acids calculated as caprylic acid, and this is an important fact, though it would not explain the low melting-point of the acids which are, of course, insoluble in water; but still, it may be that other fatty acids, such as lauric or myristic acids, are also present. More will be said about the acids from this fat later.

Japan wax is used locally in the manufacture of candles. It is used in this country in the preparation of sizing materials, and as an adulterant of beeswax.

Paraffin.

Though improperly termed paraffin wax, paraffin is now made on a very extensive scale, though the commencement of the industry was a very humble one. The material was first discovered in 1830 by Reichenbach, in wood tar, and was investigated by him; subsequently, Christison found it in Rangoon petroleum, and Laurent produced it along with the liquid hydrocarbons by the distillation of bituminous shale at a temperature below red heat. The present great paraffin industry was started about forty-five years ago by Dr. James Young, F.R.S., who produced oil and wax from the Boghead cannel coal at first, but as that was soon exhausted Boghead shale was used in its place, and is the material employed to-day in Scotland. Paraffin was not originally produced from American petroleum; but when it was found to be present, steps were taken to separate it from the residue obtained in the purification of these oils by distillation, and so successful has the process become that large quantities of paraffin are now obtained from this residue, the exports in 1881 from the United States being 17 million pounds, in 1897, 126 million pounds and the production still increasing.

Paraffin is also a naturally occurring substance, both as a mineral (see Ceresin) and as a constituent of plants. Prof. Thorpe and J. Holmes have, in a recent interesting communication to the Chemical society, shown that the paraffines, hentriacontane \((C_{36}H_{76})\), melting-point 68.98—68.05 deg. C., and heptacosane \((C_{27}H_{56})\), melting-point 58.93—58.08 deg. C., were present in tobacco leaf; such paraffines were found by them to be present in all American tobaccos they had examined.

Paraffin is separated from the heavy Scotch shale oils and also from petroleum residues by cooling, whereby it is caused to separate; the material is submitted to centrifugal action in order to remove the greater part of the oil, and the crude paraffin is then pressed. The paraffin scale obtained in this way is very dark colored, and melts at a very low temperature, ranging between 28 deg. and 39 deg. C. It is purified in various ways. One method is to heat the scale until it becomes fluid, and mix it with a quantity of naphtha, then to cool the solution until the purified paraffin crystallizes out; the latter is then filter pressed. By treating in this way several times, the more soluble constituents of the scale which have lower melting-points, are dissolved out, leaving a wax of a melting point, which may vary according to the length of treatment, of 13 deg. to 65 deg. C.

The Boundary Line.

A well-known judge on a Virginia circuit was recently reminded very forcibly of his approaching baldness by one of his rural acquaintances. "Judge," drawled the farmer, "it won't be very long 'fo' you'll hev to tie a string around yer head to tell how far up to wash yer face."—Harper's Magazine.

The Bechi Test on Oils.

By L. M. Tolman.

The author, in working with a large number of salad oils, found that nearly all of them gave a brown coloration with Bechi test, as ordinarily applied, unless the sample was first purified as described below. The modification of the reagent used was that proposed by Pearman and Moor, and later by Wesson.

Two grams of silver nitrate are dissolved in 200 cc. of 95 per cent. alcohol, to which 40 cc. of ether and two drops of nitric acid are added. Ten cc. of oil, 10 cc. of
amyl alcohol, and 5 cc. of the reagent are mixed in a test-tube.® Half the mixture is poured into another test-tube and kept for comparison. The other half is heated for ten minutes in a boiling water-bath and compared with the unheated portion. The brown coloration and reduced silver show the presence of cottonseed oil. Treated in this way, some oils which were especially rancid gave a strong test with the Bechi reagent, but from the physical and chemical constants and the Halphen reaction, cottonseed oil could not have been present.

It has been advised to heat the oil for one hour at 100 deg., but this, while it reduced the reaction of the reagent with other oils, also weakened the reaction with cottonseed oil and was not at all satisfactory.

Wesson advises treatment with 2 per cent. nitric acid, but while this purified the oil in some cases, it could not be depended on always, since quite a number of the oils treated in this way gave strong reactions, although they contained no cottonseed oil.

The use of a dilute alkali works very well, but is inconvenient, for it emulsifies and separates very slowly. A method which is much easier, more rapid, and one which gives very satisfactory results, is as follows:

To about 25 cc. of the oil add 25 cc. of 95 per cent. alcohol, heat gently, and shake vigorously: allow to stand until the liquids separate, decant as much of the alcohol solution as possible, and then wash the residue with 2 per cent. nitric acid and finally with water. Cottonseed oils treated in this manner reacted with undiminished strength, while the olive oils which before treatment gave deep brown colorations, showed after treatment no coloration or reduction of the silver solution at all. The free fatty acids and other products of rancidity, which are evidently the cause of the brown coloration with the Bechi reagent which these oils give, are dissolved by the alcohol and removed, while the reducing principle of the cottonseed oil is not affected. This method can be readily applied to lards or other fats which it is desirable to test by the Bechi reagent. The writer was able, by this method, to get very satisfactory and reliable results.—Journal American Chemical Society.

®Amyl alcohol is used to dissolve the fats or oils and thus secure a much better mixture with the reagent.

The Disinfecting Power of Common Soaps.

A large number of chemists have asserted the disinfecting power of common soap, but they are not in agreement as to the necessary conditions to be fulfilled in its use. Professor Seraphini has tried to settle the matter by experiments which he directed at Padua. His conclusions, which are of the Mosaic number of nine, are as follows:

1. Both hard and soft soaps have a marked disinfectant action, due to the soap itself, and not to combined alkali or fatty acid.

2. The alkalinity of a good soap is so slight, even in concentrated solution, being only .14 to .192 per cent. in a 5 per cent. solution, that it is quite insufficient to account for the disinfection.

3. The alkali set free on dissolving the soap would be equally ineffective alone, although it no doubt helps the general result.

4. As soap is not completely soluble in cold water, it is to the soluble part that the action must be attributed. The disinfecting power is not altered by filtering the cold solution.

5. Hard water or other soap precipitants lessen the disinfecting action, as does the presence of large amounts of carbonic acid.

6. Heat assists the action, both by bringing more soap into solution, and directly.

7. Ordinary fillings are non-disinfectant. Hence the disinfecting power of the soap is lessened by their presence, and in proportion to the extent to which the soap is filled.

8. Soaps containing resin are less disinfectant than other soaps, in direct proportion to the amount of resin present.

9. Too much stress must not be laid upon the disinfecting power of soap for clothing. Strong soap solutions penetrate with difficulty, especially when the pores of the fabric are clogged with foreign bodies. These, too, are often just those which cause the clothing to need disinfection. The solubility of the dirt in the soap, too, is slight or nil.

It will be at once observed that No. 8 is simply a corollary of No. 7. The difficulty alluded to in No. 5 can be cancelled by the simple expedient of using a larger quantity of soap. Soft soaps are generally fuller of water, glycerine, and other bodies which are not soap, and are therefore inferior in disinfecting power to the hard soaps. Colored soaps, too, are generally filled more than white soaps, and are therefore less reliable. It may be regarded as certain that a good washing with soap is a very valuable disinfectant process when no better can be had, and the soap should be used at as high a temperature and with as little water as practicable. Clothing, too, should be soaked for some hours in the hot soap as a preliminary process.

It has been shown over and over again that the soaps sold as specially disinfecting soaps are not more effective than the ordinary kind. It often happens that the disinfectant added to the soap, and on which the sellers
Ozokerite.

Ozokerite or mineral wax is a resinous substance resembling beeswax in several respects. It is found in Austria-Hungary, Russia, Roumania, Egypt, Algeria, Canada and Mexico, usually associated with rock-salt and coal. The only districts, however, in which it has as yet been discovered in quantities sufficient for lucrative exploitation are Boryslaw in Galicia, and Tehelekan, an island in the west of the Caspian.

The existence of ozokerite in the petroleum district of Boryslaw has been known for at least a century, but for fifty years no attention was paid to it. In 1854, however, a Lemberg merchant named Doms started mining with a view to using the mineral wax for illuminating purposes. He invented a lamp to use it in, and patented it. He had great success, which naturally attracted a crowd of speculators who bought from the peasants small plots of land where the ozokerite was known to occur. By 1865 there were no less than 11,000 ozokerite pits, varying from 25 to 160 feet in depth, in the neighborhood of Boryslaw, and they were all concentrated in a space of about 50 square miles. In consequence of this crowding as well as of defective mining methods, most of the mines had to be abandoned, and those still at work do not seem to be doing very well. Of late, attempts have been made to form a trust including not only all the mines at present in operation but also all likely situations, but owing to the obstinacy of a few mine-owners, the promoters of it have not yet succeeded in adjusting matters between the various conflicting interests.

It sometimes happens that when a mine is first opened the pressure of imprisoned gas drives out the soft wax with violence, to the danger of the miners, who have to run for their lives. Cases have been known in which even deep mine shafts have been completely filled with the ozokerite. Before 1884 many fatal accidents were caused in this way. Of late, however, measures have been taken by the state for the protection of the miners.

Official statistics show that during 1897 the ozokerite mines of Galicia employed 5,413 persons, and were producing at the rate of nearly 4,000 tons a year.

The mineral wax as it comes from the mine requires purification from earth and stones. This is done by fusing it, first in jacketed pans heated by steam, when the impurities settle to the bottom. The fused ozokerite is then run off into moulds and cast in the form of truncated cones, weighing from 6 to 7½ cwt. Ozokerite varies greatly in its fusing point, which lies between 137 and 212 deg., F. The latter temperature is, however, very exceptional. The average fusing point of the best qualities may be put at 150 deg. F. A temperature below 137 deg. indicates adulteration.

The following is an analysis of one of the best Boryslaw sorts:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Per cent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>0.33</td>
</tr>
<tr>
<td>Naphthia</td>
<td>5.67</td>
</tr>
<tr>
<td>Petroleum</td>
<td>3.67</td>
</tr>
<tr>
<td>Crystallizable paraffin</td>
<td>82.33</td>
</tr>
<tr>
<td>Other substances</td>
<td>8.00</td>
</tr>
</tbody>
</table>

Most of the ozokerite raised in Austria is refined to make what is called ceresine. There are about twenty refineries in the country, and it is doubtful whether any two of them employ exactly the same methods. Roughly, however, the usual procedure is to burn the impurities by mixing the ozokerite with from 6 to 10 per cent. of its weight of concentrated sulphuric acid, and then to fuse the purified wax, and filter the liquid mass through animal charcoal. The pale yellow mass thus obtained is again treated with the acid, and is freed from the excess of vitriol with caustic soda. Some success has awaited attempts to use benzole instead of oil of vitriol, but the benzole has then to be recovered by distillation.

The filters are kept hot by a steam jacket to prevent the wax from clogging them, and the charcoal is packed in small pieces in the intervals in a pile of perforated plates. When the animal charcoal has lost its decolorizing power it is reburnt to regenerate it. The final process, when the ceresine is white enough, is always a filtration through paper.

The ozokerite not used for ceresine is made into paraffin and shoemaker’s wax. This branch of the industry seems to be confined to Vienna. It is almost impossible to make a complete list of the uses of ceresine. The list gets bigger, too, every day. It is used mixed with beeswax in the manufacture of candles, for not only does it lower the fusion point of beeswax, but it makes the candles much whiter. It is also employed for making photophograph cylinders, in modelling, for electro-plating and in many other ways. The residues are used for telegraphie ailes, and for polishing shoes. The export of ozokerite from Austria in 1899 was 2,720 tons, of a value of £215,000. Of this quantity 68 per cent. went to Germany. The following is a comparative table of the exports of the five years preceding 1899:
Weight (tons). Value (£).
1894 . . . . . . . . . . . . . . . . . 2,582 . . . . . . . . . . . . . . . . . 143,368
1895 . . . . . . . . . . . . . . . . . 2,827 . . . . . . . . . . . . . . . . . 149,294
1896 . . . . . . . . . . . . . . . . . 2,862 . . . . . . . . . . . . . . . . . 191,670
1897 . . . . . . . . . . . . . . . . . 2,756 . . . . . . . . . . . . . . . . . 190,642
1898 . . . . . . . . . . . . . . . . . 2,231 . . . . . . . . . . . . . . . . . 174,032

This shows that the price has gone up. The exports in 1898 were 351 tons less than in 1894, and the value of them was £30,654 mere.

The exports of cereals from Austria are given by the following table. The statistics for 1890 are not yet published, but there is every reason to believe that they will be substantially the same as in 1899:

Weight (tons). Value (£).
1894 . . . . . . . . . . . . . . . . . 1,806 . . . . . . . . . . . . . . . . . 158,699
1895 . . . . . . . . . . . . . . . . . 1,191 . . . . . . . . . . . . . . . . . 102,692
1896 . . . . . . . . . . . . . . . . . 1,178 . . . . . . . . . . . . . . . . . 105,945
1897 . . . . . . . . . . . . . . . . . 663 . . . . . . . . . . . . . . . . . 54,551
1898 . . . . . . . . . . . . . . . . . 711 . . . . . . . . . . . . . . . . . 61,163
1899 . . . . . . . . . . . . . . . . . 561 . . . . . . . . . . . . . . . . . 58,850

This shows a rise in prices, but a great falling off in trade.—Oils, Colours and Drysalters, England.

Where to Advertise.

There is no way in which the profits of a business enterprise may so quickly and surely dissipate as in injudicious advertising. There is nothing that contributes so materially and substantially to business success as well-worded advertising through channels that reach those upon whom they must rely for patronage, and there is no essential business method that presents so many or such urgent snare to the unthinking as are presented in the countless schemes devised outside of legitimate advertising channels to corrall the cash of the business man. As a rule so-called advertising indulged for consideration of personal friendship or social relations is worthless. Nothing but the strictest business sense should prompt the placing of an advertisement anywhere by anybody.—*The Modern Grocer*.

Butchers’ Fat in New York.

The *National Provisioner* in its issue of May 31 says:

The New Jersey Agricultural Chemical Company, of Newark, N. J., should be of particular interest to butchers and those interested in allied trades, from the fact that they have brought about the first really legitimate competition we have had in a long time in the New York market, in butcher bone, fat and similar material. The butcher has already felt the good effect of their presence in local markets, as they have shown in all their dealings the evidence of their good faith and their desire to do business on clean, straight, legitimate principles. Under such conditions there is no reason why they should not be accorded success.

As to their financial responsibility there is absolutely no question. The company’s plant is worth a million dollars and the stockholders are counted among Newark’s best business and financial men, who recognize the opportunity for a business of this nature to be built up and made very successful on the lines they have laid down.

The property of the company, which includes about fifteen acres, is located on the Plank Road and Passaic river, Hudson county, across the river from Newark. They produce grease, tallow and tallow products, glue, gelatine, tankage, stick, ground bone, acid, phosphate and complete fertilizer, and their plant is the largest of its kind and most complete in all its details. The machinery is necessarily of the most improved type and the methods in vogue are the best that money and brains can devise, which, of course, results in the production and refinement of their various products, equaled only by the best. These people are in the field to stay. They are now operating nearly a dozen wagons in New York and are prepared to put on an additional number as fast as trade warrants it. This, together with the routes they are establishing throughout other sections of the territory covered, is giving them increased supplies daily.

The butcher should hail with delight and encourage in every way possible the coming of these people into their markets. It produces a healthy condition of affairs and benefits the butcher more than anything he has received in a long while, as he realizes full well from the low prices he had been getting for his material until they made their appearance. The only thing to do is to encourage them with patronage to the fullest extent.

The company has a dock at the foot of Fortieth street, New York city, and their steamer and barge remove the raw material collected in New York and vicinity to their factory and deliver their finished products in their own boats. They should succeed.

About Soap Trusts and Taxes.

If Britain’s soap should also go

There’ll be this one excuse for it—

They’ve cornered all our waters, so

We’ve got no further use for it!

Oh, Michael! spare the poor man’s bake,

And tax the Pingster or the Chauffeur,

For some regard it a mistake

To tax the loaf and not the loafer.

—*The Outlooker*. 
Tallow in Candle Making.

In candle-making the chemical reaction known by the name of saponification, which separates the glycerine from the natural fatty bodies, is utilized. These natural fats are in a neutral state, and are extracted from a mixture of diverse fatty acids, of which the two principal—stearic and margaric acids—are solid, while the third—oleic— is liquid, and is rejected, as it makes the candles too fusible. Formerly, tallow alone were employed in making stearic acid, but the products of sulphuric saponification subjected to distillation have nowadays allowed a large number of oils to be used. Before stearine candles were known, the neutral fatty bodies themselves were shaped into cylinders and used for lighting purposes. As a matter of fact, candles of this sort are still in use; with the composite candles of today they constitute the only form in which solid fatty bodies are used for illumination, and, like these, they are always composed of burning material moulded in the form of a cylinder, with a wick of cotton in the center of it.

Candles, it is said, were known in the time of the Romans, who made them of pitch, wax, or tallow, with a rush pith by way of wick. In the eleventh century, a wick of yarn was used, and later one of cotton. Wax candles seem to be still more ancient, and were known by the Indians, Japanese and Chinese, who burnt wax before their idols, and even in their houses. The stearine candle industry is, on the other hand, altogether modern, and dates only from the work of Chevreul on the fatty bodies. With Gay-Lussac, Chevreul took out in 1825 a patent relating to the use of stearic and margaric acids for lighting purposes. The first industrial works were established at Paris in 1831 by De Milly and Motard, near the Arc de Triomphe.

The fat of herbivorous animals is known as suet; when melted this becomes tallow. This has a firm consistence at about 35° or 40° C., which varies in firmness according to the species, the part of the body, the age, the sex, and the nourishment of the animal. Thus, tallow extracted from entire animals is more consistent, or, according to the technical expression, less fat, than in castrated animals. It is firmer in animals living in cold countries than in warmer climates, and firmer in the females than in the males. Ordinarily, therefore, the tallow of the cow is preferred to that of the ox, the difference being attributed to the fact that oxen are submitted to continuous work, from which the cows are ordinarily free. The tallow which is found about the kidneys is usually firmer than that which is extracted from the cellular tissue or from the viscera, and this differs again from the fat imprisoned in the flesh. Cooked food, warm and watery, such as the residue from beet root sugar factories, etc., gives to animals a soft fat, whereas dry forage gives a firmer tallow. Therefore, fattening in the sheds with dry corn, etc., gives a tallow of good quality.

The tallow of young animals is nearly white, and turns yellow with age. Thus, calf tallow is easily distinguished from that of the ox, since the former is a rosy white, dull and opaque, melts easily between the fingers, and putrefies very quickly. In certain cases the fat takes with age a peculiar odor and taste; that of the sheep and of the he-goat often acquires a strong and penetrating odor, which is due to hercine, as Chevreul has shown. The animals living on the hillsides give, as a rule, a less fat tallow than those of the plain.

Good quality tallow found in commerce is got from oxen and sheep. Mutton tallow is firmer than beef tallow, and is, therefore, preferred in candle-making. When pure, it is reserved for first-quality candles; it is often mixed with the fat of ewes, rams and goats. It is used in this way for common candles. In animals the fat is localized specially under the skin, round the heart and intestines, on the surface or in the interior of the large muscles, and particularly in the epiploon. It is enclosed in cells of light and membranous tissue known as the adipose tissue. When the animal is skinned, the adipose tissues are separated from the meat and sold to the melters under the name of suet. Care must be exercised to avoid the spontaneous alteration which results from the putrefaction of the soft nitrogenous matters interposed in these tissues. In summer it is a good thing to hang up the suet awaiting melting in the open air or in aerated and fresh chambers. For the same reason the melting should always be proceeded with as speedily as possible, and the duration of this operation is diminished by dividing the material by the aid of choppers, which facilitates the running of the grease by opening the cells which contain it, and favors the action of the heat by diminishing the volume of the pieces. In the same way the portions of fat adhering to the meat which the butcher cuts away in selling it are also treated. The fat is melted by one of the following processes:

The oldest and simplest process consists in heating the fat in a metal vessel over an open fire, stirring it up without stopping with a long rod. The heat dilates and liquefies the fatty matter, whereas it contracts the cells which contain it, these two opposed effects provoking the rupture of the membranes and the separation of the tallow. When it is all melted a large perforated vessel is introduced into the boiler, which fills with the fluid fat, whereas the debris and membranes remain outside, and the fat is drawn from this perforated vessel with a scoop. The warm liquid is then poured on copper sieves or osier baskets, which retain the greater part of the membranous debris which constitute the remnant, and then an infinitesimal quantity of alum is added to precipitate the remainder of the membrane and to clarify
the fat. It is then allowed to rest for six or eight hours, maintaining a temperature sufficient to prevent solidification. Then the liquid is poured out by means of large copper funnels into small wooden buckets, which have first been steeped in water. When the tallow is set, which takes very little time, the buckets are turned upside down, and the tallow is detached in truncated cones.

This process of melting has the great disadvantage of giving a tainted smell to the tallow, which is due to the carbonization of the membranes. Moreover, it is a forbidden operation in the interior of towns. It is still very much in use in country places because of its great simplicity. All the residue is utilizable. Sometimes, by heating to a high temperature, followed by pressing, an inferior quality of tallow, known as black tallow, is got, and sometimes the residues are treated with sulphide of carbon, which dissolves the rest of the tallow, and the residue is used for manure. The residues are also sometimes used directly without treatment either as food for dogs and pigs, or as manure.

The acid process, invented by Darce in 1811, which has become very general, consists in heating the fat with steam, either in a pan or a closed vessel, in the presence of dilute sulphuric acid. The acid disintegrates the membranes of the adipose tissues and the other nitrogenous debris without attacking the tallow in any important degree. When the operation is carried on in a closed vessel, a copper cauldron with a double bottom and of a capacity of about 250 gallons is used, and heated by steam. First of all, two hundredweight of sediment from a preceding operation is put in, then four successive batches of five hundredweight of chopped-up fat; then three hundredweight of water, to which ten pounds of sulphuric acid has been added, is poured in. The vessel is hermetically closed and heated for two and a half hours at a temperature of from 250° to 260° F. Nothing remains to be done but to decant the tallow which floats on the surface of the water in which the debris remains. This residue is sheer waste, and cannot be used for any purpose.

The decanted tallow is poured into a copper reservoir, and from three to four pounds of alum dissolved in about four gallons of water is added. Under these conditions the tallow will remain liquid for from eight to ten hours, the time necessary to clarify it. It is then poured into buckets, or even directly into the candle moulds.

Melting with alkali was invented by Everard in 1850. It consists in destroying the membranes with a weak solution of caustic soda. The boiling point need not be exceeded in this operation, so that there is no danger of spoiling the tallow by an excess of heat. Moreover, the fatty acids which give the characteristic odor to the tallow dissolve in the alkaline liquid; so that a simple washing renders the product whiter, purer and less odorous. Cylindrical cauldrons of iron are used, open at the top, and furnished with a false bottom, pierced with numerous holes, by way of which the steam is introduced by means of a sort of rose. In each cauldron, which ordinarily contains about 200 gallons, about 70 gallons of a weak solution of caustic soda is poured in, then eight hundredweight of cut-up fat, and steam is turned on. A second plate pierced with holes is put over the solid matter to keep it down. The melted fat escapes from the cellules, the membrane being eaten away by the alkaline solution, and swims on the surface. When the top plate has come almost into contact with the false bottom the steam is turned off, and the alkaline solution is drawn off by means of a tap, and clean water is poured into the cauldron. The contents are boiled up again for a few minutes and allowed to rest, and then again drawn off and added to the alkaline solution. The liquid fat is filtered and collected in enameled copper vessels, and heated over a water bath, in which it is allowed to remain for twelve hours. It is then drawn off with a syphon, and placed in refrigerators of enameled copper, from which it passes either into the buckets or into candle moulds.

In addition to the superior brands of tallow, inferior qualities known as small tallows are found in commerce. These come from the parings of suet and of different kinds of scraps and residues.

Offal and tripe tallow results from the treatment with boiling water of the offal of oxen, calves and sheep. Other inferior qualities are got in the same way from the intestinal membranes and bones. Bone tallow is also got by treating the bones in a closed vessel with benzine, which dissolves out a tallow of better quality.

The marrow of ox bones employed in perfumery contains, besides the oleic acid, which is a liquid, two solid acids—margaric acid, and another which has been called by Eylerts medullic acid. Two other tallow of inferior quality are also used in sulphuric saponification—the green fat, or kitchen grease, which is a residual product in the restaurants and kitchens, and the fat known in France as flambart, which the pork butchers skim off the surface of the water in which they have boiled pork.

A large number of methods have been proposed for purifying those small tallow, and for giving them the odor of tallow of good quality. Methods also have been proposed for restoring the odor to the better qualities of tallow when they have lost it. Melting up with pure or alumined water may be employed, passing a current of finely-divided air through the liquid mass. The process of Cloez and Girard consists in remelting the tallow with 1 per cent. of magnesia and a little water. The magnesia may be replaced by 5 per cent. of crude animal charcoal, and in this case the tallow is filtered through a
cloth. During the siege of Paris, Casthelaz proposed to submit spoiled tallow to a certain number of emulsions in a weak solution of soda crystals, followed by an equal number of washings in clean water or water slightly acidulated with hydrochloric acid. The best results are got by washing the tallow first of all in a weak alkaline solution, and then raising it to 350° by means of a current of steam.

We add some information given by Bonis on the nature and provenance of the tallow used in industry.

The prepared tallow of Paris contains only the extracted fat from butchers' cuttings when it is pure. It is often adulterated with the tallow from tripe, bones and intestines.

Kidney fat is used generally in margarine manufacture. The solid residue of this operation is sold as pressed tallow, and mixed with solid acids is used in candle-making. In this way candles of a good appearance, but of inferior quality, are obtained. Kidney fat, moreover, is sought by the stearine manufacturers, who treat it by saponification.

Ordinary mutton tallow is used for the "perfected candle." Bone tallow is used by the stearine makers, who distil it, and by soap makers. The tallow from the intestines is used by the stearine makers, who get the crystallization which is necessary to separate the solid and the liquid fatty acids by mixing it with other tallow.

St. Petersburg tallow (P. Y. C.), which enjoyed for a long time very great favor in Europe, is now hardly employed, except in Russia. Odessa ox tallow, which is of a very superior quality, is not used in France, except by the stearine makers of Marseilles and Montpellier. United States tallow (Butchers' Association) is suitable for candle-making; it comes rarely to Europe. Prime city tallow, which is usually rather cheaper, is in favor with the stearine makers, who find it a pure tallow, and pay a franc or two more for it than for the Paris prepared tallow. The Western tallow, richer in stearine than this last, fetches less in the market, nevertheless, on account of its impurity.

La Plata ox tallow is in great favor in stearine making, and fetches 6 or 8 francs more than the Paris article. The mutton tallow from La Plata is imported in enormous quantities into France, where it is preferred to the native article, and fetches 2 to 4 francs more. In La Plata the ox tallow is prepared in the same manner as in France, but this is not the case with the mutton. The flesh of the sheep being valueless, the whole animal is put into a cauldron, and all the fat is collected as it comes to the top. It therefore always contains a little gelatine.

Australian tallow are frequently used in England, but to a very small extent in France.—Oil and Color-men's Journal.

Working for a Salary.

A few years ago a young man of excellent ability gave up a position where he was receiving a high salary in order to go into business for himself. His statement of his experiences is quite emphatic.

"I called it "ambition,"" he says, "and I wanted to be free to work out my own career; but from the moment I assumed the business I carried a great burden of care, and was bound in my chains of responsibility day and night. I wanted to be the master and run things my own way, but I found that instead of one employer I had as many as there were customers that came to my store. I wanted to make money for myself instead of giving the profits of the business to somebody else; but I found that the profits which came in the cash-carrier went back in the pay envelope, which I had never thought of before. I discovered that, for me, at least, running a big department for somebody else was child's play compared with running a small business for myself, and I was glad to sell out and get back to my old place again."

This young man's history is typical of thousands, except that many do not get back their old places again. It is worth while to consider a few facts about the matter.

It is true that the ability required in many salaried positions is equal to that which the owner himself must have in order to make the business a success. It may be a different kind of ability, but it is not less in degree. Even a general manager may conduct a business better for another than he is able to for himself, as has often been proved. The final responsibility of a great business is to some men only a stimulus, an interesting problem to be solved, while to other men of equal ability it is a burden which crushes them. Many bright young men rush into business for themselves without thinking of this fundamental difference of temperament. It is as if an athlete who has taken the prize in running a race should enter for a swimming match without knowing how to swim a stroke.

It is also true that there are many salaried positions where the rewards for ability are excellent, equal, in fact, to what would be considered a good net profit on a large capital investment in business. If a young man takes the trouble to know all there is to know about some special thing, that knowledge will become exceedingly profitable to him.

In a wholesale house is a man who has cultivated what is called the "wool touch." That is, when he is handling a piece of cloth he knows at once whether it is all wool, or what percentage of wool there is in it. His salary is almost fabulous. In a department store there is a man who knows all about handkerchiefs. A few years ago the firm thought they could do without him, and took a man at less salary. He also knew less about handkerchiefs, and in a few months the bottom
fell out of the trade. So the expert is back in his old place at an increased salary. There are many special positions where a genuine expert may practically fix his own salary.

Of course there must be some to take command of the great business enterprises of the future, and they must come from among the young men of today. But the question is not to be decided on the supposition that the salaried position requires less ability, or is less honorable, profitable or enjoyable.—John Mervin Hull, in Youth's Companion.

QUESTIONS AND ANSWERS.

In this column we shall print questions of general interest submitted by subscribers and invite replies to the same from our readers, which will be printed in the next issue of this paper.

**Question No. 23:** Is there a good work published on coconut oil and its production? If so, what is the name and where can it be had?—L. B.

**Question No. 24:** How does Australian tallow compare with American tallow as regards the melting point?—D. S.

**Question No. 25:** Should like to know a suitable composition for making the body of perfumed tablets, other than paraffin.—H. M. C.

**Answers.**

To **Question No. 20:** When corn oil first appeared on the market a number of years ago, the manufacturers themselves held that it could not be saponified completely, basing their opinion on laboratory tests. In actual practice, however, this belief does not seem to be justified; at least users of the oil on a large scale have made no complaints.

To **Question No. 22:** The following recipe for a deploratory soap is from a scrap book of miscellaneous formulas and is offered without guarantee of being satisfactory; care is necessary in the use of all such compounds, to avoid irritation of the skin:

(a) Powdered wheat starch.......... 20 parts

(b) Water ................................... 120 parts

(b) Sodium sulphide ................. 34 parts

(c) Barium sulphide ................. 30 parts

(d) Water ................................... 180 parts

(e) Palm oil ............................... 36 parts

(f) Glycerine ............................. 21 parts

Dissolve the powdered starch in 120 parts of tepid water in one vessel and set aside for use when wanted (a). In a second vessel dissolve the sodium sulphide (crystals), and stir it and the barium sulphide in the 180 parts of water (b); add the glycerine. In another separate vessel melt the palm oil.

To mix the compounds, make the sulphide solution (b) boiling hot, stir up the starch solution (a) and then gradually stir it into the sulphide solution (b); keep stirring until the starch thickens; add the melted palm oil, mix all well together and add the perfume (citronella essence, mirbane or oil of lavender, etc.). Before the mass cools and congeals pour it into porcelain pots or wide-mouthed bottles. Directions for use: Rub the soap into the hair to be removed until the hair loses its crispness and filamentous form, and becomes a pulpy mass; then wash the part well with water and the hair will all be removed. Should the skin smart after applying the soap rub in a little olive oil or vaseline.

**Answers in Brief.**

G. A. of Gibraltar: We see no advantage which foreign readers derive from ordering the Soap Journal through foreign booksellers; but there are several minor disadvantages growing out of this practice. However, if you want to order via London, we can recommend among others: Kegan Paul, Trench, Trübner & Co., Ltd., Paternoster House, Charing Cross, London.

M. L. B. & Co., Chicago: Soap frames and bottoms advertised in our columns by two manufacturers. Your correspondent ought to subscribe and find where to buy other articles he will need.

**PATENTS AND TRADE-MARKS.**

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

**Patents.**


700,787. Liquid-soap container. Lewis G. Langstaff, Brooklyn, N. Y.


701,463. Soap Article. Henry L. Boswell, Cleveland, Ohio, assigner of one-eighth to F. Woltz, Chicago, Ill.

**Trade-Marks.**

38,306. Laundry Soap. Michigan Soap Works, Detroit, Mich. The pictorial representation of the landing of Cadillac, as represented by an ancient beaute containing the landing party, with the figure of Cadillac conspicuously shown standing in the bow, together with the flag of Louis XIV displayed over his head.


LABELS.


9,214. Title: “Belgian Soap.” (For Soap.) William C. Ballowitz, Chicago, Ill.

9,215. Title: “Gerhard’s Clean” (For Washing Compounds.) Charles C. Gerhart, Clarksville, Tenn.

AROUND THE SOAP FACTORIES.

News items sent us by our readers will find prompt attention in this column.

James Hartford, vice-president of the Schoellkopf Hartford & Hanna Co., died on June 12, at the age of 56. Deceased was born in Ireland, later went to England, and had been in this country less than twenty years, in which comparatively short space of time he became prominent in scientific as well as business circles.

Arba T. Perry, proprietor of the Indianapolis (Ind.) Soap Powder Works, made an assignment for the benefit of his creditors on June 5. The business was undertaken by Mr. Perry less than two years ago and so far as the amount of sales was concerned was doing well, but the price obtained is said to have been the cause of disaster overtaking the venture. The liabilities are estimated at $30,000, with assets aggregating perhaps $14,000—consisting of a large stock of goods, material on hand, plant, and a small amount of money.

Rutherford & Barnes of Brooklyn, N. Y., are about ready to move their soap works into their new building at the corner of Eagle and West streets.

The Sacramento (Cal.) Soap Co. has been incorporated by R. Farraday, A. K. Varney, J. M. Avery, W. K. Kilborn and F. B. Sutliff. Capital stock, $25,000.

The Gibson Soap Works at Kingston, N. Y., mentioned last month, has since become an incorporated concern. Capital stock, $25,000.


The scouring soap manufacturing plant of the Hubbard Mfg. Co. of New York has removed from that city to Ellenville, N. Y., where a former glass factory and suitable material for a sand soap offered special inducements for location. The sand used is produced from the mountain rock in the vicinity.

John McGraw, an old-time resident and twenty years ago a soap and candle manufacturer of Baltimore, Md., died on June 4, of paralysis. Deceased came here from Ireland fifty years ago.

The Akron (Ohio) Soap Co. contemplate the removal of their plant to a location outside the city limits.

The Farrier Cotton Oil Co., organized at Wilson, N. C., is chartered to make soap and fertilizers besides oil.

The Gilmore Soap Mfg. Co., with a capital stock of $50,000, has been incorporated by Horace Mitchell and A. S. Vose, at Kittery, Me.

The San Gabriel Valley Essential Oil Co. at Pasadena, Cal., is reported as preparing to erect a plant for the manufacture of oils of orange and lemon, citric acid, marmalade and allied products.

The Kentucky Refining Co. of Louisville has purchased a cottonseed oil mill at Tennille, Ga.

Richmond (Va.) business men are endeavoring to form a company to undertake the manufacture of laundry soaps in that city. The capacity in view is to be 200 boxes per day.

The Benzine-Ater Soap Co., Camden, N. J., has been incorporated, to manufacture soap; capital, $200,000. Incorporators, Oliver Smith, Alfred Lowry, W. B. Reel.

A certificate of incorporation has been issued to the Proctor & Gamble Distributing Co., Cincinnati, to maintain subordinate agencies of the soap factory outside the state; $15,000 common and a like amount of preferred stock.

The soap works until recently operated by Price & Gonzalez at Barranquilla have become the sole property of R. Edward Price, who succeeds the firm named.

The Durango (Colo.) Soap Co. is under a new management and doing well.

A perpetual injunction has been issued restraining Frank G. Burke of New York from using the designation “Monkey Brand,” or the representation of a monkey or any designation or representation closely resem-
bling either, on soap wrappers or labels or in advertise-
ments of soap. The injunction was obtained by Lever
Bros., Ltd.

The National Laundry Journal last month contained
the following:
Editor National Laundry Journal:
I desire emphatically to deny that I have ever con-
templated entering the bonds of matrimony. It must
be the "other fellow" instead of me.

Wm. M. Morse,
Manager the Alden Sperre's Sons Co., Chicago.

Editor National Laundry Journal:
The rumor published in your last issue that one of the
bachelor managers of a local supply house contemplated
marrying had no reference to me. I hope, as such a step
is far from my thoughts. It must have referred to the
only other bachelor manager. — A. B. Field,
Manager Camden & Philadelphia Soap Co., Chicago.

Thomas J. Hurley, president of the Mine Securities
Corporation, and associates, are reported to have pur-
chased the controlling interest in the stock of the N. Y.
Petroleum Soap Co. The factory is located in Jersey
City.

The Benzineated Soap Co. has been incorporated at
Camden, N. J. Capital, $200,000.

The C. E. Drake Co. has built a new soap factory at
Webster, Mass.

A large tank full of boiling tallow exploded at the
candle factory of the Goodwin Mfg. Co. of St. Louis,
Mo., on June 14. Two persons were seriously injured
and part of the building was wrecked.

Scarcely had it been announced that the Crystal
White Soap Works had removed its machinery from
Clinton to Des Moines (where it had come from some
time ago), to start business anew there, than it is fol-
lowed by the news that the "secret" of manufacturing
Crystal White soap has been sold to Kansas City parties
and operations at Des Moines have been postponed.

It is stated that the Henry Roever Company is being
organized in Chester, Pa., with a capital stock of $300,-
000, for the purpose of making soap, candles, glycerines
and perfumery.

Wilbur M. Kelso and Peter J. Monahan, members of
the firm of Kelso, Monahan & Guile, soap manufacturers
of Chicago, have filed a bill in the circuit court in which
they ask for the appointment of a receiver for the con-
cern and an accounting from its manager, W. R. Guile.
Guile, it is alleged, has failed to make a proper account-
ing of the funds received by him. The co-partnership
is said to be insolvent.

The Buffalo Enquirer is authority for the statement
that the Buffalo Structural Steel Co., having secured the
contract for the erection of two large buildings for a soap
works in Seneca street, will be obliged to go to Europe
in order to buy the steels required as it could not be obtained
in this country soon enough.

The Markets.

TALLOW.—New York City in hhd., 62¢; in tiers, 6½
asked; sales of country-made at 6½ to 62c as to quality.
Western markets report sales of prime packers at 7½c;
city rendered 62¢.

GROSE.—"A" white, quoted at 7½ to 7¾c; "B" white,
unchanged at 6¾-7c; yellow, 53¢-5¾c; bone and house,
5¾ to 6½c.

COTTONSEED OIL.—Prime yellow 43-44c; off-yellow,
sales at 42-43c; markets somewhat unsettled.

CORN OIL.—6.30c asked for car-load lots.

COCONUT OIL.—Small sales of Ceylon, for current
wants, at 7½c; Cochin, held at 8½c for spol, little stock
on hand; for stock to arrive July and August 8c asked.

OLIVE FOOT.—5½ to 5¾c asked for the best grades of
spoil goods.

Palm OIL.—Prime red 5½c; Lagos 62c; Palm Kernel
7c; 62c for arrival.

Latest Additions to Our Brand List.

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<tr>
<th>Brand Name</th>
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<td>Blue Chip 340</td>
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<td>Blue Monday 340</td>
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We read the other day in an exchange that a human body contains, among other things, the materials for making 4½ lbs. of soap. Then the letter-carrier came and brought us Prof. Peter T. Austen’s pamphlet on “The Utilization of Waste.”

Wouldn’t that jar you?

New York City, on the recommendation of its Board of Health, has condemned seven out of its fourteen floating baths, it being contended that these have been an important factor in spreading various contagious diseases. In their stead there will be erected three new public baths, for which purpose the sum of $105,000 has just been appropriated.

In connection with this item we recall the statement made by a correspondent last month, that some bath houses in Mexico use as many as 7,000 to 10,000 half-ounce cakes of soap per week (furnishing each bather with a fresh cake), and this naturally leads to the thought that if there were more bathing, there would be more soap consumed.

New York City is far from being the only place that requires better and more public baths for the poor—many cities that are negotiating for gifts with which to erect public libraries might with equal propriety spend a round sum for promoting bathing and swimming, not only for the poor, but also for paying customers.

Charity begins at home. Let us hope that when some of our well-to-do soap manufacturers feel like emulating Mr. Carnegie, they will favor bath houses in place of libraries. Those who cannot endow a bath house should get behind heir aldermen to erect one pro bono publico.

As reported last month, a tank exploded in the soap and candle factory of the Goodwin Mfg. Co., St. Louis, recently. As a result one person died, another was seriously injured, and it is claimed by neighbors that considerable surrounding property was also damaged.

Such a deplorable occurrence, we dare say, is guarded against most carefully as a rule, but explosions do and will happen for all that. There is, of course, more or less loss to the factory itself involved in every such accident, and there is no need of dwelling on the latter fact as an additional warning.

The present case, however, is somewhat peculiar in showing how far-reaching the remoter effects of such an accident may become, and if recording these here can
lead to increased watchfulness in any one factory, we should not do our duty if we failed to call attention to the case. The occasion of these remarks is the formation of the “Compton Hill Protective Association” by property owners of the vicinity of the factory under consideration, which association appears to have for its sole aim to encompass the removal of the factory from the neighborhood. Whatever may be the ultimate outcome of the battle between the association and the factory, it was called forth in the first place by the explosion and must necessarily prove very annoying to the owners of the plant before it is decided one way or the other.

The association has duly organized itself and elected a president, vice-president and a treasurer, its first move is to oppose the granting of a permit to reconstruct the injured building, and it supports its position by the claim that there have been previous explosions at the same factory, that the lives and property of neighbors are endangered, and of course they make the usual claim in such cases that the factory emits sickening and noxious odors.

Whatever may be the merits of the controversy, of which we know nothing, the very fact of its arising at all, points a lesson well worth noting.

Grocers in England are objecting to the practice of certain soap manufacturers who have reduced the weight of their bars and brought out 120 to the cwt., so that the retailer might make a profit without raising the price.

Would the same grocers object if the difference were made up with fillings?

The Western Soap Manufacturers’ Association met in Omaha on June 27th, about a dozen firms being represented.

A correspondent last month mentioned that the volcanic dust which fell at Barbados on May 7th would make excellent scouring soap. As the amount on this island alone has been variously estimated at from one to two million tons, the planters had hoped that the dust might contain elements of value to the soil, but in this they will be disappointed, for an analysis shows the amount of potash and phosphates to be mere traces. The dust consists of silex 52 per cent., alumina 21 per cent., iron oxide and lime about 9 per cent. each, with small amounts of magnesia, soda and potash.

Two swindlers (old story) have been surprising Salamanca, N. Y., people, by selling the thrifty housewives soap and valuable premiums to the amount of $5 each, collecting the money, and forgetting to send both soap and premiums. They pretended to represent now one and then another soap factory. One would think so clumsy a scheme could not be successful, but the fact that the same plan, with very little variation, has been used by swindlers for years, in almost every state of the Union, shows that anyone thinking so “has another think coming.”

But if the swindlers had said “starch” or “preserves” instead of “soap,” then this would have nothing to do with the pages of the Soap Journal. But they didn’t say “starch” nor “pickles;” they never do! It has been soap all these years! You see the scheme would not work without the premium attachment, and who ever heard of premiums to go with starch or pickles?

But, leaving aside the premium altogether, the fact that the soap did not come forth, stamps the transaction as an unmistakable swindle; if, instead, a box had arrived containing a compound of 90 per cent. water and 10 per cent. of something else, it would still have been a swindle. The delivery of a “moderately” filled soap would have made the transaction legitimate. Now, where is the dividing line between a clear swindle and a legitimate delivery? At what exact point of dilution does soap cease to be soap? When is a soap not a soap?

The American Soap Journal occupies a somewhat unique position among trade papers, which will become more evident to the reader when we point out that there is not a single paper published in the English language anywhere in the world (outside of the United States) in the interests of soap making, except the American Soap Journal. (In saying this we naturally disregard numerous trade papers published in the oil, drug, etc., lines which endeavor to take in the soap business as a side line.

What follows? This: There are hundreds of soap factories in English-speaking countries outside of the United States, that have no trade paper published in their own country. In the course of years we secured their addresses, or they ours, and to-day there is no English-speaking country where there are soap factories, where the American Soap Journal is not a regular monthly visitor. Our paid subscription list includes a very considerable number of soap factories in all parts of Canada, England, Ireland, Scotland, New South Wales, Queensland, South Australia, Tasmania, New Zealand, South Africa, India, etc.

More than that, the circulation of this paper is by no means confined to English-speaking countries. Many of the larger firms in France, Belgium, Sweden, Russia, Spain, Italy, Mexico, the South American Republics, etc., etc., are owned or managed by men, or have soap makers, who understand English, and these add a third quota to our subscription list.

Lastly, while so far we have spoken of direct subscribers only, there is still a fourth contingent of readers who
are supplied through news agencies that buy the papers of us and furnish them to parties unknown to us. It is through the latter class of readers that we are sometimes surprised—when we receive a letter now and then from a previously unknown reader in the most unexpected quarters of the globe.

The object of saying all this is to make it clear that, while our aim is to publish an American Soap Journal in the first place, we have a considerable clientele of foreign readers to interest also. This we offer in reply to occasional criticism of certain contents of this paper.

It is our privilege to "talk back," but in doing so we by no means want to resent criticism. On the contrary, we are free to admit that some of the most helpful pointers that have assisted to make the Soap Journal what it is, have come to us from well-meaning subscribers who were not backward in spiking their mind. We are glad enough of all useful hints and invite more, even though we cannot follow every advice that may be offered.

And now we have a few words to address especially to our readers residing in countries where English is not spoken, on the subject of corresponding with us.

Some subscribers in France, Spain, Germany, Central and South America, in writing us, use their native language in their letters, but the majority go to more or less trouble in writing in English. They can read English fairly well (or they would not subscribe), but many of them find it more or less difficult to write in English. As this must necessarily interfere with the freedom with which they would write if they felt free to use their native language, we want to say to them that we are exactly in the reversed position. We have no trouble to understand letters in German, French or Spanish, and invite our foreign subscribers to use any of these in place of English if that will encourage them to write oftener or more fully. But in our replies we prefer to confine ourselves, so far as possible, to English (or German), as it is easier for us and of course understood by all readers of this paper. Several penholders in our office with tips chewed off testify to our past efforts in replying in French and Spanish, but with the constant growth of this kind of correspondence it seems in every way advisable that each party write in the language he can use with the greatest facility and accuracy. This will make corresponding easier all around, and safer as well.

It has always been a great puzzle to some people what becomes of all the soap companies that are being incorporated right along? With say about ten new companies incorporated every month, now here and now there, we have 120 new companies a year or say 1,200 to 1,500 during the years that we have faithfully recorded the incorporations. Where are they now?

It was recently reported that a former Detroit man intended opening a soap factory in Anaconda, Mont. But fate decreed otherwise. You have all heard of the man who opened a jewelry store—at midnight, after the watchman fell asleep. It was on somewhat of the same principle that the opening of the soap factory seems to have been intended; but, in this case, as a preliminary to opening the soap factory, the enterprising beginner "opened" a slaughter house and while nobody was looking carted away four barrels of tallow. At this small beginning the future soap factory was nipped in the bud by an officer of the peace. For the present Anaconda has no soap factory.

The increasing importance of soap powder is illustrated by the fact that, while the manufacture of various soda products (soda ash, caustic, bicarbonate) in this country is six to eight times as large as it was ten years ago, sal soda alone is an exception, its output having actually decreased from 114,641,705 pounds in 1890 to 126,498,000 pounds in 1900. These are the figures of the Census Bureau, and they become still more significant when we remember that during the same ten years the imports of soda ash and sal soda have decreased from over 322,000,000 lbs. to 85,000,000 lbs.

In the rise and fall of important industries of this country hardly one presents such a melancholy picture as does potash making. In 1850 there were in this country 569 establishments engaged in making potash, their annual product being valued at $1,400,000. Forty years later (1890) there were only 75 such establishments left, with a product amounting to only $197,500. By 1890 eight of these plants had disappeared, and the value of the product in that year was $175,000. Of the 67 establishments remaining, 12 have an annual output of less than $500.

Two-thirds of the plants in existence are located in Michigan, the remainder chiefly in Ohio, Indiana, Maine, Wisconsin and Illinois have one or two plants each.

Surely, when we think of potash making as one of the oldest chemical industries in the country, and then compare its fate with the tremendous recent rise of soda manufacture, we cannot help thinking of potash as the deserving but unfortunate relative of soda.
The Executive Committee of the Eastern Soap Manufacturers' Association (which is an auxiliary of the National S. M. Ass'n) had a brief monthly meeting on July 14 in New York city. Among the subjects discussed was a report that certain parties in Ohio, especially in Cleveland, were selling alleged pure tallow which had been found adulterated as high as 16 per cent, with mineral grease and other unsaponifiable matter, and this subject will be brought to the attention of the National Association, in the expectation that the latter's board of directors will interest themselves in combating the practice. Our readers are aware of our having paid particular attention to this evil for several months past and we should take great pleasure in being able to report that the association took an active stand in suppressing these frauds.

In the meantime—"let the buyer beware."

We understand that among the subjects discussed on the same occasion was also the price at which Swift & Co.'s Wool Soap is sold in the East, the price being 5c in New York (cost $4.00 per 100), while in New England it is retailed at 5c a cake. We have not learned of any action being taken as a result of the discussion.

Since writing the last two items we learn with much pleasure that at a meeting of the National Soap Association the matter of adulterated tallow came up for consideration, some of the members stating that they had purchased tallow of certain tallow renderers which they had found to be adulterated more than 16 per cent, with mineral soap stock, so-called tallow grease or tallow compound, and it was voted that the National Association appropriate a fund for the purpose of bringing criminal action against all manufacturers and brokers who were selling goods of this character.

On another page appears an article reprinted from a Massachusetts daily, concerning the plans of the U. S. Soap Corporation. Since printing that page we have learned further particulars, this time on the authority of the Corporation itself. It comes to us in the form of a communication, addressed by the directors to the stockholders, and announces that the directors have purchased the $75,000 plant of the Herman Bonitz Co. at Lodi, Bergen County, N. J. This plant is not a soap factory now, but a woolen mill and dyeing establishment, consisting of nine buildings. By reason of tanks, boilers, shafting, belting, drying rooms, etc., already in the building, it can be remodeled into a soap factory with comparative ease, and the directors declare their intention to fit the buildings throughout with the latest and most approved soap machinery, if possible by fall.

Lodi is situated seventeen miles from New York city, on the New York, Susquehanna & Western R. R.

What we have previously published have been reprints from the daily press and some comments on the same. The present item is the first authentic information received, and while not very explicit so far as the plans of the Corporation are concerned, the natural inferences to be drawn from the purchase of the plant named are such as to contradict some of the current rumors.

For the present we must leave our readers to draw their own conclusions for further edification.

Meantime we learn also of a rumor that a representative of the Manhattan Trust Co. is working among the trade to bring about some form of consolidation in the soap business. This is as yet not confirmed, and, in the absence of further particulars, we refrain from commenting on it.

We are not suffering from a lack of letters in which subscribers ask for special information on a large variety of subjects every month, and we invariably supply what is desired to the best of our ability. But we cannot forbear remarking that very, very rarely do any of these enquirers offer to reply to any question which is printed in our columns for the purpose of eliciting replies. Many of the enquirers assure us again and again that they would be glad to return any favor shown them at the very first opportunity; well, the opportunity is there, right along, in our Questions and Answers column. Make the most of this opportunity also, gentlemen.

Washington Irving tells of a dog who wore his tail curled up so tight that it lifted his hind feet from the ground. Most of our enquirers wear their lips so tightly shut that it warps our Question and Answer department.

We have been obliged to build an addition to this month's Soap Journal to make room for an extra long communication from Mr. Moulé. As this is a rounding-up of a long-drawn-out subject, it could not well be printed in sections, and to crowd out no other subjects we added some extra pages.

We have somewhat recently been much annoyed by the occurrence of some printers' errors in this paper in articles which we had been especially anxious should be printed without a flaw. In our disappointment we have come to take a fiendish delight in watching other papers suffer similar mishaps—for we are only human—and have found much malicious satisfaction in noting that others are as unfortunate as we were.

But to-day we noticed an error, or rather mishap, of this kind, which caused our hair to stand on end and almost made us feel the wickedness of our ways, to-wit: A large soap manufacturer meant to advertise in an exchange that "It is our aim to give at least full value for
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every cent received, by furnishing scientifically and care-
fully made soap, etc., etc.” But a type either broke off
or fell out and the adv. reads: “It is our aim to give
at least full value for every cent received, etc.”

Such a mishap it is absolutely impossible to prevent at
times even with the utmost vigilance, but that is a poor
consolation after it has happened.

Our excellent contemporary, the National Laundry
Journal, publishes an extract from the books of a laun-
dry doing family washing at 3 cents per pound—flat
work ironed, the balance ready to iron. From this it ap-
pears that in doing work amounting to $2,618.15, the
total expense of doing business was $1,840.39. The larg-
est single expense item is of course labor ($810), but
the next largest item is that of soap, i.e., $229.84. Con-
sidering that the next highest item (for fuel) is only
$84.68, it is seen that soap is a very large item indeed
in this class of work, amounting to nearly 9 per cent. of
the price charged the customer for doing the work.

During the past month we have received no less than
seven different requests, from as many established soap
factories, to place them in communication with good, re-
liable soap makers open for engagement. One or two
such letters off and on is the regular ratio with us, but
the present turn of affairs is unprecedented, the more so
as at the same time, for once, we did not know of enough
unemployed soap makers to fill a third of these vacancies.
What is the matter?

Next month, though, these conditions may be reversed
again, and it might not be safe to count on this state of
affairs in attempting a change.

The point uppermost in our mind in this connection is
that, ordinarily speaking, we know soap makers only by
correspondence and by reputation. With few opportuni-
ties to see them at work, we do not presume to know
whether a given soap maker would be the right man for
a given place. The best we can generally do—apart from
our advertising columns—is to place an unemployed
soap maker in communication with a firm having a place
vacant and let the two do the rest.

In this connection we may mention another little in-
cident that came to our attention. A soap maker who
last month advertised in this paper for a position re-
ceived, among others, a reply from a certain rather small
soap factory. For reasons of his own he did not want
the position offered and he took occasion to send us the
letter sent him, with certain remarks of his own.

The letter sets forth that the writers own a nice soap
factory, but find themselves slipping behind the times
and therefore want an up-to-date soap maker, etc.

There is nothing peculiar about this, but a reference
to our subscription list shows that these particular man-
ufacturers have not been regular readers of the Soap
Journal for a number of years and that they merely
utilized a chance sample-copy that strayed to them, to
look up who was advertising for a position and to write
them.

We shall not say that failing to read the Soap Jour-
nal was the cause of their slipping behind the times,
but going without reading the trade press when stray
copies are found so useful, is evidence of a spirit which,
if it pervades all the management of the business, may
well explain why such a firm is “slipping behind the
times.”

Great minds do run in the same channel! At the very
time when we wrote the above lines about the many soap
companies being incorporated, a letter was on its way
to us from a distant subscriber, remarking: “New soap
companies are springing up all over like mushrooms.”
Our correspondent proceeds to congratulate us, in view
of the growth of our subscription list to be expected from
this access of new firms, but goes on straightforward to mix
the bitter with the sweet, for he suggests that the rumor
of a coming soap trust has induced a number of people
to enter the field in order to be ready to sell out in case
a trust should be formed, looking for factories to be be-
nevolyent assimilated.

Possibly the unusual severity by which the organiza-
tion fever has recently been characterized is due to the
cause suggested, but in a mild way the infection has been
with us in varying degrees of virulence for many years.
Perhaps the cheap books on soap making recently com-
mented on, and the growth of the mail order business all
over, are also factors in the situation. Certain it is,
judging from past experience, that of the companies
formed a large proportion will never get to the stage of
really erecting a factory.

According to a report from the Italian consul at Jeru-
salem, superior as well as cheap perfumery finds a mar-
ket there. England and France supply the superior ar-
ticle, the cheaper one coming mostly from Germany. Re-
cently a Milan firm has also succeeded in obtaining a
foothing for its articles there. The French consul at Las
Palmas reports as to the importation of perfumery into
the Canary Islands, that there is an exclusive demand
for cheap articles, and essences in small bottles and per-
fumed soaps have a sale; the latter, if ornamented with
a portrait of the Pope or the picture of a saint, are pre-
ferred. Besides French articles (Marseilles) German
productions have also met with favor. The manufacture
of perfumery in Russia has very considerably increased
during recent years; the value of the productions in 1900
is estimated at about 15,900,000f. In 1880 about 650
workmen were occupied in this industry. Now about 2,000 workmen are occupied in the Russian perfumery works. At present the importations reach a value of 26,000,000f annually. France, England and Germany are the principal importers. The Bulletin of the French Chamber of Commerce at Constantinople states that the value of the importation of perfumery from Constantinople is about 1,000,000f per annum, and into the whole of Turkey perfumery of the value of about 7,000,000f is annually imported, of which about 4,000,000f are supplied by France. In the year 1901 the imports into Constantinople were: Perfumery, 144,859kg.; essences, 15,692kg.; and soaps, 731,615kg.

The United States Soap Corporation.

New York, July 25, 1902.

Dr. Henry Gathmann, Publisher American Soap Journal.

Dear Sir: I am in receipt of your favor of the 21st inst. stating that you are not entirely familiar with the objects of the United States Soap Corporation. The Corporation was established for the purpose of securing the co-operation of grocers, dealers and consumers of soap in the manufacture of the same, particular attention being paid to grocers, the Corporation having set aside a number of its shares to be subscribed for by grocers only, that it might secure their co-operation, allowing them to share in the profits derived from goods which they, themselves, sell. It is believed that by so doing the Corporation will be able to sell its goods more extensively with less advertising than any other article now on the market.

Of course we intend to manufacture and sell only goods of the best merit at a price lower than they can be sold by any other manufacturer. This we can do as we will manufacture in such large quantities and be able to save extensive advertising expenses, now so necessary to the sale of soap.

I have, up to the present time, refused to give any detailed statement regarding the plans of the Corporation because we intended not to bring the matter before the public to any extent before this fall and we are not as yet fully prepared to give exact details of our plans. We have a number of Companies figuring with us as to consolidation and we have made contracts to control some articles on the market. We have purchased a plant, the statement of which I have sent you, which will form the basis of a larger plant to be built by us. We have already had plans prepared for our plant and will alter the one just purchased so as to comply with the original plans of the necessary particulars. We believe that by giving the public the value of their money, by establishing the reputation of making a better soap for a less price than any other manufacturer, by securing the co-operation of grocers and allowing them to profit by their labors, by letting the public know that we have a co-operative organization and not a Trust, we will soon be able to occupy the leading place in the soap trade, and we believe we have behind us the necessary qualifications for this purpose. We intend to manufacture in our plant every article necessary in the modern soap business, including as well as the soap itself the printing of the labels and the making of the boxes, etc., etc. In regard to the co-operation of other factories throughout the United States, as I have said various offers are now before the Board of Directors for their consideration, and I am not at liberty to disclose the particulars of any of them.

The article published in your paper was accurate except as to a few details, the price of the stock not being as low as mentioned therein, but on the whole I believe it to be of such accuracy that I desired to send a copy of your paper to four of the Directors and it was for this purpose that I send to you for the same.

I have, however, arranged satisfactorily and thank you for your trouble in securing another copy.

Any further information you desire, I shall be pleased to give you if it is within my power to do so.

I remain,

Very respectfully,
Frank E. Stripe
Secretary.

Made In Germany and Finished In America.

By Geo. A. Schmidt, Chicago.

My letter which appeared in your June number, under the headlines "Made in Germany," shared with my former essays the imperfections which always mark the efforts of amateurs in essay writing. Being a practical business man, I can only find time to jot down impressions, and this is often done so hastily that I do not even find time to read over what I have written. I am sorry now that my superficiality in writing was the cause of my doing an injustice to a number of soap manufacturers in the land of my birth, Germany. As I was born in the central part of that country, in Kreuznach, and came to Chicago at the age of 17, I never had occasion to become acquainted with people or soap makers in the southern parts.

Having always held the firm convictions, as I do today, that publicity is the best remedy for all evils, I have written, for publication, my experiences in the soap business, and so sent, many years ago, to the German Journal, the "Seifensieder Zeitung," a paper published at the time in Leipzig, an article treating on the same subject.
as the one written on by Messrs. Melzer of Evansville, Ind., and published in the May number, page 269, of your valued Journal. My essay was superscribed "How do soaps act in washing?" It appeared some twenty years ago under my name in the German journal above mentioned. About three years later the same article, identical in every word, reappeared in the same paper under another name. Upon my remonstrating with the editor and failing to get satisfaction, I quit corresponding with him and started to write now and then for the "Seifenfabrikant, published in Berlin. This city is situated in North Germany. When I visited Europe for the first time again after many years, in 1895, and on later visits, I never had occasion to visit the southern part of Europe, and what I wrote about my reception amongst soap manufacturers in Germany is true only of the northern and middle states. I find it necessary to make this statement because the very cordial reception I received last month from the association of South-German soap manufacturers is in such marked contrast to my former experiences, that I cannot help making this acknowledgement. Accidentally I heard that the "Seifenfied Zeitung" had been transferred into other and very able hands; I sent for sample copies and found therein a notice of a meeting of soap manufacturers and made up my mind to see what differences there were between their aims and purposes and those of such others of my colleagues with whom I am acquainted.

The meeting was attended principally by soap manufacturers located in Southern Germany, a number of others, interested in a new process of glycerine extraction, were also present. Mr. Grunne of Stockholm, Sweden, was there; so were representatives of the dynamite syndicate and manufacturers of "old-fashioned" apparatus for glycerine manufacture, who all were very much interested in said new process by which glycerine may be extracted from oils and fats with no other apparatus but the ordinary kettles and appliances to be found in the average soap factory.

These discussions, which are meant for publication, appeared in the "Seifenfied Zeitung," and the editor of our American Soap Journal will no doubt translate and publish in our trade journal whatever is worth while. So I will not dwell here upon what was said.

If ever I wished to be in possession of the gift of putting in convincing words my ideas and convictions, I do so now, in order to be able to tell my American colleagues why we in this country ought to adopt some of the ideas there expressed. I know enough of human nature to be able to imagine seeing the contemptuous shrugging of shoulders of some of my dear colleagues who will think: No wonder that the Dutchman fancies the ways of his old "fatherland." But I flatter myself to have proven by deeds that I have the welfare of my adopted country at heart even more than some of those who call America their native land. Having lived but 17 years in Europe and the best part of my life, over 33 years, in this country, I am more of an American than German and may with perfect propriety call myself an American, and as such must say that certain of our German colleagues have a better understanding of the meaning of "live and let live" and clearer ideas of how business men should come together and unitedly work for the common good.

The German Soap Makers' Association has dropped the idea of forcing members to adhere to given prices; they intend to improve their condition and abolish abuses by discussing existing evils publicly, by exposing the folly and meanness of cutting of prices, by stamping as rascals all infringers and counterfeeters and those who steal away by methods which shun daylight the fruits of the labors of others, by elevating our profession through pointing out the foolish practices which to-day put soap makers far below the ordinary tradesmen. Masons, carpenters, tailors, shoemakers, etc., etc., think enough of their work to demand honest payment for their labor and material, while soap is frequently sold at less prices than the material, labor, etc., cost to produce them. Is it not time American soap manufacturers should do likewise? Why not follow the advice given in these pages years ago to come forward and express your sentiments on this all-important question, publicly, in the pages of our trade paper, the American Soap Journal?

On "An Object Lesson" and "High Speed Soapmaking."

Buffalo, N. Y., July 17th, 1902.

Editor American Soap Journal.

Dear Sir: I was glad to note your editorial note in your last issue and to see that you had quite made out my meaning in my former effusion.

Please allow me to thank "Kentuckian" for his kindness in taking up the cudgels in vindication of my contentions. Though he is quite right, I am sorry I cannot agree with him altogether. If all of the public would pay the price of a good soap, it would be all easy and plain sailing. But unfortunately many will not do so—all would want very good, the very best and very cheap; low-priced goods sell the most.

Experience has proved that no firm has achieved success on one solitary soap; those that have done so have had to cater to public demand and supply what was wanted. At least three soaps are required and better with four; besides bye-lines, the very best or say superfine, fine, ordinary and low-grade. Soap making is not like everything else; if wheat goes up flour rises, but with soap it is not so.

The capable man, or those that employ him, try to capture the incompetent's trade and wipe him out of existence when raw materials rise. If one man can make
a soap 1/2 cent cheaper than his neighbor, he will knock him off the field in a short time by either making him lose his money or by underselling him and capturing his trade.

If a firm has three or four kinds of soap, the competitor with one kind only is lost and might as well give up before his money is gone.

Many have made soaps; very few have succeeded, and those that have, as KENTUCKIAN says, either knew themselves or employed men to make their soaps that knew the "reasons why?" the "what for's"—not apprentices and self-styled soap makers.

It is very satisfactory to know that the gentleman signing "Cracker-Jack" can make a 50,000 pound kettle of resin settled soap in ten hours. It seems a pity to me that the performer of the feat should hide his light under a bushel by signing a nom-de-plume instead of his own name. I for one, and many others, no doubt, would like to know it. He did not tell us, however, whether he saponified his stocks together or separately.

As to a record, it perhaps is one in America. I have known a soap maker, however, that emptied a 55,000-pound kettle from 6 a.m. to 9 a.m.; stocked same kettle, made all necessary changes and washes and, taking one hour for dinner, had the kettle of soap finished by 5 p.m. the same day, or 7 hours' work, and not one solitary kettle, but kettle after kettle.

Analytical chemists said in their reports that the soap he made in that time was extremely good, was thoroughly saponified, contained no excess of alkali and yielded a perfectly bright solution entirely without deposit. His soap contained 60 per cent. of resin, whole casks dumped into the kettle at once after taking the staves off.

There are soaps and soaps; we have no reason to suspect that your correspondent's soap was not in every way a first-class and well-finished soap, and he certainly ought to be proud of his achievements.

If American soap makers can make first-class soaps in ten hours, or even in three days, it is surprising that employers should submit to have coal and time wasted in boiling soap four, five, six or even seven days for a batch.

If your correspondent is a supervising soap maker, it is to be hoped that he does not work for apprentices' salaries, for his abilities must decidedly deserve better than that.

As to the small foreign soap kettles, in some parts they do not call kettles that run 300 or 400 frames of finished soaps small; some could tell of kettles running 700 frames, or about 325 tons of soap.

The size of kettles has, however, very little to do with its working; whether a kettle holds 50,000 pounds or ten times that amount, it will work just as quickly in one instance as in the other as far as saponification is concerned, and a large kettle settles quicker and better than a small one. In numerous instances they have to have smaller kettles because they make many different kinds of soaps.

In 1897 I was told that Messrs. Lever Bros (Ltd.) had at Port Sunlight twenty 20-ton kettles (about 45,000 pounds each), and yet in those very small kettles I was told they made six hundred tons of soap per week, sold at a rattling good profit; Messrs. Wm. Gossage & Sons (Ltd.) were then making one thousand four hundred tons of soap per week, Messrs. Joseph Crossfield & Sons (Ltd) coming very close to the latter, if not over, and many others.

Anyway, I hope your correspondent will take all this in good part, for I never had any wish to offend anyone, and I would be very glad to know him, for he is evidently a smart soap maker, though it requires more than a solitary swallow to make a spring or a summer, and so hope that there are plenty more like him.

I remain, sir, yours respectfully,

A. d'E stamps.

Combine To Control Trade.

(From the Lynn, Mass., News.)

While sociologists are condemning trusts and politicians are crying against them and the legislatures of various states are making laws to drive them from doing business therein, the public have stood in trembling, fearing that the lawful results predicted from these vast combinations of capital may be yet brought about. Though numerous plans have been advanced from time to time to overcome this evil it has generally been conceded that none of them are practicable.

A number of prominent business men in New York, however, have recently organized a co-operative corporation which places the whole solution of the trust problem within the power of the public. This corporation has been formed to control the world's leading industry—The Soap Trade—and has already secured control of the best articles on the market. The capitalization is 81,-000,000, divided into shares of a par value of $1 each; which shares are being sold at popular subscription in small blocks of from 10 shares upward, the object being to secure a large number of small investors in every section of the country.

Special inducements are being made to grocers and dealers in soap, the working people, and factory hands. In this there is being secured a co-operative trust which is distributing its profits to the public and is securing thousands of willing assistants throughout the United States who are ever ready to speak a good word to advance the sales of their goods and who will themselves be permanent customers of the corporation. The corporation being controlled by the public at large and the books being open to every stockholder, there can be no danger of any abuse of the public nor a corner in prices.
The corporation will moreover act as a regulator and safeguard, and the soap industry, at least, can be said to be freed from the stigma attached to steel, beef and other industries controlled by oppressive trusts.

Another benefit derived from this method of co-operation and consolidation will be the great saving in advertising expenses, made necessary by rivalry in business; as well as cheaper production brought about by consolidation of various companies.

The business of the United States Soap Corporation is handled by conservative, reliable men, who will adopt up-to-date business methods to advance the interests of the corporation. The advertising campaign which has been mapped out will begin in the fall and will be similar to that pursued by the National Biscuit Company to bring before the public their "Unceda" biscuit. The corporation will first impress upon the public "O. C.,” the modern cleaner, and will follow that with the introduction of their other brands of soaps and cleaners, tooth waxes and similar goods.

The corporation has a broad charter with extensive powers, enabling it to increase its capital and absorb as many other companies as it desires. Its plans and methods have been approved by the newspapers throughout the United States. The financial side is generally modeled after the billion dollar United States Steel Corporation. It seems, however, that with an article more extensively used than steel, with profits much greater in proportion to the expenditure, with but one-thousandth of the capitalization, and pursuing a course which appeals to public support, this corporation is bound to be a greater success to its stockholders than is the Steel Trust.

One of the principal articles controlled by the corporation is O. C., the universal cleaner, which has already been successful in New York and is being extensively sold in Lynn and other places in New England. It is stated that O. C. cleans everything and polishes everything; this briefly but accurately sums up its merits. A large cake of it sells for 5 cents. As an example of the popularity of O. C., may be mentioned Nelson’s drug store in Lynn, where, without any advertising but merely having its merits talked from one person to another, more than 4,000 cakes have been sold since January. Experts, familiar with every branch of the soap industry and with the merits of O. C., estimate that at least 20 per cent. to 80 per cent. dividends will be earned by the corporation every year from this product alone.

The treasury stock of the corporation has been divided into blocks and set aside for various purposes. A certain amount of it has been reserved for advertising, another portion for agents, and $150,000 for building the most complete soap plant in the world. In this new plant every branch of soap making will be thoroughly provided for. A complete printing establishment for the printing of labels, show cards, posters and all advertising matter, and a complete wooden and pasteboard box factory will be established, saving the profits which would otherwise go to the printers and box makers for the stockholders of the corporation.

The affairs of the organization of the corporation were managed by Frank E. Stripe, attorney at law, 21 Park Row, New York City, who is treasurer of the corporation and who has charge of the sale of stock.

Mr. A. W. Mussells, 25 Neptune Street, Lynn Mass., is the representative here, and speaks very highly of the success of the corporation. When seen by the reporter for the News yesterday, Mr. Mussells confirmed the particulars of this article and furnished a picture of the new plant to be erected by the corporation.

Vacuum Soap Drying.

The old method of drying soap as best it will, by simply exposing it to the atmosphere and a draft when the weather is favorable, has been superseded in most factories by hot air apparatus of some kind. What, on its face, seems to be a greatly improved principle over the latter method is that of drying in a vacuum chamber.

As is well known, water will evaporate at every temperature, but most rapidly so when exposed to dry and warm air. The atmospheric pressure greatly influences this evaporation also, as is readily understood when we remember that while water boils ordinarily at 212 deg. F., it will boil at 100 deg. F. (only little above ordinary summer heat), in a vacuum of 28 inches. The combination of a moderate temperature, rapid condensation of the moisture evaporated, and a vacuum to promote drying, is the working principle of the recently patented Meade Drying Chamber. (See advertisement on another page.)

We leave it to the manufacturer to explain the subject further to those interested, but would mention here that he builds also small working models on the plan identical with the larger machines, in order to give manufacturers interested an opportunity to test it for their purposes before installing larger chambers.

Another Soap Patent.

To all whom it may concern

Be it known that I, Harry C. Peffer, of New Kensington, Westmoreland county, Pennsylvania, have invented a new and useful soap, of which the following is a full, clear and exact description.

My invention relates to soaps, and is designed to improve their cleansing quality and to provide a soap which is equally desirable for toilet purposes, for cleansing fabrics of grease, and for all other purposes. To that end the invention consists in a soap containing hydrated shu-
mineral (Al₂O₃·3H₂O). This hydrated alumina may be added to and mixed with the soap materials at any desired stage in the soap-making process, but preferably near the end thereof. The alumina forms, at least mainly, a mechanical mixture with the soap, its particles being disseminated throughout the mass of soap. My preferred proportion is about 30 per cent. of hydrated alumina, though this may be varied within wide limits.

The advantages of my invention flow from the new composition of matter resulting from mixing the hydrate of alumina, which is of high detergent power, with the soap.

The soap may be either in the form of powder or cakes and may be of any desired composition without departing from my invention, since I consider myself the first to mix hydrated alumina with soap.

I claim—

1. A soap containing hydrated alumina disseminated through it; substantially as described.

2. A soap cake having powdered hydrate of alumina disseminated through its mass; substantially as described.

In testimony whereof I have hereunto set my hand.

HARRY C. PEPPER.

Whale Oil Soap Experiments.

"A series of experiments with insecticides were conducted the past summer, and among them some with whale oil soap solutions. Through the courtesy of the Country Gentleman, samples of the whale oil soaps made by James Good, of Philadelphia, were received for testing. The following is a summary of the results obtained:

This soap was applied early last spring, before the buds started, at the rate of two pounds to the gallon, without injuring the fruit buds in the least. It dissolved readily, and there was no difficulty in spraying it, even in cold weather. It was tested on a number of trees badly infested with San Jose scale, and while not all the insects were killed at one spraying, a large proportion of them were destroyed. A solution of 1½ pounds to the gallon was also tried, and the effect on the San Jose scale was almost as good as when the stronger solution was employed. One pound to 5 gallons was a very successful mid-summer spray, killing practically all the young scales, and not injuring the trees. A summer application would need to be repeated at intervals of about ten days, in order to secure the best results. This insecticide may be classed as one of the safer scale-insect remedies capable of a high degree of efficiency when thoroughly applied.

This soap, and also Mr. Good's tobacco whale oil soap, were tested on forest tent caterpillars when they were gathered in masses on the trunks of infested trees. These soaps were used at the rate of one pound to five and one pound to ten gallons of water. The experiments brought out very clearly the necessity of thoroughly drenching the caterpillars when thus assembled, or they will eventually revive, even when sprayed with the stronger solution. Better results were secured when the soap was used at the rate of one pound to five gallons, and the tobacco whale oil soap showed a marked superiority in killing caterpillars in masses, as the following figures will show: The day after the spraying, 99 dead caterpillars and 62 living ones were counted in a mass separated for observation, after treatment with the Good Whale Oil Soap, No. 3, while in another mass treated in the same way, except that Good's tobacco whale oil soap was used, 135 dead and 41 living caterpillars were counted. It is but fair to state that most of these caterpillars eventually died from the effects of the insecticide. Still, the above figures show the greater value of the tobacco soap for this special work.—E. P. Felt, N. Y. State Entomologist."

Petitgrain Oil In Paraguay.

The bitter orange, from the leaf which the oil of petitgrain is distilled, grows wild in great abundance in Paraguay—indeed, in many parts it is the commonest tree to be found in the woods. In the more remote parts of the country, where the tree is most abundant, there are many distilleries on a small scale, nearly all operated by Frenchmen. These men generally work for a dealer, who finances them and buys their product. This dealer, who has his headquarters in one or other of the larger towns acts as an agent for the collection of the oil, which is then sold to one of the principal export houses in Asuncion, by whom it is shipped to Europe. The fruit of the bitter orange is worthless, but the wood is valuable from its hardness and toughness, being particularly suited for the manufacture of axe handles and similar articles. The flowers also are capable of yielding a species of neroli, and the rind and inferior bergamot, as it abounds in a strong essential oil, but little has been done locally to develop the by-products of the plant, of which there are many. The distillation of the oil is mainly confined to the districts of Yaguaron, Caraguanty, and Valenzuela (not Venezuela), and takes place practically all the year round, but mostly between October and May. It appears that, for want of better methods of collection, the trees are cut down indiscriminately, and this has led to the destruction of large acres, although, of course, there is no lack of material. Last year, according to official statistics, the exports from Paraguay amounted to 334,075 oz.
Open Letter No. 3.
Jacksonville, Fla., Aug. 1, 1902.

To the Honorable James Wilson, Secretary of Agriculture, Washington, D. C.

Part I.

Sirs: In May, 1897, I began a correspondence with your department, the object of which was to obtain the identification of several specimens of wild plants which I had recognized of certain value for the perfumery industry. I supplied the department with these specimens and also with their distillates. Mr. Lyster H. Dewey, assistant, division of botany, kindly furnished me with the information wanted.

The correspondence exchanged between us, from May to September, 1897, must have impressed your department with more than ordinary interest, since it led to the following correspondence between Messrs. E. S. Steele, assistant, division of botany, dated October 5, 1897:

"This department is instituting an inquiry respecting the existence and the possibilities of a perfumery industry in the United States. I learn that you have been engaged in this business in Florida for some years, and perhaps can give more information than any one else respecting what has been and can be done there in that line. We shall be grateful for your statement you may be willing to make us upon the subject."

And then follow a series of questions which caused another period of correspondence, winding up in a letter of the 14th of November, 1897, and there the matter rested until your trip to Florida in the winter of 1897-98, when our local press gave out the interesting information gathered by you in regard to the agricultural and horticultural industries of the United States.

In these reports no mention being made of the perfumery industry, I decided to call your attention to it, and I had the honor to address you two open letters, February 25 and March 25, 1898, respectively. These letters were published in the American Soap Journal and Perfumery Gazette, then of Chicago, now of Milwaukee, Wis.

In these letters I stated that in your department, you could find some interesting information in a correspondence between Messrs. E. S. Steele, Lyster H. Dewey and myself, and gave you a synopsis of the industry of perfumery, of which I modestly claimed and claim the honor of creation in this country. That synopsis reads as follows:

"In the fall of the year 1888, I started a plantation of flowers at San Mateo, Putnam County, Florida, of such flowers that I knew I could not find in suitable quantities for any portentous growth of perfumery. At the same time I bought the orange blossom and the wild yellow jasmine flower (Gelsemium Sempervirens). In July, 1881, under the care of our lamented Major A. J. Russell, the Florida Sierra Club, organized by the Public Works of Public Works of the year 1881, I had in exhibition at the Exposition of Atlanta, Ga., some fine specimens of my product, such as floral pomades, essential oils, extracts for the handkerchief, and also flavoring extracts.

"In 1884-85, at the Cotton Centennial Exposition, in New Orleans, La., under the care of General W. H. Sebring, Florida Commissioner, I had an exhibit of raw material for perfumery, perfumes ready for use and a collection of tuberose bulbs. That exhibit won a diploma of award of merit. In 1887, at the Sub-Tropical Exposition, in this city, same award was given to my products. In 1893 the only exhibit that gave credit to Florida in its state building at the Chicago fair, was mine.

"In my humble way, I have done enough, I contend, to at least awake desire for investigation. Up to April, 1893, I had used 151,634 pounds of flowers and 150,000 fruits (oranges and lemons). These materials have furnished me with pomades, essential oils, floral distilled waters, which, in their turn, have been transformed into perfumes of nearly every description, sold at prices as high as the best foreign perfumes. That has been accomplished with a capital hardly worth to speak of. What, then, could not be done with large capital?

"Up to the present time, the whole world is tributary of the Florida tuberose for perfumery, and still, attempts of producing same have been made in Australia by the English government, and in Germany by Schummel & Co. of Leipzig. Both seem to progress, and there is no plausible reason why Florida should not lead the way, her conditions of success being tenfold what the others are.

"In conclusion I will say that there is not a single word in the foregoing statement that cannot be substantiated.

"It is acknowledged that Florida is the "Riviera" of America. Why then not investigate the resources of the "Riviera"? Why not send to Sicily to study about the possibilities of growing here Bergamot fruits? Sicily controls the markets of the world in the oils of lemon, bergamot and orange; why not see whether Florida could not have a share in the bounty? Why not investigate in Algeria for the cultivating of rose geranium, and in Bulgaria for the cultivating of roses? Why not make use of the good will of your Walters at these places in order to secure reliable information?"

Sirs, what will you in the two aforesaid open letters. As a sequel, or rather a consequence, our correspondence with Mr. E. S. Steele was resumed. By his letter of December 23, 1898, Mr. E. S. Steele asks for information concerning the "Florida tuberose" and it is in that letter that he informs me that he was engaged in the preparation of a chapter on "Flower Farming for Perumery," a work which would appear in the Year Book for 1899. In that same letter Mr. Steele mentions that he had some one else having made or making perfume from the "yellow jessamine flower" (Gelsemium). In reference to the tuberose, I replied to Mr. Steele by sending him two copies of the American Soap Journal, May 1899, page 244, and February, 1898, page 26, in which are published two articles contributed by me and replying in part to his inquiry, and I added the following: "Since that time we have found possible to extend the growing of the tuberose on this side of the United States, and now ground three years instead of two, and I may add that, for tuberose flower growing for perfumery, the industry would be immensely profitable. There are, of course, details of culture and fertilization of the tuberose, which is governed according with the requirements of the nature of the soil, and I can say with excusable pride, that I have mastered them all. I have succeeded in making the "stalks" branch out as many as five branches, which bring from 5 to 10 flowers each, while the main "stalk" brings from 25 to 40 and some 50 flowers coming to a full development. I have pushed my experiments on that flower to the point of producing "seeds," and I have succeeded. I also have begun the setting out of the bulbs in the tuberose instead of December, my object being to have the bulbs starting "roots" before growing out from the top; this is a great improvement in every respect.

"In my humble way, the aim is to have flowers as long as possible and for every day's use; that aim has been attained by the timely setting out of the bulbs according to their respective sizes. For instance, "Sets" not larger than a third of the size of the smallest bulb planted, I have found possible to have the rules acquired by persistent attention and experiments, will bloom in September or October of the same season, that is to say, about ten months from the time of the setting out. Bulbs having the flowering bud developed (from 3 to 4 inches in circumference) I have them in bloom by May or June; and if the winter has been mild, flowering begins in April. In planting bulbs of different sizes, I manage to have flowers every day from April, or at least from May, until a severe frost occurs. In this last instance, I have also discovered by calculated experiment, that the flowers can be safely protected by the smoke process. I saved about 1,200 pounds of flowers by this process in 1887. In the way I plant the sets, they are safe against the severest freeze."

In reference to the "yellow jessamine" (Gelsemium) I replied: "I can with the utmost certainty say that no one but I have ever made that perfume from the flower, and I know of no one else making or having ever made perfumes from any Florida flower whatever. Still, impostors have attempted to make hay of the reputation of perfumes. An unscrupulous fellow, a druggist of the name of Geo. Hughes, put up perfumes bought in bulk in the North and under labels bearing his name, and the words "Yellow Jessamine Extract" has duped and dupes every season tourists who had not had the chance to see my perfumes, in asserting that
these perfumes are made by him and from Florida flowers, which is a known fact, everybody has heard, but he has never bought nor raised on ounce of flowers. (Note: To-day the practice is continued by his successors, Heffley Brothers.)

Concluding my reply to Mr. Steele, I wind up in saying:

"I am of the opinion that if my contributions to the American Soap Journal during a period of nine years, were concisely gathered in a booklet form by the United States Department of Agriculture, and were distributed among parties that are or should be interested in the success of the industry, namely, orange, roses, jasmin, tuberos, cassis, and replying to the next letter from Mr. Steele, I said:

"I permit me to say in reference to some part of your letter, January 30, 1899, that there is not the shadow of a doubt that all and every flower needed for perfumery grows and will grow easier and more profitably in Florida than anywhere else, not excluding the southern part of France. Besides the series of flowers that form the basis of that industry, namely, orange, roses, jasmin, tuberos, cassis, violet, jonquil and o-iltet (pink), Florida has in great abundance flowers that France has not, and among the most important I place the already referred to yellow jasmin (Gelsemium) and the "Mirabilis Jalapa," popularly known as 4 o'clock, both of incomparable fragrance. Then comes the "Fern" and "Haven," and this class of first importance have treated that subject at length in two contributions to the American Soap Journal, issues of January last and this month; by this same mail I request the publisher to mail two numbers."

Mr. Steele wrote also the following: "I am well satisfied that the perfumery business can succeed in this country, either now or within a short period. But our people are not counseled with it. To which I replied that

In this he was wrongly informed, because I had taken care that most of those directly interested should be kept posted, and well posted; but there has been a kind of antagonism on the part of importers who control the market, and that (for reasons so obvious that no comment is necessary) which has thwarted the development of the industry.

In reference to this Mr. Steele, in his letter March 17, 1899, said: "Mr. J. R. Dodge, the agent of the department for the coming Paris Exposition, says that the flax industry is held back by the opposition of importers in the same way as the perfumery industry. I am glad to be able to inform you that you can send here an exhibit for the coming Paris Exposition, if you feel disposed to do so. I just now showed some of your samples to Mr. Dodge, and he at once expressed his belief that you make a good exhibitor. When you may send will enter into competition for an award, and I think this will be a fine opportunity for you. The department will without doubt subscribe for the American Soap Journal at short time a.

My correspondence with Mr. Steele covers a great many more informations on many more aromatic plants, the reproduction of which cannot take place here for lack of space. During that period, from October, 1897, to October, 1899, my communications to him will amount to no less, I think, than 5,000 words, to say nothing of my regular contributions to the American Soap Journal. My relations with Mr. Steele terminated in an unexpected manner, for I could not refrain from severely criticising his work published in the Year Book for 1898, under the caption, "Can Perfumery Farming Succeed in the United States?"

In my letter of June 10, 1899, I took the liberty of expressing my disappointment in reference to his work, and did not hesitate to say that that work would rather impair than advance the progress of development. The inaccuracy in figures and prices, as well as many mistakes and omissions of a general nature, should not have occurred in a work which emanated from a source where the most reliable informations are expected to be found. I complained particularly of the misstatements of other parties who had not spent ten dollars on practical experiments, and I condemned this as a dangerous conservatism against the future progress and development of the industry. This despite that I have offered to substantially vouch for every word said by me, but that I had already furnished him with testimonials, the high character of which should not have been disregarded.

As a natural sequence this brought from Mr. Steele many statements in justification of his standpoint, while, however, he admitted that the mistakes were real and corrected as far as possible, and that he could have been a little less "conservative" in regard to my contributions. But said Steele: "There is one point in your case which was somewhat before my mind in writing the paper, and that is that you do not claim to have achieved any decided financial success. You have not written very distinctly on this point, but I am led to suppose that you have had something of a struggle to maintain yourself. Now, if the public should study your example, would they not be likely to say: "If Mr. Moulie, who thoroughly understands the business, has not been able to make much money, how can we expect to do better to whom the business is new?" If, on the other hand, they were to see you steadily prospering in the business, would they not hasten to take it up?" Regard to the co-operative enterprise, while I heartily believe in co-operation where practicable, I have a strong suspicion that your cause would be better off without it than with it."

In reply to Mr. Steele, July 29, 1899, was this: "The weak point referred to should have been rather in my favor. Why should I claim to have achieved any decided financial success? When, in my letter to the secretary I say, 'I have a capital hardly worth to speak of, what, then, could not have been done with large capital?' I was naturally expecting that I would have some time, to explain my meaning, or what I call 'a capital hardly worth of mention.' Now, you suppose that the public could be desirous to know why I have that capital, assuming by my silence on the subject that such is the case.

"If you asked me that question I would have answered thus: First, Mr. Moulie knows his business, but he had to learn it. He had to learn the composition of the soil, the atmospheric conditions and their effects and influenced on the vegetation of the plants he has to cultivate, the proper fertilising and the required proportions of compounds and quantities, the proper way of cultivation applicable to each respective plant. Second, Mr. Moulie had to study and learn the process of manufacturing the raw materials from several flowers which he had not seen before. Third, Mr. Moulie had to learn the commercial conditions of a market unknown to him, and he had to learn a language of which he did not know a single word, to say nothing of the usages, social and otherwise, of his adopted country. Mr. Moulie has overcome all these difficulties with a great deal of hard work and a great deal of time; the best years of his life. Mr. Moulie invested all he possessed, just $1,200. With that small capital he has mastered difficult problems, created an industry, produced goods which have found their way to nearly every part of the world; expended in flowers, plants and fruits $27,000, and can now obtain a valuable income, he has been investing for 19 years, and has on hand enough materials to make his living for two years longer! And the dear public wonder why I have not made much money? If the public, instead of guessing, had asked me an open straight question, I would have answered as above, and if this had failed to satisfy, why the best thing would have been to leave things alone. But, considering that all what I have learned in these 19 years here and what I have known for 15 years before, could have been had for the asking, and have acquired the knowledge of my experience in one year, I very much doubt any show of hesitation from those meaning business at all."

"This was the end of my correspondence with Mr. E. S. Steele."

Part II.

And I was not a little surprised when I received a letter, dated April 16, 1899, from Mr. Frederick de Coville, Botanist, United States Department of Agriculture, which I give here in extenso, on account of its importance:

"The Division of Botany has been interested for some time in the establishment of the perfumery industry in the United States, and we have made some preliminary investigations into the subject. We desire, however, to impress upon the public the fact that the establishment of a preliminary industry in the United States is less a matter
of theory than might be supposed. This we should be able to do by giving a concise account of the experiments already made in this country and abroad, the results of which are now being published in scientific journals. The point of departure is the conclusion that-perhaps for the first time in the history of the industry—our work in the chemical, preparation and marketing of perfumes with the special view of giving precise instructions to those who may wish to take up the culture of particular perfume-producing plants and the manufacture of perfumes from them. It probably will not be desirable to enter into the details of methods of distillation. What we wish the report especially to bring out is what you have accomplished in the actual production of perfumes and how you have done it, just the information which we cannot secure from published works. We are not in position to do more than give you an honorarium for the preparation of such a report, and the amount of course will vary from time to time according to the action of the department authorities with reference to payment, but if you are willing to undertake such a report as I have outlined, I shall be glad to have you do so, and after it is in I shall have it examined. I make this suggestion of a report for their decision. It is probable that the maximum honorarium to be expected would be one hundred dollars. I presume that fifty pages of about six hundred words each would be ample space, though we could allow more space if the subject seemed to warrant it. It would be published under your name. In editing it some changes would doubtless be required in order to bring it into conformity with the usual style of the department, but the matter would go to you again after revision.

We wish also to secure the active interest of some aggressive organization in the South to take up and push this industry. I am inclined to think that the Tuskegee Institute in Alabama furnishes an excellent opening, a suggestion which your interest in the poorer classes of the South will lead to appreciate. The botanist of the Tuskegee Institute, Professor G. W. Carver, is a mulatto, educated in the University of Iowa (under the direction of Professor Pammel, and, I am informed, is a remarkable man well adapted for pushing a new and promising industry of this kind. The department would be willing, I believe, to send Professor Carver to Jacksonville to take lessons of you and to learn by observation everything that you can teach him. Would you like to have us send him over to Jacksonville for this purpose? I presume that if we do this it must be done soon. If so, at what time would it be best for him to come?

"I shall be glad to receive an early reply to this letter. Very truly,

"Signed, FREDERICK DE COVILLE,
Botanist."

My reply, under date May 5, 1900, follows:

"By the reading of my correspondence with Mr. E. S. Steele, you may have found an approximating idea of the work I have done in the interest of my industry.

"The work you require now must be treated in a simple, comprehensive and complete form. It must be of such a nature that any person of ordinary intelligence may understand every particular and be enabled to act without delay and without costly experiments. I would not consider any proposition that would prevent me to do the work complete. From this you may infer that I should not be limited to a number of pages that might curtail the work or force me to suppress details which I would consider important. If I do the work, I must be allowed to do it in my own way, my aim being to produce a work above successful criticism; a work which will prove not only satisfactory but so well completed that it would leave no room for incertitude and, as far as possible, no room for improvement regarding practical questions. This view would enable me to arrange the material of perfume making would be clearly explained (to the exception of the processes that I have created exclusively for my own use) so as to render practicable any attempt in that line. These would be found enclosed in a large and valuable sum which has been offered me by a party from San Francisco, for a work of similar nature, and which I have refused, because the work was to be published in Mexico where I presumed the circulation would be sufficient to make the work remunerative to the party from Denver, Colo., who has 50,000 acres of land suitable for that industry in Mexico also. I declined both offers because I was working in the interest of the United States only.

"But permit me to say that before entering into the pecu- niary consideration, it would be well to ascertain from your part, the reliability to be placed on my work, and here let me say that I consider your letter of sending a responsible party for an investigation a very happy one.

"True, you go a little too far in asking that your envoy be taught what you ask me to teach him, but I suppose you have not sufficiently weighed the unreasonableness of that request, and that it will be enough to point it out to you. But the information that Prof. Carver could gather would be of immense value to the department. He could ascertain the correctness of what I have said, written and done. He could ascertain how I stand in the eyes of the most intelligent and progressive citizens, and how I stand with the working class of people, who have derived great profit from me. He could ascertain the existing resources and the possibilities of the creation of new ones and the capabilities of development of both. He could ascertain whether or not you could depend on the accuracy of my work when one man is repeated by two others. The decision of the laboratory or work-houses. If you choose to send Prof. Carver I am authorized to extend him a most cordial welcome from our newspaper proprietors and editors, who have been inclined to think that Mr. de Covielle, the editor of the charactierial office during his sojourn in Jacksonville. If you send Prof. Carver I would suggest that he be directed to visit Palatka and San Mateo, Fla.; the latter is the place where I started my industry and flower growing in 1880, and where I stayed until the end of 1886. He could gather there valuable information.

"The foregoing propositions, nor some others made in subsequent letters, were accepted by Mr. de Covielle. What I wanted mostly was to avoid with my relations with the department the proverbial and chronic red-tape which seems to be one of the indispensable features of all administrations. It also made me suspicious of the writing of the book of which mention has been made. Mr. de Covielle thought that my propositions were not worthy of being submitted to you. The natural consequence was my resolution to bring the matter to an end, and to refrain from making further suggestions.

"The following part of a letter from Mr. de Covielle, under date of July 18, 1900, caused me to again take up the matter. It reads:

"I take this occasion to assure you that our practice is to encourage every legitimate and promising plant industry, to lay the results of experiments and investigation before the people, and to point out lines of commercial success.

"To which I replied:

"Your statement is not borne out by facts. Instead of putting before the public the statements made by me in open letters to the secretary, Mr. Steele, in his book, refers to my work in the same line as those who have never made experiments of a practical nature and the public has been kept in ignorance of the undertaking of my pioneer enterprise. This is the cause of my lamenting in my endeavors and in arriving at the conclusion to cease my relations with your department, resolution of which I notified Mr. Steele some time after the publication of the first book of 1896. If you, as a public officer, are inclined to proceed with the intense love for my industry, I neglected nothing in order to favorably respond to your request. I had to overcome the prejudice strongly marked here against the origin of the industry, and if at the same time Carver as an opponent of your demands, was not made to succeed insecuring it for a cordial welcome, this su-
cess is due to the specially kind regards I have the honor to enjoy from our most prominent people.

"My long correspondence with Mr. Steele and my contributions for ten years to the American Soap Journal cover the most ambitious and most creditable progress in the Agriculture in taking steps that would prove efficient, and yet I will not let an open way to reproach in charging me with withdrawing anything of a nature beneficial to the onward march to success; therefore I will submit to you the suggestion referred to in my letters. The real origin of the suggestion lies in the enclosed letter from Miss B. H. B. Her proposition has been found so interesting by my friend Dr. Cooper, her name is high standing here, that it has been developed into a plan the importance of which I will submit to your appreciation. The suggestion consists in the opening by me of a course of instructions in the line of cultivation of flowers and the manufacturing of raw materials for perfumes, and the making of the perfumes ready for use from these raw materials. The instructions to be 'not a theory,' but a real practice, and to fully demonstrate the certainty of success as a profitable venture. These instructions, or courses, to be free of any charge whatever for the pupils. These courses would last as long as any kind of flower or plant has to be utilized, and this could cover a period of about one year. There would be at least one course every day, save unexpected causes to prevent that. The descriptions bearing on any and every subject or article would be taken down by the pupils, and typewritten in three sets of copies for your department and one for me. Samples of reasonable sizes of every article would be taken and publicly sealed, and sent to your department for collection. The costs of goods and prices of sale would be established and recorded, and the whole would be the material for a book to be arranged and published over my name by your department. The courses would be announced to be under the management of the government.

Here follows the reply to the above outlined suggestions, August 2, 1906:

"I thoroughly appreciate the importance of establishing a school of instructions such as you outline in order to convey information quickly and effectively about an industry of this sort, and I will do what I can to bring it about. I apprehend that objections, both legal, administrative and financial, will be made about the establishment of a school under governmental directions at Jacksonville, but I believe these things can be avoided if you are willing to entrust the arrangements of these matters to me. I have considered the matter in detail, I need to have (1) an itemized statement of the total funds that will be required; (2) how many students can you conveniently accommodate; (3) what would be the cost of living for a student at Jacksonville. When these things are submitted to the Secretary of Agriculture, and approved by him, it will then be necessary to secure the interest of your representatives in Congress to support the appropriation necessary for the work. Means for raising the money will be necessary for the matter does not become public, as publicity now would retard the plan, while publicity at the proper time will be very useful.

To the above I answered Aug. 27, 1906, as follows:

"I am willing to leave the matters to you, outlining only some of my views. I do not favor a governmental direction at Jacksonville of a school of instruction in perfumery for the reason that it cannot be a school in the sense of the word, and when I asked that the courses I proposed to give be under the patronage of the government, and alluded to the expenditures, I meant that this should be done more in an 'official' than official way.

"In the sense of the word 'school' means rules, theories based on routine more than practice, and it is just what I will avoid. I will make a success of the task or I will not undertake it. For this I must have an absolute freedom of action and be governed only by my own experiences and the unbounded desire of bringing my efforts to a successful result. I cannot say how many students I can convene for this moment, as this will depend on the magnitude your department will give to the undertaking, but this I can say: I will make it convenient for as many who will take advantage of the opportunity. I would, however, like to have here that this will be kept in the department as to the class of students to be admitted; I would have none but those I have good reason to believe that they are willing to learn. I would not admit those suspected of intending only to while away idle hours of leisure. Among Jacksonville citizens of both sexes a large number of them will be sufficiently interested to make this a success, and I have no doubt but that many of those desirable class from over the state would also attend in the same spirit. Although I do not share in the general prejudice against the colored people, none could be admitted as pupils, whatever their station in life may be admitted.

"The cost of living for a student in Jacksonville would depend entirely on the student himself. A decent furnishing room can be obtained for $1.50 and up per week; board for $4.00 and up also per week.

"When the times come for an appropriation necessary for the work by Congress, our representatives will give their heartiest support, as also will private recommendations of the highest character and influence.

"An itemized statement of the funds wanted is impossible, and here is the reason why: When the season to buy flowers is at hand, I advertise that "I am buyer of (let us say the orange blossom for an example) orange blossoms at ten cents per pound, cash, delivered at my store," and I buy all that is brought, whatever the quantity is; of course; before hands can reach them nearly all will be bought, but I have made it a point to never refuse to take what is brought, provided, of course, that the flowers come up, in quality, to the standard explained beforehand to all the suppliers. The prices I pay applies to the purchase of flowers, or aromatic plants that I have advertised for. For the reason explained, the amount of money required for the purchases cannot be calculated, and the same ineritence applies to the amount of money needed for the manufacturing of raw material. Regarding our project, I must say that I contemplate to follow the same course; I could not adopt half measures and do less in the future than in the past.

"The line of expenses will comprise: Rent for a suitable and commodious location in which every operation must take place, and, consequently, in that same location, the students must be accommodated comfortably. Second, light and heat. Third, help for manufacturing, putting up goods, and also clerical work. Fourth, raw material for pomades, tinctures, etc. Sixth, flowers, plants and fruits. Seventh, materials (ingredients) for the transformation of raw materials into manufactured goods ready for use, and eighth, containers for both raw materials and finished goods. The importance of the expenditure can be shaped only if the work is properly accomplished. I think I need to have (1) an itemized statement of the total funds that will be required; (2) how many students can you conveniently accommodate; (3) what would be the cost of living for a student at Jacksonville. When these things are submitted to the Secretary of Agriculture, and approved by him, it will then be necessary to secure the interest of your representatives in Congress to support the appropriation necessary for the work. Means for raising the money will be necessary for the public remain undermining and in perfumery, that is the main point. I think that my plan of operation is well outlined, now, as for the way of execution I am very much embarrassed. After having consulted with my most intimate friends, the only conclusion we have reached is to let the proposition of remuneration come from you. You probably have had occasion to make estimates in similar cases. If not, you may, however, have an idea of what sum the department would devote to such an enterprise. I may aid you by my suggestion of my own, and that suggestion I will make. I would suggest that a certain sum be appropriated for the complete execution of the plan as outlined. That sum to be paid to me by installments to be agreed upon between me and the department. In consideration of that sum, I would bind myself to carry on the teaching as described; I would pay for every article needed, of every nature whatever; I would also pay all expenses of every nature. In other words, in consideration of the amount agreed upon beforehand, I would assume all expenses; supply all the goods; purchase the perfumes; manufacture and working utensils, and teach the industry in every detail, in the practical way, which is nothing less than teaching how to make the goods I make for myself and I have made for only twenty years. I will promise to use means to make the prices obtained for them. The teaching also of the
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growing of flowers for the industry and the cost and profits. I would furnish the department with the record of the courses for the book to be published, as already stated. I would furnish the department, sealed in presence of the attendants of the courses, samples of every article produced and of reasonable size, to be classed for future reference or for collection. I would think proper, the bulk of the goods of every description would remain my exclusive property, and I would not have to give the details of the expenditures otherwise than in the way of the monthly statement. I would have a right to know whether you will find yourself confronted with a serious difficulty in establishing the price in the appropriation on this basis, but it seems nevertheless less embarrassing when the matter is in the hands of the undertakers. My task is certainly not a light one, particularly when it is understood that a whole year will be absorbed. The expenses and purchases will take several thousands of dollars, and I am anxious to return the 20 per cent. that I have been allowed to carry on to the full extent, the execution of a plan of no less than national importance. I do not wish to bargain my means; it must be an offer from you that can be accepted at once by me a yes or a no, because if it is a 'yes,' there is no time to lose, the next season being soon at hand.

I awaited vainly a reply to the above nearly two months. I wrote again on the 17th of October, 1890, confirming my letter and requesting a reply and under date Oct. 23, 1890, Mr. De Coville wrote me that he had received my communication in due time, but as he had not been able to submit it to the Secretary of Agriculture, he has not been able to give the answer to my letter of the 17th of October, 1890, violated one of the simplest and at the same time most imperative rules of courtesy; and that was my reward for the 7,000 words of communications, on his request, which I had taken the trouble of replying with.

Part III.

I thought, Sir, that my pioneer work was at an end, until an event occurred that revived in me the desire to fight the battle of progress to a finish (forgetting the wrongs done) in behalf of the cause I have advocated so long. The following will explain:

Jacksonville, Fla., March 6, 1890.

Editor American Soap Journal.

"The cause that has brought me on the battlefield again, is that project of founding a co-operative association, with American capital, for the purpose of manufacturing raw materials for perfumery, and also confectioned goods in France (Paris and Grasse); the originator of that project is Mr. Edward Eggers, of New York. The plan, as outlined in his circular, is similar to the one I outlined myself to Mr. E. S. Steele, assistant, division of botany, Washington, D. C., in 1899, with the difference that my plan was for this country, and not for France. The fact that, among the supporters of Mr. Eggers' project, are some importers and manufacturers of these goods, and in France too, seems to indicate the belief that his success will destroy the possibility of the development of that industry here; this is a surprise to me that possibility exists; they recognize it.

I dare predict, that even their success will not destroy that possibility; its realization would simply be retarded, for Florida is bound to be the Riviera of America, and that can never be at the expense of the United States. The industry has become her most important and lucrative attraction.

"The developers of Florida have not yet realized that such is the case, but they will, and perhaps sooner than expected. They are among the most worthy of the class of wealthy men who will carry on the pile of money being inexhaustible for the buying of whatever is needed, excepting brains. I really think that it is a good turn to do to the shareholders of the projected plan, to warn them of what will surely happen, and to urge them to consider the adage, 'Charity should begin at home.'"

"Yours truly,

E. MOULIE."

This brought a reply from Mr. Eggers, through the columns of the "American Soap Journal," June 19, 1901, in which he rehearsed the famous two centuries old saying that the south of France is the only part of the world where flower farming for perfumery is possible. He says that he knows that there is positive fact that knowledge has been acquired by his travels everywhere. He rephrases the possibility of Florida to grow roses, jasmine, tuberose, bitter orange, neroli, jonquil, rhodora, cassis, and principally violets. He says that all efforts to establish that industry in the United States have proved a failure. He says that it is his personal opinion that American perfumers would not like at all to see Florida and California take up the manufacture of raw materials and that that statement will no doubt astonish Mr. Mouly, etc., etc.; in fact Mr. Eggers says many other things which I am not inclined to repeat. On May 11, I wrote to the editor of the American Soap Journal, saying that I was engaged in preparing a communication to you and at the same time requested him to publish an article over the signature of Mrs. Minnie More Wilson, which article had been contributed by her ladyship to the "Times-Union & Citizen," a paper well known to you, as well as the high character of the editor-in-chief of that paper; this explanation is a view of conveying the important fact that the writer of the article is thoroughly reliable. That article, under the caption "Florida Roses in the Markets" is very long, but I will limit this work to the quotations which Mr. Eggers will have done well to consider, until my reply to his article should have found place in your communications. Mrs. Wilson says: "Each year Florida is growing more practical and this picturesque traffic will appeal to both sentiment and hard dollars."

"And noticing the long row of damask-covered tables, he sees great bouquets of roses, American beauty, La France, jacquemimot, etc."

"Florida has the soil and the climate."

"The violet grows to perfection in the open air in Florida."

"And as for the rose, so luxuriantly does it grow in Florida, being cultivated on almost any soil at any point, that one can believe it nature's own soil."

"The maraeal niel, blooming shyly at the north, can be seen in Florida covering a long veranda. From a single bush 100 to 800 daily may be plucked."

"Florida is destined to become an American Riviera."

"In the rich hammocks of Florida grow rare exotics, exquisite featherly grasses, palms, magnolias, and sweet scented jessamine that would fairly paralyze a professional flower from the great West and North."

Much more could be said, but if Mr. Eggers will carefully peruse at length this communication to you, Sir, and put together what I have said and done, together with what others say, he will realize that among his numerous travels he should have not forgotten to come to Florida. My reply to Mr. Eggers is every word in this letter to you, only when he thinks that I will be astonished at his statement that American perfumers would not like at all that raw materials be manufactured here, he is greatly mistaken. American perfumers do not like independence; they must imitate; they will pay great prices for French formulas, French names, French styles, etc.; it is so much easier to imitate than to create! What do they care whether or not they can have at home what they buy elsewhere? The millions of acres that could be transformed from sinks of malaria into an immense ozone-giving garden! The thousands of people who could make a living out of the most captivating industry! The keeping in this country of sums of money that goes filling foreign coffers! What is that to do? Florida has been developed, La Florida, has begun development, and a corporation with $5,000,000 has begun operations, yet, without depressing upon the venture which on the contrary, I uphold as one of the largest of them all, I will say, without fear or hesitation, that the 20th of that sum, invested in the indus-
try of flower farming and perfumery, would cultivate more
ground, give employment to more people and give a greater
net profit to all concerned than these $5,000,000 invested in
the sugar industry.

My reply to Mr. Eggers will be complete when I have
said, that the French perfumery should not be the paragon
to imitate by the American perfumers. I had an exhibit
at the Charleston Exposition, consisting of pomades,
universal oils and many other articles in the line of raw
materials, also of perfumes for the handkerchief, etc.,
and my articles were awarded a gold medal. And there was not
in them a drop of tinctures of an atom of these repulsive
drugs called musk, civet, ambergris, the use of which is so
dear to the French perfumers and their imitators, the
American perfumers. I brand the use of drugs of such a
repulsive nature, as a prostitution of the ethics of the
highest sense of refinement. What a hideous anomaly to
connect even in thought, the mixture of the richest gift
to poetry, the odor of the flowers, with products of the
most disgusting infirmity of low animal life.

Mr. Eggers is kind enough to say that I deserve great
credit for what I have done; in this I do not agree with
Mr. Eggers, inasmuch, as I hold that no one deserves
credit for doing all what he can do towards the advance-
ment of the prosperity of one’s country; it is due, and no
one deserves credit for doing it.

Part IV.

As this communication, Sir, is my last pioneering work,
i think it advisable that I allude to one other matter
of vital importance for the maintenance of the climatic
conditions of Florida.

The devastation of the forests in the Carolinas, Georgia
and Alabama, and the reckless “bleeding” that actually
takes place in the pine forest of Florida, tends to impair
the equilibrium of the climatic conditions. It is already
felt in Florida, and I would humbly suggest that prompt
and salutary measures be resorted to without delay.

The president of our board of trade has already told
you how he had also urged these measures. It is a question
which involves also the future of Florida as a flower
producing for perfumery purposes, and this is the reason
why I join my efforts to those who have taken up the
matter.

In the number of May 1, 1891, the American Soap Jour-
nal published a contribution by me on “The Rosin Industry
in France.” In that article is described, with illustrations,
the process of opening the tree and of gathering the gum.
By that process a tree will last a century! I also described
the process of distillation, a process which, if adopted here,
will produce better goods and open channels for the dis-
parking of the spirits, which are the source of great profits,
and which are unknown here. I had the honor to furnish
some important dates to the president of our board of tradefirst names
and I know that he is willing to help in the good
work to the utmost.

I am, Sir, your respectful servant,

E. MOULIE.

In a Reminiscent Strain.

(From an advertisement of the Conkling Chemical Co.)

We took our first lesson in making a semi-boiled soap
many years ago, down in the valley of the Mohawk. We
are frank to admit that we are a little shy in giving the
date, for being still a bachelor, we are somewhat sensi-
tive about dates and ages, and we hope that those laun-
drymen who are still in the same boat with us will fully
appreciate the position we are placed in.

A country boy is a veritable “Jack-of-all-trades,” and
the chores which he is expected to do covers a multitude
of odd jobs too numerous to mention. We will, how-
ever, give the readers of the Journal our experience with one of the many odd jobs or chores that a country
lad is up against, and the one that will interest the
readers of the Journal the most is the making of a soap
that is known as a semi-boiled soap, and which is still
used quite extensively in the country.

What a boy learns in the country in his boyhood days
he very seldom forgets. The process of making a semi-
boiled soap is as familiar to the writer as the alphabet,
although his first experience along these lines occurred
many years ago. It was in the spring time that those
many odd jobs accumulated with the greatest rapidity,
and among them was the making of soap from the scrap
fat that accumulated during the winter months. It
was necessary first to make the potash lye from the wood
ashes, and this was accomplished by putting in a barrel a
false bottom, or some sticks laid crossways. On these
sticks was placed some straw and lime, and then the bar-
rel was filled with wood ashes. A hole was bored into
the barrel about one inch from the bottom and a plug
inserted. Water was poured on top of the wood ashes
from time to time, or until the barrel was well filled
with the lye, when it was allowed to stand for some time,
when the potash lye was drawn off into a vessel and test-
ced. As we had no hydrometer we used an egg, or in
other words the egg was our hydrometer. If the egg
floated on the potash lye it was considered to be suffi-
ciently strong to make the soap. When we had accumu-
lated a sufficient amount of the lye to make the soap we
brought about (so to speak) the old cauldron kettle, drove
some sticks into the ground under the old cherry trees
(loved companions of our halcyon days), put a strong
pole through the handle of the kettle, resting the ends
on top of the sticks. We then commenced to render
the grease by putting it into the kettle with some weak lye,
boiling gently. This was rather a difficult thing to do,
for the fire under the kettle, which we made with blocks
of wood, was either too hot or not hot enough. We have
no recollection that it was ever just right. When the
 grease was thoroughly boiled we allowed it to cool and
settle, the grease, being lighter than the water and the
refuse, would rise to the top, and after it became hard
we would carefully take it off the top of the kettle, lay
it aside for soap making, and clean the kettle of the
refuse.

When this task was finished soap making commenced
in earnest, and we propose to tell you how it was done.
We first put in the rendered grease, then a little weak
lye, boiling it thoroughly. If it boiled a little too lively
we dashed some water on the chunks of wood, or intro-
duced some strong lye, which would prevent the soap
from boiling over. We did not know that soap could be
boiled by steam in those days, or that an easy twist of
the wrist or valve would regulate the heat and control
the boiling of the soap with comparative ease. We were
obliged to hustle when we boiled soap, and we were also
obliged to do considerable guessing at the amount of
potash lye that was required to make the soap just right.
We had a good semi-boiled soap in those days, and while it could not compare with the Red Heart Soap, it was its equal in one respect, viz.: It was free from adulteration.

Soap made in this manner is simply a mixture of grease and lye with all the by-products of the grease and also excess of grease or lye. It is a better soap, however, than the semi-boiled or cold-made soaps that are largely sold to the trade, and while it cannot be a pure soap like the Red Heart Soap, it is free from all adulterations, which means a great deal, as far as dollars and cents are concerned (to the laundry trade.)

What we objected to very earnestly (but it was always overruled) was the converting or wasting, as we considered it, of those eggs into hydrometers. We always made soap a little before Easter, and if a boy ever cherishes an egg it is just before Pass or Easter, and he is always of the opinion that the supply will run short. In those days we held our Easter service in the woods. Our temple was Nature’s handiwork; our altar the kettle and our music the simmering of the water in the pot. How intently we boys would watch the simmering of the water, and when it began to boil how quickly would we slip those eggs that escaped being converted into hydrometers into that old pot. Cherished recollections of those days. Some of us are in the foothills, so to speak; others are climbing up near the top of the range, while others have commenced the journey down the other side. All of us have impressed upon our memories vivid recollections of our early days, when we enjoyed Pass or Easter Day in the woods. Those spots and associations can never be what they once were. They have faded away into an invisible painting which no artist can ever reproduce, and such an invisible painting was the woods we knew so well in those days, and which were fringed by the banks of the old Otisquago and Movers Rocks, one of Nature’s ideal bath tubs and the bath tub of our boyhood days.

The Titration of Boric Acid and Borax.

BY THOMAS S. BARRE.

The quantitative determination of boric acid was until 1894 a very laborious process, the acid or a borate treated with a mineral acid being distilled with pure methyl alcohol into a vessel containing a known weight of pure calcium oxide, and, after driving off the alcohol, calculating the amount of boric acid from the increase in weight of the lime (Gooch’s process). In 1894 R. T. Thomson published a new and beautiful process for the determination of boric acid, which has given rise to an ever-increasing literature, though hitherto the original process has not been improved upon. The present contribution brings out little that is new, and is intended chiefly to direct the attention of pharmacists to the process and to suggest a test for inclusion in the monographs upon the acid and borax in the next Pharmacopoeia.

In purely aqueous solution boric acid is neutral to methyl orange and acid to phenolphthalein. On attempting to neutralize the acid in presence of the latter indicator with normal solution of sodium hydroxide, about a fourth part only of the theoretical amount of alkali required has been added when the solution begins to show a red tinge, which deepens very slowly; the end reaction is indefinite. In presence of glycerin, however—and the more glycerin the better—the end reaction is very sharp. This action is probably due to the production of a less hydrated acid (metaboric), capable of forming a neutral salt under the conditions of experiment. On diluting this solution with much water it becomes slowly alkaline, due to the resolution of the sodium metaborate formed into borax and sodium hydroxide.

The amount of glycerin which must be present before and after the testing is complete being of such importance, it is interesting to note what various authors suggest as a proper quantity: Pharmaceutical Journal [4] 6, 570, 20 per cent.; Zschimmer (Chemical Journal, 1901), 1 gram in 100 c.c. of pure glycerin with a little water; R. T. Thomson, the titrated liquid to contain at least 30 per cent. of glycerin. My own experiments indicate that about 40 per cent. of glycerin in the liquid at the end of the titration is best, as the end reaction is very precise, and concordant results are obtainable. In practice I generally use more, dissolving about a gram of the acid in 50 c.c. of water, adding 50 grams of pure glycerin and a few drops of phenolphthalein solution and running in the alkali in sufficient quantity (about 16 c.c.). By always keeping these proportions it is easy to get good results.

It is most important that the solution of sodium hydroxide be free from carbonate. Any trace may be easily removed by first treating the solution with solution of barium hydroxide, then removing excess of barium by a few drops of a strong solution of sodium sulphate and filtering. Small quantities of carbon dioxide spoil the end reaction.

A curious point about the titration of boric acid is that the alkali must be standardized from the pure acid, else all results obtained with that alkali will come out consistently high. As an example of this I give the following figures, obtained a few days ago, viz.: 1 c.c. of alkali standardized from normal acid was theoretically equal to 0.046755 grams of boric acid. When standardized from two specifically purified samples of boric acid, one prepared by myself and the other by a friend, 1 c.c. of alkali was found equal in one case to 0.04621 gram and in the other case to 0.04637 gram of boric acid, giving a mean of 0.046292 gram of boric acid.

Boric acid is to be had pure without difficulty; still, there seems no reason why a quantitative test should not
be inserted in the Pharmacopoeia monograph, and thus bring the acid into line with the other mineral acids. The test might be referred to in the following terms, viz.: 

One gram of the acid dissolved in 50 cubic centimeters of warm distilled water should require, after the addition of 50 grams of glycerin and a few drops of phenolphthalein solution, 16.25 cubic centimeters of volumetric solution of sodium hydroxide for neutralization.

Practically another tenth of a cubic centimeter will be required unless the alkali be standardized from pure boric acid.

The Titration of Borax.—Many processes have been suggested for the determination of borax. For example, its determination from the sodium chloride derivable from a given quantity by the use of hydrochloric acid and the official process dependent on the determination of the alkalinity (or sodium oxide) of the substance, a result possible because boric acid is neutral to methyl orange, may be cited. The official process, though important, is very apt to give erroneous figures, and is not followed by public analysts and such like, although used as a confirmatory process. As borax is usually made by boiling native calcium borate with sodium carbonate, the commercial salt is apt to contain small quantities of alkali carbonate. Calculation will show that 1 per cent. of sodium carbonate will react as 1.3 per cent. of borax, while if we assume extra alkali to be there as sodium hydroxide, 1 per cent. will be equivalent to 5 per cent. of borax. My own experience has been (and I have had many samples analyzed by the process I suggest below) that commercial borax is a fairly pure article, is always super-alkaline, and consequently shows more borax by acid titration than it actually contains. As reported (Pharm. Journ., [4] 7, 534c), it is occasionally adulterated with sodium carbonate (up to 35 per cent.).

It would appear, therefore, that an improved pharmacopoeial test for borax is to be found in the determination of the boric acid that it yields on neutralization with semi-normal sulphuric acid. This idea is crystallized in the following, which I suggest should replace the corresponding part in the official monograph:

One gram of borax dissolved in 40 cubic centimeters of distilled water should require for exact neutralization (indicator, methyl orange), 10.55 cubic centimeters of semi-normal sulphuric acid, and after boiling and addition of 50 grams of glycerin should now require 10.55 cubic centimeters of normal sodium hydroxide solution to exactly neutralize (indicator, phenolphthalein).

As already indicated, it is advisable to standardize the alkali with boric acid in order to get correct results. Though many analyses of borax have been made, I append the results of two only, the others being very close upon those given:

(1) By acid process, 100.54 per cent.; by alkali, 99.09 per cent.

(2) By acid process, 100.21 per cent.; by alkali, 98.5 per cent.

In conclusion, I have to acknowledge my indebtedness to Miss J. C. Orchardson and Mr. Charles Nicolson, who did much of the practical work embodied in this contribution.

In Case of Fire.

Soap factories are of a rather inflammable nature, as more than one of our readers has unfortunately found to his cost. Others, it is safe to say, have this sad experience still before them. While the soap factories do everything they can to minimize the danger to the utmost, there are explosions, spreading of fires from the vicinity, lightning, and similar sources of fire that baffle all attempts at prevention. After all possible precautions are taken and the plant is insured, in addition, to provide for the last emergency, there still remains one more thing to do which is tersely expressed in the old adage: “In times of peace prepare for war.” That means, while you are peacefully paying your premium to the insurance company, prepare for a war with it if ever the fire-fiend overtakes you. Such preparation consists in placing yourself in position to meet the insurance adjuster, whenever the necessity for such a meeting may present. On this subject Mr. James McBrein of the American Laundry Machinery Co. read a paper the other day before the Kentucky Laundrymen’s Association, which paper applies in so many ways to the soap factory as well, that we reprint herewith the larger portion. He said:

The laundry business is peculiarly in a class by itself, with nothing to sell but labor, and occasionally an old machine in a trade, and not carrying a changeable stock of goods as in other lines, makes it an easy matter to have at hand, at all times, a complete inventory of tools or machines and their appurtenances, together with the average stock of supplies, plus the goods in trust.

With such an inventory at hand, especially if the fire proves to be a total loss, you can readily see the advantage derived at once in calling on your insurance companies to settle, instead of the insurance companies saying to you, “make out an inventory of your loss,” which must, in many instances, be made from memory, and prove it by invoices, books, etc.

Necessity being the mother of invention, it has brought forward many wonderful things, as we witness on all sides in every day life. In this case it has created companies, one of which is an incorporated company, backed by a large capital, whose business it is to make up inventories of plants, make plans of same, photograph the plant, measure up the building itself, if
wanted. For instance, say you put up a building during the panicky times of a few years ago, when labor and material were at their lowest point. It is needless to add that that building is worth more money today. This company will give you the cost of construction, based on the cost of labor and material at time of appraisement. These appraising companies are today doing a big business. Large concerns have recognized the value of such an inventory and many have employed this company to do the work, their charges varying with the size of plant.

The method pursued by these companies, and which it is advisable to imitate, is to take a list in detail of the machinery, boiler, its size, horse power, and setting, engine, size horse power and make, washers, size and make, and so on through the whole list; then the measurement of shafting, giving size and number of feet of hangers, make, size and drop and particular style, number of collars of all kinds, number of pulleys, kind and sizes, and width of belts are taken and charged to each machine.

The water, steam, gas and air pipes are measured, sizes given, together with the number, make and sizes of valves on each line, the unions, couplings, tees, elbows, bushings, plugs, caps and return bends, together with sizes and kinds, or, in other words, everything great or small within the walls of the plant, and finally the cost of erecting these accessories.

Such a list should be safely placed in a safe deposit vault, and as changes and new additions are made to the plant, or new machines added, they should be noted on the inventory and plan.

I would not be surprised if some one would now make the claim that he could make an inventory of his plant without going through it. Of course, I would question the accuracy of it, and were I his adjuster, he would be required to prove the details.

The fact is, however, that business is business; and system in your business is everything, and with such evidence at hand as detailed, it is a case of a "bird in hand worth two in the bush."

To illustrate, take for instance the man with the inventory and plan. After meeting with a misfortune he goes to the company carrying the risks, says, "Gentlemen, here is my inventory, and here are the plans as my plant stood before the fire. Go see what remains of it, and be kind enough to adjust my insurance at once, as I need the money for a new plant, etc." Your case can be put under way in a few hours after the fire. Why? Simply because you have matters in such shape that values can be gotten at intelligently, and settlements made almost immediately.

Adjusters of insurance are careful, capable business men. They must be peculiarly fitted to serve their company well. Their sphere is in many channels. They have many classes and kinds of people to handle, and must be always on the alert.

With such evidence as an inventory and plan to present to your adjusters, you have immediately won their confidence and respect, and the adjustment then becomes a simple matter. I assure you they will thank you kindly for the pains you have taken to relieve them of much worry and annoyance, and they will compliment you on your good business tact.

To possess such an inventory also keeps you in close touch with the cost of your plant at all times, and it is alone valuable from that standpoint if for no other.

In providing an inventory it would be advisable to have two copies, one to remain in your plant and the other one at your home or in a safety vault. A recent assistance in keeping inventories has been the card index system. An oak cabinet containing 500 cards may be purchased at a nominal cost at a figure not to exceed probably $5. Each card will represent a machine, or piping, or belting or any of the other many details of the plant. Let us suppose that one card contains the extractor. Your entry on the card is a description of the machine, containing original cost and such other items as may have been added by repair or replacement. This method, besides being economical, is easily accessible in the event of destruction by fire, which affords at once a ready compilation of every department in your plant.

Fire, no matter how well one may be insured, is one of the most disagreeable things of business. Much of your trade, without a thought, upon learning of your fire, immediately transfer their business. This necessitates your resoliciting this business.

That you should place every safeguard about your plant that is possible to prevent these misfortunes and should ever and always be on the alert to improve your surroundings, goes without saying.

While the object of this paper is to treat on adjustment of losses, permit me, however, to divert just a little to call your attention to just one point, somewhat in line with my subject and which carries with it economy, to say nothing of safety. It is the placing in your main line of gaspipe, entering laundry, of a cut-off cock to shut off all of the gas from the laundry, and make it some one’s imperative duty to shut this off every night upon leaving the plant.

Many times fine machines are ruined by gas being left lighted in them by careless operators, and the contention has been made that many fires have had their origin there. Be that as it may, the fact still remains that there is a certain per cent. of leakage on all lines from loose keys, rubber hose connection, etc., and if for no other reason that it will stop the leak on the lines, I would strongly advise its adoption.

Within the past month one of your members met
with a very severe fire loss, in which his plant was completely destroyed. This of course is not news to the members of this association, but I cannot refrain from diverting again from my subject to call attention to the strength of association. While this fire occurred early Saturday morning, Monday evening saw the work of this plant being done by other members of this association; and not only that, but getting the work out on time. An office was furnished by one member, a desk by another, and every member was anxious and willing to do all within his power for the unfortunate one. And I saw a member come from Indiana to offer what service he could. The action of the Louisville Club is highly commendable and worthy of the highest compliment. To the laudrymen outside of the fold it is a valuable lesson on association, which I hope will bear fruit.

In conclusion, I wish to state to the members of this association that I have here, on the secretary's table, what is known as a black print, or working drawing, of a laundry plant. I submit it to impress your minds its value, and in line with the subject of this paper. It is here for your inspection, and I am satisfied, gentlemen, that a study of it will prove of value to you. I thank you for the courtesy extended and for your kind attention.

Electrolytic Manufacture of Caustic Soda and Bleaching Powder.*

BY E. F. RHODIN.

The water power developed at Sault Ste. Marie, where the St. Mary's River has a fall of nineteen feet, is at the present moment being used in connection with the operation of great many industries, of which the electrolytic manufacture of caustic soda and bleaching powder, although at present the smallest one actually in operation at Sault Ste. Marie, is destined to become an important factor amongst the industries of Canada.

As is well known, the electrolytic manufacture of caustic soda and bleaching powder is carried out by the decomposition of common salt by means of the electric current. A great many different processes and forms of apparatus are, at the present moment, in use, and it seems almost certain that the electrolytic production of these commodities will in time superecede the chemical manufacture of them, at least in countries where water power exists and can be developed cheaply.

The process employed at Sault Ste. Marie is what is known as a mercury cathode process. The electrolytic cell itself is a circular vessel of vitrified earthenware, of a peculiar design. The bottom surface of this cell has a number of depending openings corresponding to those on the bottom surface. The appearance of the cell resembles that of a wheel, the openings above referred to corresponding to the spaces between the spokes. With a view of strengthening the resemblance mentioned, it will have to be supposed that the width of the spokes of a wheel be equal to the distance between them. The anodes consists of carbon blocks, which fit into the openings of the top surface of the electrolytic cell. Into these carbon blocks there are fitted, by means of a screw thread combination, a number of carbon rods, which hang downward into the openings of the bottom surface of the cell. It will be understood that, when these anodes are placed in position the top surface of the cell is closed, and, of course, made tight by means of a special cement. Now this electrolytic cell is suspended inside a shallow cast-iron dish, the diameter of which is five feet. The bottom of this cast-iron vessel is covered with a layer of mercury, which layer of mercury seals the interior of the electrolytic cell from the annular space of the cast-iron vessel surrounding the cell itself. The cell is suspended by means of a vitrified earthenware pipe, which is bolted to a circular flange, of the same diameter as the pipe, in the center of the top surface of the cell. When the electrolytic cell is in operation it is, of course, filled with brine, whilst the annular space of the cast-iron vessel is filled with water. It will be understood that the mercury on the bottom of the cast-iron vessel forms a seal between the brine and the water, and prevents communication between these liquids. The carbon anodes are connected up to the positive pole of a dynamo, whilst the cast-iron vessel is connected with the negative pole of the dynamo. When the current is on, the electrolytic cell itself is being rotated inside the cast-iron vessel, the brine is being decomposed, the chlorine going off at the surface of the brine through the pipe by means of which the cell is suspended, and the mercury through the rotation of the cell, and through the depending flanges dipping into it, is being put into motion towards the periphery of the cast-iron vessel, which motion is greatly accelerated by radial rigs placed on the bottom of the cast-iron dish. It will consequently be seen that the mercury, after having received a certain quantity of sodium, and having amalgamated with it inside the openings of the electrolytic cell above referred to, is being continuously thrown out into the annular space of the cast-iron dish which contains water, with which the sodium contained in the mercury amalgam reacts into sodium hydrate and hydrogen. The very essence of a mercury cathode cell is to remove the mercury amalgam from the actual field of decomposition as soon as it is formed, afterward to extract the sodium from the amalgam, and again to have the mercury ready to amalgamate with more sodium.

The above description of the cell in use at Sault Ste. Marie clearly shows how the mercury at first is amalgamated with the sodium, and is afterward put in motion towards the combining space, where the sodium hydrate

*Read at a recent meeting of the Canadian Section of the Society of Chemical Industry.
is formed. When the mercury amalgam leaves the openings of the electrolytic cell, fresh mercury is always ready to enter the actual field of decomposition. The mercury amalgam, on its journey toward the annular space, is somewhat lighter than pure mercury, on account of its content of sodium, and consequently remains on the surface of the total body of mercury in the annular space. As the sodium is being extracted from the amalgam, the mercury becomes pure and sinks to the bottom, whilst fresh amalgam is continually being supplied on the surface. The mercury just relieved of its content of sodium owing to the motion imparted to the same, travels toward the center of the cast-iron vessel, between the ribs of the bottom of the vessel, and, after a little while, it is again amalgamated with sodium in the actual field of decomposition, which, in this case, is constituted by the openings of the bottom surface of the electrolytic cell. This brief description is intended to illustrate the mercury’s capacity as the amalgam conveyer in the cell, i.e., its continuous amalgamation with the sodium, its continuous giving up of sodium, and its continuous readiness to be again amalgamated with sodium.

With a view of making the operation of the cell continuous, there must be a constant supply of brine into the actual field of decomposition, and also a continuous drawing off of the sodium hydrate solution formed. The latter factor is a very simple matter. At the surface of the water in the annular space of the cast-iron vessel there is a draw-off pipe. When the sodium hydrate solution reaches a desired strength, the draw-off pipe is opened, and the sodium hydrate solution runs out, whilst a corresponding quantity of water is being fed in through a supply pipe. A constant supply of strong brine is a very difficult matter, and of utmost importance to the successful working of an electrolytic process. In the cell employed at Sault Ste. Marie, there is, in the center of the same, a cup or receptacle provided, which receives the incoming electrolyte (concentrated brine), and from this cup the electrolyte is conveyed, by means of suitably arranged ducts, to the bottom of the openings of the electrolytic cell, which are in the actual field of decomposition. The cup is placed above the level of the brine in the electrolytic cell. In use, the electrolyte flows into the cup, and thence, by means of the ducts above referred to, into the actual field of decomposition, which is the region between the carbon rods and the mercury surface. In this region, the salt in the electrolyte is broken up into its elements, chlorine and sodium. The electrolyte gets weaker and flows upwards and out of the electrolytic cell through a pipe placed underneath the cup above referred to. It will consequently be understood how strong brine is being fed into the actual field of decomposition, whilst the brine, weakened by decomposition, is being continuously taken away from the cell to be strengthened and afterward used again.

In connection with the decomposition of salt for the production of caustic soda and bleaching powder by electrolysis, the following factors are of extreme importance:

1. The cell must be made of material that resists the action of free chlorine and sodium hydrate solution.
2. Power consumption must be reduced to a minimum.
3. High current density is essential with a view of reducing working costs and initial outlay to a minimum.
4. Recombination of final products or secondary reactions must be prevented as much as possible.

In the electrolytic cell in use at Sault Ste. Marie, carbon and vitrified earthenware are exposed to the action of free chlorine, and vitrified earthenware, mercury, and iron to the action of sodium hydrate solution. These materials are the very best for their respective purposes, and the apparatus is consequently lasting. In connection with manufacture of chemicals in general the depreciation of the apparatus employed is a very serious item and commercial success can only be obtained by paying the utmost attention to the quality of the material employed.

The theoretical potential difference in connection with the decomposition of a concentrated solution of common salt (ep. gr. 1.20078) is 2.30 volts. Electrolytic mercury cathode cells at present in use are operated with a potential difference of from 4 to 5 volts. At Sault Ste. Marie, owing to the very high current density employed, a potential difference of 5 volts is required. Power costs there, under the above conditions, 0.136 cents per pound of product made. This could be reduced by 0.027 cent per pound of product made by diminishing the current density, and consequent utilization of a lower potential difference.

However, the use of a high current density is advantageous, as, by having a very large output per cell, the working cost and the initial outlay are reduced to a degree which, from a commercial point of view, exceeds the above-mentioned possible reduction of the cost of power. A current of from 800-1,000 ampères per cell is used at Sault Ste. Marie, and the passing of this enormous current through a cell that is only three feet in diameter has only been made possible by the discovery of the Acheson graphitized carbon electrode, the conductivity of which is four times as great as that of ordinary carbon, and also by the system of the circulation of the electrolyte employed, whereby a concentrated solution of salt always is present in the actual field of decomposition.

When a solution of sodium chloride is being electrolyzed the following chemical changes take place.
1NaCl = 2Na + 2Cl
(cathode) (anode)

If the mercury amalgam were not immediately removed from the actual field of decomposition, as above described, a recombination of final products or secondary reactions would take place as follows:

2Na - 2H₂O = 2NaOH - H₂,
2NaOH + 2Cl = NaClO - NaCl - H₂O.

If a heated electrolyte be used, clorate is formed. Apart from losses, which would be caused by such secondary reactions, there would be great danger owing to the explosive nature of a mixture of chlorine and hydrogen. It is, of course, impossible to prevent secondary reactions altogether, but the mercury in the cell employed at Sault Ste. Marie does its work so well that during the year 1901 the quantity of hydrogen produced by secondary reactions amounted to less than 3 per cent. of the total quantity of chlorine made.

It is often held up against a mercury cathode process for the decomposition of brine that there must be a loss of mercury, and that such loss must be a very serious matter, owing to the great value of the mercury. As may be deduced from the description of the electrolytic cell given above, the chance of the mechanical loss of mercury is very slight, owing to the construction of the cell. The mercury is covered with a liquid throughout and the hydrogen, given off in the combining chamber, is not given off from the mercury surface, so that the hydrogen going into the atmosphere in the cell room carries no mercury. Regarding the solubility of the mercury in the sodium hydrate solution, it might be interesting to know that it has been found, as a result of careful research work on the subject, that one pound of mercury is dissolved by the alkali solution for every 27,500 pounds of caustic soda produced. The electrolyte, on account of its content of free chlorine, always carries mercury to the extent of 5-100 of 1 per cent. of its content of salt. The electrolyte in the circulation system is changed once every four to six weeks. The loss of mercury resulting thereby amounts to approximately 20 pounds in the period of time stated. It will thus be seen that the loss of mercury, in connection with the electrolytic manufacture of caustic soda and bleaching powder by means of a workable mercury cathode process, is entirely negligible from a commercial point of view.

Utilization of Waste.

(Abstract from a Bulletin of the Census Bureau.)

An important article obtained from fat is glycerin, which is brought into commerce as a refined or distilled glycerin, or as an element in glycerin soaps, toilet preparations, roller compositions, etc. Glycerin was once a waste article produced in the manufacture of candles from palm oil. It was found necessary to abstract this substance, as it caused an unpleasant smell when the charred end of the wick went out. This substance was at first allowed to float off into the river, the loss per week at some factories being estimated as high as $2,000. This loss has been eliminated since the valuable qualities of the by-product have been ascertained. The application of glycerin in medicine, and for technical purposes, has made it important to extract and purify this article whenever possible, and now its value, in relation to other fat constituents, is great.

A suggestive invention was patented in 1898 (Letters Patent No. 602,729) for the recovery of glycerin from tank waters, that of utilizing the waste products of slaughterhouses and rendering establishments. Tank-water, as is well known, is a by-product of rendering establishments produced in cooking, under pressure, the scraps of meats, bones, sinews, lungs, intestines and other nitrogenous matter containing more or less fat; such cooking being continued for several hours, until the substances in the tank are decomposed to a great extent and the fat liberated. A large part of the nitrogenous matter remains in the liquid produced from the solids introduced into the tank and from the condensed steam. The fats rise to the surface, while the undissolved matter, to a great extent, settles to the bottom of the tank. The liquid lying between the fat and the solids, or "tankage," in the bottom of the tank is known as "tank water." After the fat has been skimmed off, the water is drawn off from the tankage and disposed of in various ways. This tank water was for many years discharged into the sewers, although it is known to contain valuable nitrogenous matter, and yet at the present day it is thus disposed of in almost all houses of small capacity.

Slaughterhouse by-products that are utilized include: Gelatine, glue, fertilizers, hair, curled hair, bristles, blood, neat's-foot oil, bones, horns, hoofs, glands and membranes out of which are obtained peptin, thymus, thyroids, pancreatin, parotid substances, suprarenal capsules, etc., soap stock, glycerin from tallow, brewer's isinglass, albumen, hides, skins, wool and intestines.

The encrusting matters attached to wool, besides the dirt, consist of wool fat, which is soluble in ether, and wool perspiration, which is soluble in water. The wool fat and the wool perspiration are together embraced under the name of the "vilk" of the wool. The wool fat is a mixture of a solid alcoholic body, cholesteroline, together with iso-cholesterine, and the compounds of these bodies with several of the fatty acids. These free higher alcohols are soluble in boiling ethyl-alcohol, while the compounds they form with the fatty acids are insoluble in alcohol but soluble in ether. Wool perspiration consists essentially of the potassium salts of oleic and stearic
acids, and possibly other fixed fatty acids, also potassium salts of volatile acids, like acetic and valerianic, and small quantities of chlorides, phosphates and sulphates. Thus it will be seen that the yolk of wool contains many elements of recognized value in arts and manufacturing.

When the potash salts are evaporated and ignited, they yield a product of potassium carbonate, and it is estimated that 2,200,000 pounds of this product is saved from the wool and wash waters of the mills and scouring establishments of France and Belgium. When the yolk is submitted to dry distillation it yields a residue containing carbonate of potash, nitrogenous carbon of great value for the manufacture of yellow prussiate of potash. According to M. Chandelon, 2,200 pounds of raw wool may furnish 300 quarts of yolk solution of 1.25 specific gravity, having a value of $3.75, while the cost of extraction does not exceed 60 cents.

It is only with comparatively recent years that volatile solvents have been used for extracting the yolk from wool. By far the greater quantity of wool is still cleansed by the old process of scouring with alkalis and washing in a rapid current of water. The volatile-solvent process, however, is coming into use, though now confined chiefly to establishments where large quantities of wool are cleansed. The great cost of the plant for cleansing wool by this method confines it to large establishments. Various volatile solvents can be used, such as fused oil, ether, petroleum naphtha and carbon disulphide. When these solvents are used they have to be followed by washing fatty matters, they do not take up the oleates, etc., of the wool perspiration. The treatment of wool by these means is now confined to petroleum naphtha, and, as now conducted, according to the best methods in vogue, is found to be not only practicable but remunerative, both in the saving of a valuable product and in leaving the wool in an excellent condition for the various processes of manufacture.

(To be continued.)

QUESTIONS AND ANSWERS.

In this column we shall print questions of general interest submitted by subscribers and invite replies to the same from our readers, which will be printed in the next issue of this paper.

Question No. 26: Is there in the United States a process in use for deodorizing fish oils? Should be thankful for description of process and apparatus needed for the operation. L. M., France.

Question No. 27: Where can I find the method of applying what is termed the “Calcium Chloride” test for soaps and fatty acids? I have searched, in vain for information on the subject.—S. L.

Question No. 28: Can corn oil be saponified thoroughly in cold process? Does it contain much glycerine compared to other oils? T. O. G.

ANSWERS.

To Question No. 23: We have not been able to trace a special work on coconut oil; a correspondent (who has a large library of books in this line) also has no knowledge of such a book which confirms our conviction that there is none; of course, nearly all books on fats and oils and on soap making have more or less of this information.

To Question No. 24: Have never used Australian tallow and don’t know its melting point, but should think Australian tallow, like the American article, may vary very much in melting point.—M.

To Question No. 25: If perfumed tablets are intended for perfuming the bath, soap would be preferable to paraffin.—M.

If for any reason foregoing suggestion should not answer the purpose, it may interest our inquirer to know that a mixture of magnesium carbonate, orris root and starch is given, in an article kept in our files, as a suitable body; the proportions were not mentioned and would have to be found by a little experimenting.

ANSWERS IN BRIEF.

A. S. Co. of Pa.: Books on manufacturing a large variety of chemical products can be obtained from Henry Carey Baird & Co., of your own city. If you had any particular line in mind, write again.

P. M. Co. of N. Y.: There is no paper published in this country devoting itself exclusively to perfumery. This Journal pays it probably more attention than any paper published in the United States.

L. F. of Pa.: We never, under any circumstances whatever, print private affairs sent us in confidence.

PATENTS AND TRADE-MARKS.

The following list of recent Patents and Trade-Marks is reported by W. G. Henderson, Solicitor of American and Foreign Patents and Trade-Marks, Norris Bldg., Washington, D. C. A copy of any of the following will be furnished by him for 15 cents.

PATENTS.


TRADE-MARKS.

38,484. Laundry and toilet soaps. The N. K. Fairbank Company, Chicago, Ill. The words “Blue Cloud.”


38,511. Toilet soap. Lambert Pharmacal Co., St. Louis, Mo. The word “Listerine.”


38,628. Detergent compounds used as auxiliaries to Soap. Eliza Wright, New York, N. Y. The word “Boildero.”

AROUND THE SOAP FACTORIES.

News items sent us by our readers will find prompt attention in this column.

We note that Dr. J. Lewkowitsch has been appointed to fill a vacancy on the Council of the Society of Chemical Industry of England.

Pablo Alexanderson has erected a new soap factory in the City of Mexico.

A small fire broke out in the Western Soap Co.’s works, Los Angeles, last month, but was extinguished before much harm was done.

The York (Pa.) Steam Soap Works have been sold to Harry L. Motter, who, it is said, will turn it into a shoe polish factory.

D. D. Eldred, president of the Soapal Co., formerly at Monett, Mo., has removed to Springfield, Mo., to manufacture there a compound designated as a substitute for soap; it is in the form of a soft soap or paste, sold in cans.

The Forest City Mfg. Co. has been incorporated in Fort Worth, Texas, with a capital of $10,000, to manufacture soap.

The candles hitherto used for lighting the Cathedral of Notre Dame in Paris are to be replaced by electric light, at a cost of about $100,000.

Munhens & Kropf, of New York, have filed suit in the United States Court against the Eureka Soap Company, alleging infringement of their trade-mark for transparent glycerine soap. The soap is put up in a yellow box, with a label containing scrolls in gold and black, and the number 4711 attached. Plaintiffs claim to have carried on the business since 1885 and to have been the exclusive owners, yet the defendants have, it is alleged, imitated the label, going so far as to use the scrolls and the numeral 47. It is alleged that the defendant company, under date of February 21 last, promised to discontinue the use of the label, but instead has further infringed, and therefore an injunction and accounting are asked.

Eduard Franzen, aged 26 years, who came to Port-au-Prince, Haiti, three months ago, engaged for the soap factory of Messrs. d’Aubigny & Co. by the agents, Messrs. Huttlinger Vive, died there after a sickness of three days, of yellow fever, on June 21.

The Benzinated Soap Company, of which Alfred Lowrey, a Philadelphia grocer, and Oliver Smith, of Camden, N. J., are the prime movers, will locate a soap manufacturing plant at Seventh and Pearl streets. They will not begin building for several weeks.

The Holman Soap Co., Chicago, has increased its capital stock from: $10,000 to $50,000.

There are things doing in Topeka Kan. A number of citizens of that city have complained to the board of health that a soap rendering establishment is kept and maintained on Sec. 7, township 12, south of range 16, just outside the city limits, by one Reynolds. And we further represent that said rendering establishment is a nuisance in the community in that a great deal of the time the stench proceeding from it is so rank and offensive as to almost compel the persons living around it to flee from the vicinity, and we further represent that the effluvium arising from the said rendering establishment is a serious menace to the health and well-being of the community.

There have been verbal complaints lodged before an account of the stench said to prevail about Sec. 7, township 12, south of range 16, but at those times the good citizens had not noticed the effluvium about it. When told that what they used to call a plain stench was really an effluvium they looked at each other awe-struck and hunted up somebody who could spell it, to put the complaint in writing.

Papers certifying the incorporation of the Niagara Chemical Company, of Buffalo, N. Y., have been filed. The company’s authorized capital stock is $5,000. It will make lubricants, soaps and greases. The directors for the first year are A. Goodby, Chicago; John A. Van Arsdale and Daniel McCue, of Buffalo.

The Potter Drug and Chemical Company, of Boston, manufacturers of Cuticura soap, have instituted proceedings against and caused the arrest of three men of Chicago.

The defendants are charged with infringing on their copyrights by vending in Chicago and Joliet a soap
resembling in size and color “Cuticura” soap and called, with intent to deceive prospective purchasers, “Cuticura’s” soap.

The sample box of soap shown by the three men to prospective purchasers was stamped “Cuticura—is—advertising box of five bars; regular price, 25 cents a bar.” The inscription on the boxes in which the soap is delivered to customers was packed, however, lacked the hyphen following the word “Cuticura;” thus reading, “Cuticura’s advertising soap,” etc.

The Potter Company has also sued the Liberty Soap Manufacturing Company, Hauf & Walthier, paper box manufacturers, and the Traders’ Printing Company. Temporary injunctions have been issued against the three Chicago manufacturing firms named in behalf of the Potter Company.

During a thunderstorm that passed over Jersey City, lightning struck the soap factory of Muhlen & Kropff. Part of the roof was torn off, but no serious damage was done. Fifty men who were in the place were thrown into a panic, but the only person injured was Henry Fox, the manager. He was at the telephone, and received a shock that rendered him unconscious for a time, but he soon recovered. The wires of several telephone boxes in the neighborhood were burned out, but no one happened to be using them at the time.

The reorganization of the American Alkali Co. is said to be in a fair way of being completed.

A castor oil mill will be erected at Oshkosh, Wis. Its product will be used largely in the manufacture of sticky fly paper.

We note that W. A. Mott of Mayfield, Ky., has been elected a member of the American Chemical Society.

The general offices and several beef-packing departments of Swift & Co., Chicago stock yards, were destroyed by fire on July 5, which caused a damage estimated at $600,000. The buildings lost will be rebuilt without loss of time.

The Fels-Naphtha Soap Co. has moved its London offices into larger quarters.

W. R. Bowen of San Francisco has patented an invention which consists in providing a guard-plate by means of which a cake of soap is supported and held a slight distance away from the surface upon which the guard-plate rests, thereby maintaining the soap free from such foreign matter as it otherwise would pick up, while at the same time the said guard-plate acts as a “drain,” so to speak, for the soap after use, the object of the inven-

tion being to add to the attractiveness of the soap by having one side of the cake of soap provided with a metal or composition plate, which plate may be ornamented in any suitable manner.

The A. M. Todd Co., Ltd., had a severe loss by fire a few days ago. The distilling of oil, however, will not be materially interfered with.

An execution for $1,524 has been issued against the Antiseptic Soap Cone Co. of New York city. The company was incorporated a year ago with a capital stock of $25,000.

The partnership between F. O. Baker and Wm. Torrey of Rockland, Mass., has been dissolved, the latter retiring. He was for a number of years in the soap business with his father.

The Hargraves soap factory at Flint, Mass., is being attacked by the newspapers as emitting noxious odors.

The Cacti Soap Co. at Columbus, Ohio, sustained a $3,000 loss from fire on July 9th.


The plant of the James Armstrong Soap Co., Baltimore, is being dismantled preparatory to using the building for other purposes, and the soap and glycerine machinery is being offered for sale.

On July 4th the many Americans temporarily present at Bad Nauheim, Germany, celebrated Independence Day. (Among them were Geo. A. Schmidt of Chicago, with wife and child, and Jas. S. Kirk of Chicago, with three members of his family.) U. S. Consul-General Guenther had come from the near-by city of Frankfurt to deliver the opening speech, which aroused great enthusiasm. From his remark in the course of this speech, that Americans like to go to Germany in order to recuperate and gather strength for new deeds, we conclude that our “departed” soap manufacturers will return in the proper spirits to wade deeply into business. Minister Chamberlain sent a telegram reporting continued improvement in King Edward’s health.

We see from the Seifensieder Zeitung that Geo. A. Schmidt of Chicago was a guest at the general meeting of the Bavarian Soap Manufacturers Association which was held at Munich on June 21. He sailed for home from Hamburg on July 12th.
**Latest Additions to Our Brand List.**

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<th>Brand</th>
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**The Markets.**

Tallow.—New York City in bids, 6 1/2c; in tiers, 7c; market rather quiet though steady; sales of country-made at 6 1/2 to 7c as to quality. Western sales reported at 8c for prime packers and 7c for city rendered.

Grease.—Markets rather strong, in sympathy with tallow. "A" white, 7 1/2 to 7c; "B" white, 7 to 7 1/2c; yellow, 5 1/2 to 6c; bone and house, 5 1/2 to 6c.

Cottonseed Oil.—Last sales reported from New York at 42 1/2 to 43 1/2c for prime yellow; good off-yellow, 40 1/2c. For the last week the market has been dull and unsettled.

Corn Oil.—6.20c.

Coconut Oil.—Ceylon held at 7 1/2 to 7 3/4c spot; for stock to arrive in near future 7 1/2 to 7 3/4c is asked; Coochin, 8 1/2c asked for spot, and 7 3/4 to 8c for supplies under way.

Olive Foots.—5 1/2 to 5 5/8c for spot, as to quality.

Palm Oil.—5 5/8 to 5 11/2c for prime red oil; 6c for Lagos; Palm Kernel oil 7 to 7 1/2c; with demand considerably exceeding the spot supplies.

Red Oil.—Saponified, 6 1/2 to 6 3/4c asked; with little supply and little demand.

An Australian subscriber to the Soap Journal and purchaser of the work "American Soaps," writes us: "The sample of soap sent you herewith is an evidence of the educating power of your publications; I could not have made anything like it before reading them." No better compliment could be paid any trade journal, and we take much encouragement from the fact that we have a number of just such statements on file, in black and white.

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3—Yields crude Glycerine of a quality equal to the best saponified or digester Glycerine from the same kind of fat.

4—Yields fatty acids, which can be Saponified with soda ash and so effect a large saving in cost over caustic lyes.

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The attention of our readers is called to the column of

"WANTED" AND "FOR SALE"

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