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THE
ART OF PERFUMERY,

AND THE METHODS OF OBTAINING

THE ODORS OF PLANTS,

WITH INSTRUCTIONS FOR THE MANUFACTURE OF

PERFUMES FOR THE HANDKERCHIEF, SCENTED POWDERS,
ODOROUS VINEGARS, DENTIFRICES, POMATUMS,
COSMETICS, PERFUMED SOAP, ETC.

TO WHICH IS ADDED AN APPENDIX ON PREPARING

ARTIFICIAL FRUIT-ESSENCES, ETC.

BY

G. W. SEPTIMUS PIESSE,

ANALYTICAL CHEMIST,

AUTHOR OF "CHEMICAL, NATURAL, AND PHYSICAL MAGIC," "THE LABORATORY OF CHEMICAL WONDERS," ETC.

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SECTION X.

PERFUMED SOAP.

THE word Soap, or Sope, from the Greek *sapon*, first occurs in the works of Pliny and Galen. Pliny informs us that soap was first discovered by the Gauls, that it was composed of tallow and ashes, and that the German soap was reckoned the best. According to Sismondi, the French historian, a soap-maker was included in the retinue of Charlemagne.

At Pompeii (overwhelmed by an eruption of Vesuvius A. D. 79), a soap-boiler's shop with soap in it was discovered during some excavations made there not many years ago.*

From these statements it is evident that the manufacture of soap is of very ancient origin; indeed, Jeremiah figuratively mentions it,—“For though thou wash thee with natron, and take thee much soap, yet thine iniquity is marked before me.” (Jer. 2 : 22.) As does also Malachi: “He is like a refiner's fire, and like fullers' soap.” (Mal. 3 : 2.)

Mr. Wilson says that the earliest record of the soap trade in England is to be found in a pamphlet in the British Museum, printed in 1641, entitled “A Short Account of the Soap Business.” It speaks more particularly about the duty, which was then levied for the first time, and concerning certain patents which

* Starke's Letters from Italy.

were granted to persons, chiefly Popish recusant for some pretended new invention of white soap, “which in truth was not so.” Sufficient is said here to prove that at that time soap-making was no inconsiderable art.

Prior to the removal of the excise duty upon soap, in 1853, it was a commercial impossibility for a perfumer to *manufacture* soap, because the law did not allow less than one ton of soap to be made at a time. This law, which, with certain modifications, had been in force since the reign of Charles I, confined the actual manufacture of that article to the hands of a few capitalists. Such law, however, was but of little importance to the perfumer, as a soap-boiling plant and apparatus is not very compatible with a laboratory of flowers; yet, in some exceptional instances, these excise regulations interfered with him; such, for instance, as that in making soft soap of lard and potash, known, when perfumed, as *Crème d'Amande*; or unscented, as a Saponaceous Cream, which has, in consequence of that law, been entirely thrown into the hands of our continental neighbors.

It would be out of place here to enter into the details of soap-making, because perfumers do not manufacture that substance, but are merely “remelters,” to use a trade term. The dyer purchases his dyestuffs from the drysalters already fabricated, and these are merely modified under his hands to the various purposes he requires: so with the perfumer; he purchases the various soaps in their raw state from the soap-makers, these he mixes by remelting, then scents and colors according to the article to be produced.

The primary soaps are divided into hard and soft soaps: the hard soaps contain soda as the base; those which are soft are prepared with potash. These are again divisible into varieties, according to the fatty matter employed in their manufacture, also according to the proportion of alkali. The most important of these to the perfumer is what is termed curd soap, as it forms the basis of all the highly-scented soaps.

CURD SOAP is a nearly neutral soap, of pure soda and fine tallow.

OIL SOAP, as made in England, is an uncolored combination of olive oil and soda, hard, close grain, and contains but little water in combination.

CASTILE SOAP, as imported from Spain, is a similar combination, but is colored by protosulphate of iron, the solution of the salt being added to the soap after it is manufactured; from the presence of alkali, decomposition of the salt takes place, and protoxide of iron is diffused through the soap of its well-known black color, giving the familiar marbled appearance to it. When the soap is cut up into bars, and exposed to the air, the protoxide passes by absorption of oxygen into peroxide; hence, a section of a bar of Castile soap shows the outer edge red-marbled while the interior is black-marbled. Some Castile soap is not artificially colored, but a similar appearance is produced by the use of a barilla or soda containing sulphuret of the alkaline base, and at other times from the presence of an iron salt.

MARINE SOAP is a cocoanut-oil soap, of soda, containing a great excess of alkali, and much water in combination.

YELLOW SOAP is a soda soap, of tallow, resin, and lard, &c., &c.

PALM SOAP is a soda soap of palm oil, retaining the peculiar odor and color of the oil unchanged. The odoriferous principle of palm oil resembling that from orris-root, can be dissolved out of it by tincturation with alcohol; like ottos generally, it remains intact in the presence of an alkali; hence, soap made of palm oil retains the odor of the oil.

FIG SOFT SOAP is a combination of oils, principally olive oil of the commonest kind, with potash.

NAPLES SOFT SOAP is a fish oil (mixed with Lucca oil) and potash, colored brown for the London shavers, retaining, when pure, its unsophisticated "fishy" odor.

The public require a soap that will not shrink and change shape after they purchase it. It must make a profuse lather during the act of washing. It must not leave the skin rough after using it. It must be either quite inodorous, or have a pleasant aroma. None of the above soaps possess all these qualities in union, and, therefore, to produce such an article is the object of the perfumer in his remelting process.

The above soaps constitute the real body or base of all the fancy scented soaps as made by the perfumers, which are mixed and remelted according to the following formula.

REMELTING SOAP.

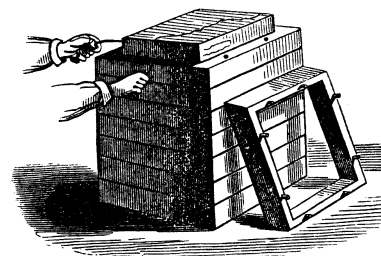
The remelting process is exceedingly simple. The bar soap is first cut up into thin slabs, by pressing them against a wire fixed upon the working bench. This cutting wire (piano wire is the kind) is made

taut upon the bench by being attached to two screws. These screws regulate the height of the wire from the bench, and hence the thickness of the slabs from the bars. The soap is cut up into thin slabs, because it would be next to impossible to melt a bar whole, on account of soap being one of the worst conductors of heat.

The melting-pan is an iron vessel, of various sizes, capable of holding from 28 lbs. to 3 cwt., heated by a steam jacket, or by a water bath. The soap is put into the pan by degrees, or what is, in the vernacular, called "rounds,"—that is, the thin slabs are placed perpendicularly all round the side of the pan; a few ounces of water are at the same time introduced, the steam of which assists the melting. The pan being covered up, in about half an hour the soap will have "run down." Another round is then introduced, and so continued every half-hour until the whole "melting" is finished. The more water a soap contains, the easier it is melted; hence a round of marine soap, or of new yellow soap, will run down in half the time that it requires for old soap.

When different soaps are being remelted to form one kind when finished, the various sorts are to be put into the pan in alternate rounds, but each round must consist only of one kind, to insure uniformity of condition. As the soap melts, in order to mix it, and to break up lumps, &c., it is from time to time "*crutched*." The "*crutch*" is an instrument or tool for stirring up the soap; its name is indicative of its form, a long handle with a short cross—an inverted **J** curved to fit the curve of the pan. When the soap is all melted, it is then colored, if so required, and

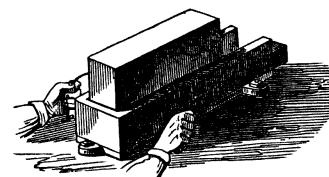
then the perfume is added, the whole being thoroughly incorporated with the crutch.



Frame and Slab Gauge.

The soap is then turned into the "frame." The frame is a box made in sections, in order that it can be taken to pieces, so that the soap can be cut up when cold; the sections or "lifts" are frequently made of the width of the intended bar of soap.

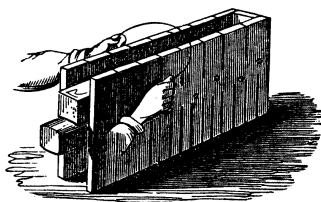
Two or three days after the soap has been in the frame, it is cool enough to cut into slabs of the size



Barring Gauge.

of the lifts or sections of the frame; these slabs are set up edgeways to cool for a day or two more; it is then barred by means of a wire. The lifts of the frame regulate the width of the bars; the gauge regulates their breadth. The density of the soap being

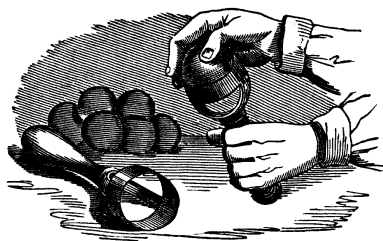
pretty well known, the gauges are made so that the soap-cutter can cut up the bars either into fours, sixes, or eights; that is, either into squares of four, six, or eight to the pound weight. Latterly, various



Squaring Gauge.

mechanical arrangements have been introduced for soap-cutting, which, in very large establishments, such as those at Marseilles, in France, are great economizers of labor; but in England the "wire" is still used.

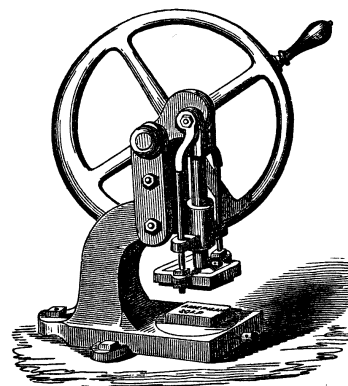
For making tablet shapes, the soap is first cut



Soap Scoop.

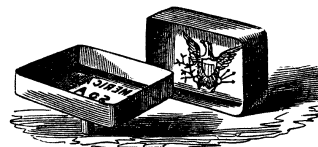
into squares, and is then put into a mould, and finally under a press—a modification of an ordinary die or coin press. Balls are cut by hand, with the

aid of a little tool called a "scoop," made of brass or ivory, being, in fact, a ring-shaped knife. Balls are also made in the press with a mould of appropriate form. The grotesque form and fruit shape are also



Soap Press.

obtained by the press and appropriate moulds. The fruit-shaped soaps, after leaving the mould, are dipped into melted wax, and are then colored according to artificial fruit-makers' rules.



Moulds.

The "variegated" colored soaps are produced by adding the various colors, such as smalt and vermilion, previously mixed with water, to the soap in a

melted state; these colors are but slightly crutched in, hence the streaky appearance or party-color of the soap; this kind is also termed "marbled" soap.

ALMOND SOAP.

This soap, by some persons "supposed" to be made of "sweet almond oil," and by others to be a mystic combination of sweet and bitter almonds, is in reality constituted thus:

Finest curd soap,	1 cwt.
" oil soap,	14 lbs.
" marine,	14 lbs.
Otto of almonds,	1½ lb.
" cloves,	¼ lb.
" caraway,	½ lb.

By the time that half the curd soap is melted, the marine soap is to be added; when this is well crutched, then add the oil soap, and finish with the remaining curd. When the whole is well melted, and just before turning it into the frame, crutch in the mixed perfume.

Some of the soap "houses" endeavored to use Mirabane, or artificial essence of almonds, for perfuming soap, it being far cheaper than the true otto of almonds; but the application has proved so unsatisfactory in practice, that it has been abandoned by Messrs. Gibbs, Pineau (of Paris), Gosnell, and others who used it.

CAMPBOR SOAP.

Curd soap,	28 lbs.
Otto of rosemary,	1½ lb.
Camphor,	1½ lb.

Reduce the camphor to powder by rubbing it in a

mortar with the addition of an ounce or more of almond oil, then sift it. When the soap is melted and ready to turn out, add the camphor and rosemary, using the crutch for mixing.

HONEY SOAP.

Best yellow soap,	1 cwt.
Fig soft soap,	14 lbs.
Otto of citronella,	1½ lb.

WHITE WINDSOR SOAP.

Curd soap,	1 cwt.
Marine soap,	21 lbs.
Oil soap,	14 lbs.
Otto of caraway,	1½ lb.
" thyme, } of each,	1½ lb.
" rosemary, }	
" cassie, } of each,	¼ lb.
" cloves, }	

BROWN WINDSOR SOAP.

Curd soap,	¾ cwt.
Marine soap,	¼ cwt.
Yellow soap,	¼ cwt.
Oil soap,	½ pint.
Brown coloring (caramel),	
Otto of caraway,	
" cloves,	
" thyme,	
" cassia,	
" petit grain,	
" French lavender,	
	of each, 2 oz.

SAND SOAP.

Curd soap,	7 lbs.
Marine soap,	7 lbs.
Sifted silver sand,	28 lbs.
Otto of thyme,	
" cassia,	
" caraway,	
" French lavender,	
	of each, 2 oz.

FULLER'S EARTH SOAP.

Curd soap,	10½ lbs.
Marine soap,	3½ lbs.
Fuller's earth (baked),	14 lbs.
Otto of French lavender,	2 oz.
“ origanum,	1 oz.

The above forms are indicative of the method adopted for perfuming soaps while hot or melted.

All the very highly scented soaps are, however, perfumed cold, in order to avoid the loss of scent, twenty per cent. of perfume being evaporated by the hot process.

The variously named soaps, from the sublime “Sultana” to the ridiculous “Turtle’s Marrow,” we cannot of course be expected to notice; the reader may, however, rest assured that he has lost nothing by their omission.

The receipts given produce only the finest quality of the article named. Where cheap soaps are required, not much acumen is necessary to discern that by omitting the expensive perfumes, or lessening the quantity, the object desired is attained. Still lower qualities of scented soap are made by using greater proportions of yellow soap, and employing a very common curd, omitting the oil soap altogether.

SCENTING SOAPS HOT.

In the previous remarks, the methods explained of scenting soap involved the necessity of melting it. The high temperature of the soap under these circumstances involves the obvious loss of a great deal of perfume by evaporation. With very highly scented soaps, and with perfume of an expensive character,

the loss of ottos is too great to be borne in a commercial sense; hence the adoption of the plan of

SCENTING SOAPS COLD.

This method is exceeding convenient and economical for scenting small batches, involving merely mechanical labor, the tools required being simply an ordinary carpenter’s plane and a good marble mortar and lignum vitæ pestle.

The woodwork of the plane must be fashioned at each end so that, when placed over the mortar, it remains firm and not easily moved by the parallel pressure of the soap against its projecting blade.

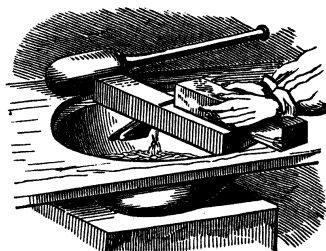
To commence operations, we take first 7 lbs., 14 lbs., or 21 lbs. of the bars of the soap that it is intended to perfume. The plane is now laid upside down across the top of the mortar.

Things being thus arranged, the whole of the soap is to be pushed across the plane until it is all reduced into fine shavings. Like the French “Charbonnier,” who does not saw the wood, but woods the saw, so it will be perceived that in this process we do not plane the soap, but that we soap the plane, the shavings of which fall lightly into the mortar as quickly as produced.

Soap, as generally received from the maker, is in proper condition for thus working; but if it has been in stock any time it becomes too hard, and must have from one to three ounces of distilled water sprinkled in the shavings for every pound of soap employed, and must lie for at least twenty-four hours to be absorbed before the perfume is added.

When it is determined what size the cakes of soap

are to be, what they are to sell for, and what it is intended they should cost, then the maker can measure out his perfume.



Soaping the Plane.

In general, soaps scented in this way retail from 4s. to 10s. per pound, bearing about 100 per cent. profit, which is not too much considering their limited sale. The soap being in a proper condition with regard to moisture, &c., is now to have the perfume well stirred into it. The pestle is then set to work for the process of incorporation. After a couple of hours of "warm exercise" the soap is generally expected to be free from streaks, and to be of one uniform consistence.

For perfuming soap in large portions by the cold process, instead of using the pestle and mortar as an incorporator, it is more convenient and economical to employ a mill similar in construction to a cake chocolate-mill, or a flake cocoa-mill; any mechanical apparatus that answers for mixing paste and crushing lumps will serve pretty well for blending soap together.

Before being put into the mill, the soap is to be reduced to shavings, and have the scent and color

stirred in; after milling it, the flakes or ribands of soap are to be finally bound together by the pestle and mortar into one solid mass; it is then weighed out in quantities for the tablets required, and moulded by the hand into egg-shaped masses; each piece being left in this condition, separately laid in rows on a sheet of white paper, dries sufficiently in a day or so to be fit for the press, which is the same as that previously mentioned. It is usual, before placing the cakes of soap in the press, to dust them over with a little starch-powder, or else to very slightly oil the mould; either of these plans prevents the soap from adhering to the letters or embossed work of the mould—a condition essential for turning out a clean well-struck tablet.

The body of all the fine soaps mentioned below should consist of the finest and whitest curd soap, or of a soap previously melted and colored to the required shade, thus:

ROSE-COLORED SOAP is curd soap stained with vermilion ground in water, thoroughly incorporated when the soap is melted, and not very hot.

GREEN SOAP is a mixture of palm-oil soap and curd soap, to which is added powdered smalt ground with water.

BLUE SOAP, curd soap colored with smalt.

BROWN SOAP, curd soap with caramel, *i. e.*, burnt sugar.

MAUVE SOAP is colored with aniline.

The intensity of color varies, of course, with the quantity of coloring.

Some kinds of soap become colored or tinted to a sufficient extent by the mere addition of the ottos

used for scenting, such as "spermaceti soap," "lemon soap," &c., which becomes of a beautiful pale lemon color by the mere mixing of the perfume with the curd soap. (See COLORS, Section XIX.)

OTTO OF ROSE SOAP.

(To retail at 10s. per pound.)

Curd soap (previously colored pink),	4½ lbs.
Otto of rose,	1 oz.
Spirituous extract of musk,	2 oz.
Otto of santal,	¼ oz.
" geranium,	¼ oz.

Mix the perfumes, stir them in the soap shavings, and beat together.

TONQUIN MUSK SOAP.

Pale brown-colored curd soap,	5 lbs.
Grain musk,	¼ oz.
Otto of bergamot,	1 oz.

Rub the musk with the bergamot, then add it to the soap, and beat up. Should be made six months before sold.

ORANGE-FLOWER SOAP.

Curd soap,	7 lbs.
Otto of neroli,	3½ oz.

SANTAL-WOOD SOAP.

Curd soap,	7 lbs.
Otto of santal,	7 oz.
" bergamot,	2 oz.

SPERMACETI SOAP.

Curd soap,	14 lbs.
Otto of bergamot,	2½ lbs.
" lemon,	½ lb.

CITRON SOAP.

Curd soap,	6 lb.
Otto of citron zeste,	¾ lb.
" verbena (lemon grass),	½ oz.
" bergamot,	4 oz.
" lemon,	2 oz.

One of the best of fancy soaps that is made.

FRANGIPANI SOAP.

Curd soap (previously colored pink),	7 lbs.
Civet,	¼ oz.
Otto of neroli,	½ oz.
" santal,	1½ oz.
" rose,	¼ oz.
" vitivert,	½ oz.

Rub the civet with the various ottos, mix, and beat in the usual manner.

PATCHOULY SOAP.

Curd soap,	4½ lbs.
Otto of patchouly,	1 oz.
" santal, } of each,	¼ oz.
" vitivert, }	

SAPONACEOUS CREAM OF ALMONDS.

The preparation sold under this title is a potash soft soap of lard. It has a beautiful pearly appearance, and has met with extensive demand as a shaving soap. Being also used in the manufacture of EMULSIONS, it is an article of no inconsiderable consumption by the perfumer. It is made thus:

Clarified lard,	7 lbs.
Potash lye (containing 26 per cent. of caustic potash),	3¾ lbs.
Rectified spirit,	3 oz.
Otto of almonds,	2 drachms.

Manipulation.—Melt the lard in a porcelain vessel

by a salt-water bath, or by a steam heat under 15 lbs. pressure; then run in the lye *very slowly*, agitating the whole time; when about half the lye is in, the mixture begins to curdle; it will, however, become so firm that it cannot be stirred. The crême is then finished, but is not pearly; it will, however, assume that appearance by long trituration in a mortar, gradually adding the alcohol, in which the perfume has been dissolved.

SOAP POWDERS.

These preparations are sold sometimes as a dentifrice and at others for shaving; they are made by reducing the soap into shavings by a plane, then thoroughly drying them in a warm situation, afterwards grinding in a mill, then perfuming with any otto desired.

RYPOPHAGON SOAP.

Best yellow soap, } equal parts melted together.
Fig soft soap, }

Perfume with anise and citronella.

AMBROSIAL CREAM.

Color the grease very strongly with alkanet root, then proceed as for the manufacture of saponaceous cream. The cream colored in this way has a blue tint: when it is required of a purple color, we have merely to stain the white saponaceous cream with aniline to the shade desired. Perfume with otto of English peppermint.

NAPLES SHAVING SOAP.

This article is very much used, and as a consequence is in demand: it can be perfumed either with otto of

thyme, lavender, peppermint, or rose; being very rank, it requires a great deal of perfume to cover its fishy odor, being made, as I believe, from fish oils and potash: but M. Faiszt states that it is made by saponifying mutton fat with lime, and then separating the fatty acids from the soap thus formed, by means of a mineral acid. These fatty acids are afterwards combined with ordinary caustic potash to produce the Naples soap.

TRANSPARENT SOFT SOAP.

Solution caustic potash ("London Pharmacopœia"), 6 lbs.
Olive oil, 1 lb.

Perfume to taste.

Before commencing to make the soap, reduce the potash lye to one-half its bulk by continued boiling. Now proceed as for the manufacture of saponaceous cream. After standing a few days, pour off the waste liquor.

SOFT WATER ELIXIR.

(For softening hard water.)

Spirits of wine, 1 gallon.
Orange-flower water, 4 pints.
Marine soap, 7 lbs.

Color with a few drops of aniline. Shave up the soap and put it into the water; make it hot, and the soap will dissolve; then add the spirit.

A tablespoonful of this elixir put into the bottom of a basin will completely "soften" the water that is put into it for washing.

TRANSPARENT HARD SOAP.

Reduce the soap to shavings, and dry them as much

as possible, then dissolve in alcohol, using as little spirit as will effect the solution, then color and perfume as desired, and cast the product in appropriate moulds; finally dry in a warm situation.

Until the legislature allows spirit to be used, for manufacturing purposes, free of duty, we cannot compete with our neighbors in this article; the methylated spirit has such an abominable odor that it cannot be used for making scented soaps for the toilet.

MEDICATED SOAPS.

In 1850 I began making a series of medicated soaps, such as SULPHUR SOAP, IODINE SOAP, BROMINE SOAP, CREASOTE SOAP, MERCURIAL SOAP, CROTON OIL SOAP, and many others. These soaps are prepared by adding the medicant to curd soap, and then making in a tablet form for use. For sulphur soap, the curd soap may be melted, and flowers of sulphur added while the soap is in a soft condition. For antimony soap and mercurial soap, the low oxides of the metals employed may also be mixed in the curd soap in a melted state. Iodine, bromine, creasote soap, and others containing very volatile substances, are best prepared cold by shaving up the curd soap in a mortar, and mixing the medicant with it by long beating.

In certain cutaneous diseases the author has reason to believe that they will prove of infinite service as auxiliaries to the general treatment. It is obvious that the absorbent vessels of the skin are very active during the lavatory process; such soap must not, therefore, be used, except by the special advice of a medical man. Probably these soaps will be found useful for internal application. The precedent of the

use of Castile soap (containing oxide of iron) renders it likely that such soaps will find a place in the pharmacopœias. The discovery of the solubility, under certain conditions, of the active alkaloids, quinine, morphia, &c., in oil, by Mr. W. Bastick, greatly favors the supposition of analogous compounds in soap.

Some forty or fifty years ago, there were several kinds of soap imported, but which nowadays are quite unknown, such as Joppa soap, Smyrna soap, Jerusalem soap, Genoa soap, Alicant soap, &c., nearly all of which, however, were made of oil as a base.

JUNIPER TAR SOAP.

This soap is made from the tar of the wood of the *Juniperus communis*, by dissolving it in a fixed vegetable oil, such as almond or olive oil, or in fine tallow, and forming a soap by means of a weak soda lye after the customary manner. This yields a moderately firm and clear soap, which may be readily used by application to parts affected with eruptions, at night, mixed with a little water, and carefully washed off the following morning. This soap has lately been much used for eruptive disorders, particularly on the Continent, and with varying degrees of success. It is thought that the efficient element in its composition is a rather less impure hydrocarburet than that known in Paris under the name *huile de cade*. On account of its ready miscibility with water, it possesses great advantage over the common tar ointment.

SOAPSTONE OF MYLOS.

This is an important article of commerce in Turkey

and Russia, where it is used as soap, has been analyzed by M. Landerer, the result being—silex, 63; alumina, 23; water, 12; and sesquioxide of iron, 1.25. This mineral is of a grayish color, and has schistose fracture. It can be cut into shavings, and adheres a little to the tongue; softens in water, dissolving gradually in it; and afterwards becomes white and greasy to the touch. It becomes gray again after desiccation.

SOAP PLANTS.

There are several plants the juices of which are employed for washing, but at present they have no practical application to the toilet, though doubtless they will have so soon as we can obtain a regular supply.