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VOL. IV.... .....No. 38.

ORIGINAL AND SELECTED PAPERS.

ON FLUID EXTRACTS AND THEIR MENSTRUA.*

BY EDWARD R. SQUIBB, M. D.

Concluded.

The menstrua for fluid extracts need much revision and much research, for upon the menstruum a large part of the therapeutical as well as pharmaceutical success depends. The writer has only very imperfectly studied this branch of the subject, and yet too much time and space would be required to give an abstract of the observations made. He must therefore be content with offering his judgment as based on his experience.

The officinal "alcohol," defined as "spirit of the specific gravity 0.835," seems to be no longer needed in the Pharmacopœia, its place having been well taken by the common so-called "95 per cent. alcohol," or "alcohol fortius" of the Pharmacopœia. This might now be called in the Pharmacopœia, as it is in the market, simply alcohol. Since the last revision of the Pharmacopœia the Government has taken charge of the spirit market, and one result of legislation upon it, has been to reduce the strength of the market grades. Ten years ago it was easy to get the so-called "95 per cent. alcohol" and "cologne spirit" from any good maker, containing 92 per cent., or of the officinal specific gravity 0.817. But of late years, in the writer's experience, this is always difficult and generally impossible. In a review of some fifty barrels or more from several good makers, including "Atwood's Alcohol," at various times within the past year, and all bought to special order, and not in the general market, the specific gravity has only once reached .817, all the others varying between .818 and .824 with an average of about .820. A ten-gallon keg bought in the common market, of a first-rate house, and with the brand of a good maker on it, stamped by the United States Revenue Officer as containing "10 wine gallons," "Proof 188," contained 8 gallons and seven pints, yet gave no evidence of leakage, and had a specific gravity of .82058. This probability fairly represents the market at the present day, and if so, 91 rather than 92 per cent. should be aimed at by the Pharmacopœia.

Some reform in the mercantile management of alcohol is much needed and the influence of this Association might be used to bring this about at an earlier day than it would naturally come through popular demand. When the so-called "95 per cent. alcohol" sold for 40 to 45 cents per gallon, the "shortage" of half a gallon or a gallon on each barrel was of less moment than it is now with a price of $2, or thereabouts; and the difference of temperature between summer and winter,—or between 10° C.=50° F., and 30° C.=86° F. of a fraction over 2 per cent. in the measuring, was also of less moment. Either through erroneous gauging, or through some skill in making barrels, or through both together, it is very rare to find a barrel of alcohol that holds out measure even in summer temperatures, and the rule is that they fall short from half a gallon to one and a half gallons on the barrel, while of late years the writer never knew a barrel to overrun the gauge. And as the United States Inspector's certificate always certifies the gauge, the alcohol-maker throws himself upon this, and there is no redress. Besides this there can be nothing more clumsy, nor more difficult to comprehend in common usage, than the plan of defining the strength by degrees above and below proof, and the quantity by proof gallons. If it was desirable to keep the consumers or users of alcohol so befogged that they could not detect deficiences in strength or measure, hardly a better plan could be adopted, and the advisers or experts of the General Government, who are responsible for the present method, could not have better sub-served the interests of the Whiskey Ring, or damaged the interests of the consumer had they been paid for it.

The strength should always be indicated by a percentage of absolute alcohol *by weight* and not by volume, and this should be determined by apparent specific gravity.

It should always be bought and sold by weight, the barrels being tared, just as castor oil, linseed oil, cotton seed oil, &c., are of late years.

Five gallons alcohol, specific gravity .8202 at 15.6° C.=60° F., measured at 21° C.=69.8° F., weighs 34 lbs. avoirdupois, or nearly 6 lbs. 13 oz. to the gallon. This alcohol contains about 91 per cent. by weight of absolute alcohol.

The officinal alcohol fortius, specific gravity .817, containing about 92 per cent. of alcohol by weight, if measured at 15.6° C.=60° F., weighs just about the same. So that about 5.4° C.=9.8° F. of temperature, is equal to 1 per cent. in strength.

If bought and sold by weight, or by weight gallons, which would be the first step, temperature would not have to be taken into consideration.

Alcohol of specific gravity .81674 at 15.6° C.=60° F. when weighed at 25° C.=77° F., has an *apparent* specific gravity of .808767, and at 30.6° C.=87 F., .80400, or about .00085 for each Centigrade degree of temperature. By apparent specific gravity is meant that although the alcohol is weighed at the higher temperature given, it is compared with the same volume of water at the lower temperature of 15.6° C.=60° F.

One pint of this alcohol, officinal "alcohol fortius,"

at 10.6° C=51° F. weighs	387.72 gram.	=5983 grs.
at 30.6° C=87° F.	379.87 "	=5862 "
20° C=36° F.	7.85 "	= 121 "

Alcohol of specific gravity .82154 at 15.6° C.=60° F. when weighed at 25° C.=77° F., has an *apparent* specific gravity of .81342, and at 30.6°=87° F., .80889, or 000843 for each Centigrade degree of temperature. One pint of this alcohol, which is about the common commercial strength,

at 15.6° C.=60° F. weighs	388.05 gram.	=5988 grs.
at 25.6° C.=78° F.	384.15 "	=5938 "
10° C.=18° F.	3.90 "	= 60 "

The next alcoholic menstruum which the writer has found necessary thus far, is a mixture of equal parts, by weight, of stronger alcohol and water. This mixture rejects much more of the troublesome mucilaginous portions of such drugs as dandelion than the diluted alcohol does.

Equal weights of alcohol specific gravity .81953 at 15.6° C.=60° F. and water, give a mixture having a specific gravity

at 15.6° C.=60° F. .92858
at 25° =77° F. .92003. Difference, .000S9 for ea. 1° C.

One pint of this mixture

at 10.6° C.=51° F. weighs	439.93 gram.	=6789 grs.
at 30.6° C.=87° F. "	433 03 "	=6682 "
20° C.=36° F.	6.9 "	= 107 "

Diluted alcohol, as at present officinal, consists of equal measures, at 60° F., of alcohol of specific gravity .835 and distilled water, and has a specific gravity

at 15.6° C.=60° F. .94118.
at 25.2° C.=77° F. .93438.

This, when made from alcohol s.g. .81674 at 15.6°C. requires 100 measures of the alcohol at 15.6°C. to
112 54 " " dist. water at 15.6°C., or
100 " " " " 15.6°C.
require 88.85 " " the alcohol at 15.6°C.

Made by weight

100 parts of the alcohol require 126 80 distilled water,
or 100 " distilled water " 73 03 alcohol.
100 " alcohol s.g. 835 " 119,84 distilled water,
or 100 " distilled water " 83.44 alcohol, .835.

One pint of this diluted alcohol

at 10.6° C.=51° F. weighs	446.30 gram.	=6887 grs.
at 30.6° C.=87° F. "	439.69 "	=6785 "
20° C.=36° F.	6.61 "	= 102 "

Made with alcohol, s.g. .8208 at 15.6° C=60° F., 100 parts alcohol require 135 parts distilled water, and the s. g. of the mixture
at 15.6° C.=60° F. is 941849.
at 25° C.=77° F. is ·935422 or .000684 for each 1° C.

One pint of this mixture

at 10 6° C.=51° F. weighs	446.50 gram.	=6890 grs.
at 30.6° C =87° F. "	439.75 "	=6786 "
20° C.=36 F.	6.75 "	= 104 "

A mixture of three parts, by weight, of stronger alcohol, and one part of glycerin, proves to be a very good menstruum for cinchona and rhubarb, and may be found applicable to other drugs.

Made with alcohol of s. g. .81674 at 15.6° C.
and glycerin " 1.2523 at 15.6° C.
the mixture has a specific gravity
at 15.6° C.=60° F. .90050.
at 25° C.=77° F. .89296, or 000802 for each 1° C.

One pint of this mixture

at 10.6° C.=51° F. weighs	427.50 gram.	=6594 grs.
at 30.6° C.=87° F. "	419.82 "	=6479 "
20 C.=36° F.	7.48 "	= 115 "

* From the proceedings of the American Pharmaceutical Association, 1870.

The other special menstruum thus far studied by the writer is one that has been found well adapted to wild cherry bark, pareria brava, and uva ursi. This is a mixture of two parts stronger alcohol, three parts glycerin, and five parts water. By measure this is very nearly two measures each of the alcohol and glycerin, and four of water.

Make from alcohol of s. g. .81953 at 15.6° C., and glycerin s. g. 1.2523 at 15.6° C., it has a s. g.

at 15.6° C.=60° F. 1.03833,
at 25° C.=77° F. 1.03283, or nearly .0006 for ea. 1° C.

One pint of this mixture

at 10.6° C.=60° F. weighs	492.03 gram.	=7593 grs.
at 30.6° C.=87° F. "	486.97 "	=7514 "
20° C.=36 F.	5.06 "	= 79 "

It appears very probable that special menstrua for special drugs can and should be very much multiplied. Indeed, it may be regarded as most certain that a proper degree of research would show that every drug requires a special menstruum in order to secure the best results. If there be a rule of any general applicability, it is that for drugs which contain definite alkaloids, the menstruum should be as strongly alcoholic as possible; a rule which is in opposition to former practice.

It remains now to notice the prominent fluid extracts with which the writer has had most experience, in detail.

FLUID EXTRACT OF ACONITE ROOT.

Not officinal, but should be, and should always bear a red label. The root should be in very fine powder, and the menstruum stronger alcohol. The officinal quantity of powder requires 5 fluid ounces for moistening, and the moistening powder should be passed through a sieve for packing. A pint of the menstruum at 25° C.=77° F., weighs about 5907 grains, and a pint of the finished preparation, at the same temperature, should weigh about 6350 grains, giving a difference of about 449 grains, varying somewhat with the quality of the root and the dryness of the powder.

FLUID EXTRACT OF BELLADONNA ROOT.

Not officinal, but should be, as stronger and more uniform than that yielded by the leaf. The two are not necessay, and if the leaf was dropped, the root would soon go into general use. The fluid extract should always bear a red label.

The root should be in very fine powder, and the menstruum stronger alcohol.

FLUID EXTRACT OF BUCHU, OFFICINAL.

The leaf should be green and fresh, the short buchu the best, and be in very fine powder. Many menstrua tried, with various portions of glycerin and water, but none so good as stronger alcohol. About 8 f ʒ required to moisten the powder, which should be passed through a seive before packing. A pint of the menstruum weighs about 5907 grains, and a pint of the finished preparation about 6677 grains, giving a difference of about 770 grains.

FLUID EXTRACT OF CIMICIFUGA, OFFICINAL.

The root being in very fine powder, the officinal plan yields an excellent preparation by repercolation. The process could, however, be much simplified.

FLUID EXTRACT OF CINCHONA, OFFICINAL.

The bark should be in very fine powder, the menstruum one part glycerin and three parts alcohol, and 8 f ʒ should be used to moisten the powder before sifting. Many menstrua were tried with this drug, but none seemed to answer so well as the mixture indicated. With it a fluid extract was prepared of which a minim represented about one and a half grains, and this has now stood more than four months without a deposit. Therefore, a preparation of one minim to the grain, or double the present officinal strength, would probably stand indefinitely, and this change of strength is, in the writer's judgment, very desirable. The details of this percolation were given in the Tables. In the management of this drug the weak percolates become overloaded with extract from time to time, but the alcohol can easily be recovered from them without much damage, as the glycerin takes care of the alkaloids and bitter principles.

The writer has found no demand for fluid extract of colchicum root, and believes it to be a useless preparation, while that of the seed is so commonly used, and a more uniform preparation.

FLUID EXTRACT OF CONIUM SEED, NOT OFFICINAL.

But should be. One hundred pounds of green unripe fruit or seed, yield about thirty-five pounds of dried unripe fruit, which when properly dried retain their green color. The best fluid extract of this very tender and sensitive drug, is made by crushing the fresh unripe seed with a small proportion of stronger alcohol slightly acidulated with hydrochloric acid and pressing out the liquid by a powerful press, and evaporating, without heat, by inclosing it over lime, until three pounds of the fresh unripe fruit is represented by one pint of the preparation.

An excellent preparation may also be made from the dried unripe fruit in fine powder, by repercolation with stronger alcohol silghtly aciduluted with hydrochlorlc acid.

FLUID EXTRACT OF ERGOT, OFFICINAL.

Ergot cannot be obtained in fine powder without material injury. It should be had in as fine a powder as practicable without drying, and this grinding should be done at the time when it is to be percolated. Skilfully repercolated with diluted alcohol acidulated with one per cent. of acetic acid, the preparation appears unexceptionable. A pint of the menstruum, at 25° C.=77° F., weighs about 6324 grains, and a pint of the finished preparation weighs about 7224 grains, giving a difference of about 400 grains.

FLUID EXTRACT OF IPECACUANHA, OFFICINAL.

This preparation is very much in need of special study and research, the present formula being troublesome and uncertain in regard to the precipitation of the resin, and yielding a preparation not uniform in appearance and properties.

FLUID EXTRACT OF PAREIRA BRAVA, NOT OFFICIFAL.

But should be. This drug from its density is a refractory substance to percolate. It should be in the finest possible powder and be percolated very slowly with the mixture of alcohol, glycerin, and water.

FLUID EXTRACT OF WILD CHERRY BARK, OFFICINAL.

This is, perhaps, the most troublesome of the officinal formulas, and requires more knowledge and skill than repercolation does. If the menstruum be watery enough, and contain but little alcohol, the reaction between the constituents of the bark for the production of hydrocyanic acid and oil of bitter almonds takes place during the maceration, and thus saves the circuitous route by emulsion of almonds. The mixture of alcohol, glycerin, and water is well adapted to this percolation, and yields a preparation having much more of the sensible properties of the drug than the officinal process. It should also be made double the present officinal strength.

A pint of the menstruum weighs about 7540 grains at mean temperatures, and a pint of the preparation of full strength about 8290 grains, giving a difference of about 750 grains. Or, for the present officinal half-strength, the weight of a pint would be about 7915 grains, with a difference of about 375 grains.

The hydrocyanic acid and oil of bitter almonds of this preparation seem to suffer spontaneous decomposition, as the proportion, always very small, appears to diminish somewhat rapidly. As the physician often needs these sedative constituents, they should be added at the time of prescribing.

FLUID EXTRACT OF RHUBARB, OFFICINAL.

The rhubarb should be in very fine powder, and be repercolated with the mixture of one part glycerin and three parts stronger alcohol. Many menstrua were tried with this drug, but none seemed to do so well as that indicated. A pint of the menstruum weighed about 6828 grains, and a pint of the finished preparation about 7328 grains, giving a difference of about 500 grains.

FLUID EXTRACT OF SARSAPARILLA, AND COMPOUND FLUID EXTRACT OF SARSAPARILLA, BOTH OFFICINAL.

Should be in fine powder, and be repercolated with diluted alcohol, and glycerin added to the weak residuary percolate in such amount as to constitute one-fourth the weight of the finished preparation. This should then be reduced to the proper extent by distillation, and the glycerin residue be added to the strong percolate.

The mezereon of the compound fluid extract is often complained of, and probably might be omitted without injury.

FLUID EXTRACT OF SENNA, OFFICINAL.

This preparation, made by the officinal process, is often complained of for want of purgative strength. In order to try the effect of stronger alcohol as a menstruum for senna, a portion was completely exhausted by the use of 18 pints of the alcohol. The residue was dried, and when taken by the writer in doses of 180 to 200 grains, proved purgative, and produced griping. Other portions were exhausted by weaker alcohol, and the residue tried in the same way, but the purgative power did not disappear entirely until the alcohol was reduced by the addition of half its volume of water. It appears, therefore, that the officinal diluted alcohol, as now used, or that which is a little stronger, as made by mixing equal weights of stronger alcohol and water, are one or the other proper for the repercolation of senna. The diluted alcohol has been tried and does well, but whether the other would be better has not been tried. The addition of glycerin, even in small proportion, overloads the preparation with mucilaginous extractive matter.

FLUID EXTRACT OF DANDELION, OFFICINAL.

The German bitter root is much preferred by the writer, and it should be in very fine powder. The officinal diluted alcohol, as now directed, dissolves an unnecessary proportion of the mucilaginous ingredients of the drug, and clogs the percolation. A mixture of equal weights of stronger alcohol and water answers better, and yields a good preparation.

FLUID EXTRACT OF UVA URSI, OFFICINAL.

Should be simply repercolated in very fine powder by the mixture of alcohol, glycerin, and water. This menstruum seems well adapted to this drug.

FLUID EXTRACT OF VALERIAN, OFFICINAL.

Various mixtures of glycerin were tried for percolating this drug, but without success, nothing answering so well as stronger alcohol. English valerian yields a preparation of milder taste, and finer and more delicate odor. But the German or French drug, which gives a peppery impression to the tongue, is doubtless the more effectual medicinal agent.

FLUID EXTRACT OF AMERICAN HELLEBORE, OFFICINAL.

This should be repercolated in very fine powder with stronger alcohol, and should always bear a red label.

FLUID EXTRACT OF GINGER, OFFICINAL.

This should be made from African ginger in very fine powder, and not from Jamaica ginger. The latter has a finer aromatic flavor, but the former is the stronger carminative. The menstruum should be stronger alcohol.

The difficulty and labor in making good fluid extracts has recently led to a proposition, chiefly advocated among the pharmacists of Chicago, to reduce the strength of these preparations by one-half, or to the present strength of the fluid extracts of cinchona and wild cherry bark. Although there are some good reasons for this proposition, yet in the writer's opinion it would not be a wise change. The popularity of these medicines, as a class, depends largely upon the convenience which they offer to country physicians of carrying their remedies in small compass, and in a convenient form; and to give this and many other advantages up at this late day, after many of the difficulties and deficiencies have been discovered and remedied, would be to sacrifice much useful labor with the recognized advantages. Besides, one of the most useful of the directions in which progress in pharmacy is recognized, is in the concentration and condensation of medicinal agents.

One direction in which several of the fluid extracts might be improved, is by the addition of corrigents. Fluid extracts of cinchona and senna should have aromatics in full proportion added, and there should be a fluid extract of May-apple with belladonna or hyoscyamus, and aromatics.

THE CRYSTALLIZATION OF CAMPHOR.*

BY R. ROTHER.

The peculiar predilection of camphor for the crystalline form, is one of the petty annoyances inherent to the dispensing department. Insignificant as the objection may seem, it is nevertheless one for which the dispensing pharmaceutist is but too willing to accept a remedy. This difficulty is chiefly experienced with powdered camphor, but the objection, likewise, though in a less obvious degree, applies to the aqueous solution. The most perfect means of pulverizing camphor, although not the practicable, is undoubtedly the method by precipitation. The trituration with small quantities of chloroform, ether, benzine, and naphtha has been proposed; but none of these substances possess any advantages over alcohol, which even still is preferable to all. There is no difficulty whatever in pulverizing camphor; the object is to retain it so.

For this purpose it has been suggested to triturate the camphor with small quantities of magnesium carbonate. If this management insured the pulverulent state indefinitely, the magnesium would often be objectionable. The writer has not tested the process, but was informed by good authority that it is not satisfactory; a similar result is experienced by precipitating the camphor with water from an alcoholic solution, holding the magnesium carbonate in suspension. Other dry substances, as starch, for instance, have been used with equally indifferent success. The writer, feeling the necessity of some alternative, and basing his theory of this crystallization upon the volatility of camphor, applied an ethereal solution of resin with a view of coating the particles with a deposit of resin. The experiment, however, yielded a negative result. The writer, assuming then that a nonvolatile solvent might retard the crystallization, employed a small proportion of fixed oil—preferably castor oil. This addition is entirely unobjectionable, and although it does not strictly meet the most sanguine expectation of preventing crystallization, it yet modifies this tendency to such a degree that after a long trial the writer is so thoroughly satisfied with its peculiar advantages that the complete success of the experiment would have been scarcely hailed with more delight. The proportion of castor oil employed is about one part in thirty of camphor, or even less. It is added, together with the alcohol, to the camphor, and the whole triturated to the proper degree of fineness. The great advantage rests in the fact that the crystals of camphor subsequently formed are exceedingly minute, and the oil entirely removes the very disagreeable adhesiveness and tenacity of the camphor, which becomes so troublesome during the trituration of pure camphor. Camphor containing the oil can be triturated in large or small quantities, without in the least clogging the mortar or pestle. The powder, after keeping even a long time, mixes perfectly and with facility with all the ordinary ingredients with which it is usually combined in prescriptions. The peculiar gumminess has been perfectly removed by the intervention of the oil.

The aqueous solution of camphor is another point at issue. It has been supposed that during cold weather camphor water drops parts of its camphor. However, this phenomenon is only apparent. The writer has often been struck by the extraordinary solvent power of very cold water upon camphor, so that during the coldest winter weather the cold water drawn fresh from the hydrant, and having a very low temperature, always yielded the strongest camphor water, which, when subjected to the warm temperature of the room, deposited camphor abundantly and in weighable quantities, not upon the glass above the liquid, but floating in beautiful crystals in the liquid itself; so much so that the water was often filtered again before use.

To verify the above conclusion, the writer employed lukewarm water. The camphor was first finely triturated with the aid of alcohol, then with the magnesium carbonate, first rubbed through a coarse sieve, then with a portion of the water, and poured into a capacious bottle; the remainder of the water was then gradually added, and the mixture violently shaken during the intervals, and finally filtered. (This is essentially the writer's manipulation for the aromatic waters.) The bottle containing the filtrate was securely corked and allowed to cool. After six hours a very thin film of crystalline camphor had deposited on the walls of the bottle above the liquid, the latter containing no visible trace, not even floating upon the surface. The liquid was again filtered and exposed to intense cold for a long time, but no more camphor separated, although the liquid possessed the taste of camphor in a marked degree. Therefore, to make camphor water, free from separated camphor, use lukewarm water, or use water of the ordinary temperature, let it become equalized to the temperature of the room, and after a repose of twenty-four hours, filter. But to make a supersaturated camphor water, employ water having a very low temperature.

*From the Pharmacist.

SYRUP OF PHOSPHATE OF IRON AND OTHER SYRUPS CONTAINING PHOSPHORIC ACID.*

BY MICHAEL CARTEIGHE.

Of the numerous preparations of iron at the disposal of the practitioner few have in late years acquired more favor than the syrup of phosphate. First introduced to the notice of the profession by Mr. Greenish in a form more or less opaque, it was not until about ten years ago that it came into very general use. About this time Gale and Schweitzer each read a paper at one of the evening meetings of the Pharmaceutical Society, detailing processes for the preparation of this syrup in a form which should remain perfectly bright and free from deposit. Gale's process was introduced into the British Pharmacopœia of 1867, and since the publication of that volume the demand for this medicine has vastly increased. Its tendency to darken in color after having been kept for some time was soon noticed, and Umney made some experiments with the view of preventing or retarding this change, but the results were not practically satisfactory. T. B. Groves afterwards examined a very old specimen in his possession, and determined the chemical composition of the precipitate, which is formed on long standing. He describes this precipitate as being essentially a compound of iron with phosphoric acid, corresponding to the octocalcic phosphate of Warington. The dark color he thinks due to the production of caramel by the action of the phosphoric acid and iron salt upon the sugar. He also prepared several specimens with a stronger acid, made by himself from amorphous phosphorus, and found that these kept somewhat better than when made according to the B. P.

The necessity of keeping the syrup recently prepared induced me to try a few experiments with a stronger acid, and to advise a

*From the Pharmaceutical Journal, London.

shorter process than that of the B. P. This has doubtless already suggested itself to, and been practically tested by, other chemists, but, so far as I am aware, it has not hitherto been published. It is as follows:—

SYRUP OF PHOSPHATE OF IRON.

Phosphate of Iron.....96 grs.
Water ..... 9 fl. drms.
Syrupy Phosphoric Acid, sp. gr. 1·500 ..... 7 fl. drms.
Syrup ..... 10 fl. oz.

Rub the phosphate of iron with the water in a glass mortar, add the phosphoric acid and filter the mixture into syrup.

As thus prepared, it contains the same proportion of iron, about 2 minims less of the dilute acid (25 instead of 27), and rather more sugar than when prepared according to the Pharmacopœia.

The phosphate of iron is made by the B. P. process, and dried at a temperature not exceeding 100° F. The specimens I have found in the ordinary course of trade are not readily soluble in the acid. This want of solubility is, I believe due to the length of time they have been kept before sale.

I have obtained the best results with phosphate only a few days old, and find it advantageous to make as much as is required frequently.

Syrupy phosphoric acid of sp. gr. 1,500 may now be obtained of any manufacturing chemist, and according to Dr. Watt's table, contains about 50 per cent. of $P_2 O_5$ It is made by the action of nitric acid on phosphorus, the excess of acid being driven off in a platinum vessel.

Manganese is sometimes prescribed with or without iron, and according to Pereira, the former is a useful adjunct to ferruginous preparations, and occasionally a desirable substitute for them.

SYRUP OF PHOSPHATE OF MANGANESE

May be prepared in a similar manner with the following ingredients:—

Phosphate of Manganese.....96 grs.
Water..... 9 fl. drms.
Syrupy Phosphoric Acid, sp. gr. 1·500. ..... 7 fl. drms.
Syrup .....10 fl. oz.

Strength—1 grain phosphate of manganese and acid equal to about 25 minims of the dilute phosphoric acid in each fluid drachm.

The phosphate of manganese is made in the same manner as the phosphate of iron, substituting sulphate of manganese for the ferrous sulphate.

SYRUP OF PHOSPHATE OF IRON WITH MANGANESE.

Phosphate of Iron.....96 grs.
Phosphate of Manganese.....48 grs.
Water ..... 8 fl. drms.
Syrupy Phosphoric Acid..... 8 fl. drms.
Syrup .....10 fl. oz.

Rub the powders with the water, and the acid and filter into the syrup.

Each fluid drachm contains ¾ grain phosphate of iron, ½ grain phosphate manganese and acid equal to about 30 minims of the dilute phoshoric acid, B. P.

The tendency of modern practitioners of medicine to encourage the exhibition of substances which may assist in the formation of bone, etc., has led to the introduction of the—

SYRUP OF PHOSPHATE OF IRON AND LIME.

Take of Phosphate of Iron..... 96 grs.
Phosphate of Lime.....192 grs.
Water..... 8 fl. drms
Syrupy Phosphoric Acid, sp. gr. 1·500..... 8 "
Syrup..... 10 fl. oz.

Mix the powders with the water in a glass mortar, add the acid and filter into the syrup.

Each fluid drachm contains 1 grain of phosphate of iron, 2 grains of phosphate of lime, and an amount of acid equal to about 30 minims of the dilute phosphoric acid, B. P.

The phosphate of lime is made by precipitation from solutions of chloride of calcium and phosphate of soda, and dried at 100° F., and should not be kept too long before use. That made from *bone ash*, as the Pharmacopœia directs, is much less readily soluble.

The following formulæ may be useful as an appendix:

SYRUP OF PHOSPHATE OF ZINC.

Phosphate of Zinc.....192 grs.
Water..... 11 fl. drms.
Syrupy Phosphoric Acid, sp. gr. 1·500..... 5 fl. drms.
Syrup..... 10 fl. oz.

Rub the phosphate with the water, add the acid and filter into the syrup.

Each fluid drachm contains 2 grains of zinc phosphate, and about 18 minims of dilute phosphoric acid.

SYRUP OF PHOSPHATE OF QUININE.

Take of Phosphate of Quinia*...96 grs.
Water.....13½ fl. drms.
Syrupy Phosphoric Acid, sp. gr. 1·500..... 2½ fl. drms.
Syrup.....10 fl. oz.

Mix the acid with the water, add the quinia, and filter into the syrup.

Each fluid drachm contains 1 grain of phosphate of quinine, and acid equal to about 10 minims of the dilute phosphoric acid.

SYRUP OF PHOSPHATE OF IRON WITH QUININE.

Take of Phosphate of Iron.....192 grs.
Phosphate of Quinia*... 96 grs.
Water..... 7 fl. drms.
Syrupy Phosphoric Acid sp. g. 1·500..... 9 fl. drms.
Syrup..... 10 fl. oz.

Rub the powders with the water, add the acid and filter into the syrup.

Each fluid drachm contains 2 grains of phosphate of iron and 1 grain of phosphate of quinine.

SYRUP OF PHOSPHATE OF IRON, QUININE AND STRYCHNINE.

Easton's Syrup,

Take of Phosphate of Iron.....192 grs.
Phosphate of Quinia*..... 96 grs.
Strychnia (in crystals)..... 3 grs.
Water..... 7 fl drs.
Syrup Phosphoric Acid, sp. gr. 1,500..... 9 fl drs.
Syrup..... 10 fl oz.

Rub the phosphate of iron with 5 drachms of the water in a glass mortar, dissolve the strychnia and quinia in the acid, previously mixed with the remaining 2 drachms of water; mix and filter into the syrup.

Each fluid drachm contains 2 grains of phosphate of iron, 1 grain of phosphate of quinine and 1-32nd of a grain of strychnine.

* The same weight of quinia, prepared by precipitating an acidulated solution of the *disulphate* by solution of ammonia, collecting, washing and drying at 160° F., may be used, in the absence of the phosphate.

SYRUP OF PHOSPHATE OF IRON AND STRYCHNINE

May be prepared in the same manner as the last, omitting the phosphate of quinine.

I am conscious of the objections that may be urged against the prescribing of these *compound* preparations, but in the face of the constant and increasing demand for many, it appears to me futile to attempt to discourage them by declining to publish formulæ. Such a course tends to perplex both the medical profession and pharmacists, and to the introduction of quasi-secret remedies of unknown, and, possibly, of uncertain strength.

FERRATED ELIXIR OF CINCHONA.*

BY JOHN M. MAISCH.

A correspondent requests us to publish a good formula for this elixir. The first one published is that of Mr. James T. Shinn. † Another one, differing somewhat from the former, was communicated to this journal by Mr. Wm. C Bakes. ‡ At our request, Mr. Wm. McIntyre, of this city, has furnished us with the following formula for elixir of calisaya with pyrophosphate of iron, in which calisaya bark is employed:

Take of Calisaya,.....℥iv.
Sweet Orange Peel, recently dried...℥iii.
Coriander,.....℥vi.
Ceylon Cinnamon,.....℥iv.
Cardamom,
Anise, *aa*,.....℥ij.

Prepared these for percolation, and displace with a mixture of one quart stronger alcohol and three quarts water.

To this tincture add

Oil of Orange (fresh),.....40 m.
" Lemon, " .....16 m.
" Almonds, " (essential).....4 m.
dissolved in Alcohol, four fl. drs.

Agitate this mixture with moist freshly precipitated hydrated sesquioxide of iron (well washed), prepared from an aqueous solution of the sesquichloride, for three or four days, or until a portion filtered off shows no reaction with the tincture of chloride of iron. Filter, and dissolve in it, without heat, two and a half pounds (av.) sugar. Add 1024 grs. pyrophosphate of iron, previously dissolved in a small portion of water, and make up the measure of one gallon, if necessary, by the addition of water. If a more reddish color is wanted, use a few grains of soluble citrate of iron.

The elixir thus prepared will keep well in color, and has a resemblance to the article extensively advertised under the same name.

If the cinchona bark contains 3 per ct. of alkaloids, and supposing the bark to be entirely exhausted, one gallon of elixir prepared according to the above formula would contain about 60 grains of alkaloids, or nearly half a grain to the fluidounce. Cinchona bark, however, cannot be completely exhausted by weak alcohol,§ and after the treatment of the resulting tincture with hydrated sesquioxide of iron, the natural combination of the cinchona alkaloids is broken up, and nothing of medicinal value is retained by the liquid except the alkaloids.‖ The aromatics used in most of the formulas I believe add comparatively little to the medicinal virtues of this preparation, which has, ostensibly, to unite the tonic properties of

*From the American Journal of Pharmacy.
† Am. Jour. Ph. 1861, 193. ‡ Ibid. 1861, 304.
§ Am. Jour. Ph. 1862, p. 204. ‖ Ibid. 1863, 222.

cinchona and iron. These considerations induced me to take advantage of the excellent combination of aromatics with calisaya bark, which was suggested by Dr Squibb, * and has met with great favor by the medical corps of the U. S. Army. Accordingly, I have dispensed for the last five years a ferrated elixir of calisaya made by the following formula, and manipulated as follows :

1. Triturate magnes. carbon. ℥ss. first with the following volatile oils: Ol. aurantii *m* xx, ol. anisi *m* xv, ol. coriandri and cinnam. *aa* *m* 10, ol. carui *m* v; then, with a mixture of 2oz. alcohol and 14 oz. water, throw upon a filter and wash with water until the filtrate measures 3½ pints.

2. Mix tinct. cardam. (simpl.) f℥ij, tinct. zingib. and calami *aa* f℥i, alcohol Oj, and add syrup, simpl. Oj.

3. Dissolve unbleached quinia ℥iss, with acid. citr. ℥ijss, in alcoh. dilut. f℥iv.

4. Dissolve ferri pyrophosph. ℥xx, in aq. ferv. f℥viij.

Add solution No. 3 to No 2; then add No. 4, then No. 1, and finally add 1½ pint simple syrup and ½ pint alcohol. The whole measures 8½ pints, and may be colored by caramel to suit; each fluid ounce contains about 9½ grs. pyrophosphate, 3-5ths gr. alkaloids, and 1 gr. each of ginger, calamus and cardamom. It has a very pleasant, warm, aromatic, but, at the same time, a decidedly bitter, taste. The unbleached quinia may be prepared from the infusion of calisaya bark, made with acidulated water, by precipitating with an alkali. I have come into possession of a chinoidin containing a large percentage of quinia and quinidia, which has been used with advantage.

The two formulas published above represent the two views held by our pharmacists, namely, that cinchona bark, as such, and the isolated alkaloids alone should be combined with salts of iron.

Vincent's Process of Preparing Linseed Oil.†

Various methods have from time to time been adopted to accelerate and increase the natural siccative action and properties of linseed oil.

This is generally accomplished by boiling the oil; but a method of preparing it in a cold state has long been known and practised. It consists in agitating the oil, to which a small quantity of litharge has been added, with a solution of vinegar of lead (tribasic acetate) in soft water. This operation is carried on in a warm place with frequent stirrings, till a whitish precipitate is thrown down, and the oil is of a pale straw color. By a process of filtration and exposure to the sunlight it may be obtained almost as clear as water. This is the vehicle used for the pigments used by decorators and painters in the finer descriptions of work, and where the purity of the tints is a matter of importance, although it does not dry quite so rapidly as the boiled oil. [This vehicle has not met with the favor in America which, as we are led to suppose by the paragraph, it receives in England.]—Eds. Sci. Am.

The process, by which the ordinary dark-colored vehicle used by painters in common work is produced, consists in boiling the raw linseed oil with a larger or smaller proportion of litharge, which, by some chemical action not thoroughly understood, increases the drying properties of the oil. Magnesia and the oxides of zinc and manganese have also been employed for the purpose, but oxide, or some other salt of lead, is in more general use, with the addition, in some cases, of a small quantity of resin.

According to Liebig, the mucilage and vegetable albumen in the raw oil prevent or impair its natural siccative action, and the boiling with litharge in some way removes these substances, and permits the oil to more readily absorb oxygen from the air. M. Chevreul, however, expressed an opinion some years ago, that it was not necessary to boil the oil at all; that a temperature far below boiling point (about 600° Fah.) had an equally good effect, and that in fact it was possible to boil the oil too much.

Of late years, a method of preparing the raw oil by employing steam has been adopted on the Continet and by some English makers, in which the temperature is rarely raised above 228° Fah. An account of this process, as discovered and worked by himself, was recently given before the Society of Arts, by Mr. Vincent. The process destroys the pungent odors and intensely disagreeable smells of the older process. The apparatus used consists of a pan, constructed preferably of copper, with a depth about equal to the diameter, and with an iron jacket, for the lower half, forming a space for the steam, and capable of standing a pressure of 40 pounds to the inch. To the top of the pan a dome provided with a man-hole is riveted, and proceeding from this dome is a pipe to convey the vapors into the ash pit, and consequently through the fire. In the centre of the dome is a stuffing box, through which two shafts, the one working inside the other, are passed. These shafts bear fans, which, rotating in opposite directions within the pan, by the violent agitation set up, cause a complete mixture of its contents. The oil to be boiled is placed in a large tank, through which passes a coil of pipe conveying the waste steam from the jacket, thus raising the temperature of the oil to about 95° Fah., and facilitating the separation of mucilage and accidental impurities before the boiling operation is commenced. When the previous charge has been run off, about two tons of oil are pumped into the pan from the tank, the steam turned on, and the fans started, When the pressure of the steam has reached 35 pounds, air is forced into the already agitated and churning liquid through an inch pipe fixed in the bottom of the pan. The dryers, about three-quarters of a pound to the cwt. of oil, are added as soon as the oil is heated through, being ground to a fine powder, mixed with oil, and passed through a funnel and stop cock into the pan. After the introduction of the dryers, it is only necessary to keep the fans and the air pump at work; and at the expiration of about four hours the oil is fit for removing into tanks, where it remains till the dryers have settled, and the clear oil is then drawn off into the vessels used for storing. In practice, Mr. Vincent says it is advisable to add about 20 per cent. of raw oil to each barrel of the prepared liquid intended for exportation.

No information as to the name of the dryers employed is given in the paper. They part with some of their oxygen to the oil, and, coming in contact with the oxygen of the air forced into the pan, become re-oxidized, and again contribute oxygen to the heated oil. The accomplishment of this re-oxidization of the dryers necessitated the employment of blowing engines for the boiling oil, when the discovery, that under this treatment the oil rapidly acquired body, gave rise to the method of treating it we have described above, a process by which the absorptive powers of the oil for oxygen are enormously increased and permanently retained.

What these dryers really are remains a trade secret; but many years ago, Faraday suggested the employment of binoxide of manganese in order to hasten the drying of printing inks, while it has been asserted that a small quantity of borate of manganese is sufficient to cause any of the drying oils with which it is mixed to rapidly dessicate. Hitherto it has been a common belief among manufacturers that oils would not show their impurities until a temperature of some 500° was reached; but if the article prepared by Mr. Vincent's process be as good as that produced by the old method, there can be no doubt that a great step in the right direction has been taken, and the disagreeable odors, with the unavoidable danger from fire, those usual attendants on oil and varnish works, should rapidly become things of the past.

[This process was patented in America about two years since. There is no secret here about the dryer used; it is simply red lead. The oil produced by the process does not dry well, but remains tacky for a considerable period. Experts inform us that it is an inferior article. There seems to be, however, room for improvement upon the process, and in the hands of those competent to experiment with it, it might develop into something of greater importance than it appears to be at present.—Eds. Sci. Am.

Cultivation of Cinchona in Ceylon.

The *British Medical Journal* has learned from reliable sources that Ceylon gives fair promise to take rank at no very distant time as one of the chief quinine-producing countries in the world. Although the cinchona plant has been for many years cultivated in the colony, it was not until quite recently believed that the bark afforded an appreciable proportion of quinine, but only cinchonine or other of the less valuable medicinal alkaloids, and consequently little attention was bestowed on its cultivation. It appears, however, that a sample of some bark recently sent to this country for analysis was found to contain a large quantity of the sulphate of quinine. A pound of this bark contained of sulphate of quinine 289 grains, of quinidine 47 grains, and of alkaline cinchonine 14 grains. An ounce of sulphate of quinine was thus obtained from one pound eight ounces and a quarter. As the supply from Peru has greatly diminished, and as India, it is said, consumes its own quinine, there is every reason to believe that the cultivation of cinchona will secure some of that attention from cultivators in Ceylon which has hitherto been almost exclusively bestowed on the growth of the coffee-plant. As another cause which may give some impetus to the cultivation of cinchona in Ceylon, it is stated that the red bark is highly praised in Paris for tooth-powders, as it gives them a delicate tinge, and at the same time a bitter flavour.

* Am. Jour. Ph., 1863, 230.

†Condensed from the English Mechanic, in the Scientific American.

EDITORIAL.

Subscriptions will not be acknowledged by letter, as our sending the paper may be taken as sufficient evidence of the receipt of the money.

All communications connected with the paper to be addressed, post-paid,

"EDITOR CANADIAN PHARMACEUTICAL JOURNAL TORONTO."

OWING to an unusual press of work in the office in which this paper is printed, the present issue has been delayed several days beyond the usual time.

REGISTRATION.

We would remind those of our readers who have not yet sent in their names to the Registrar, and who intend to continue business after the first of July next, that registration must be effected before that date. Neglect in this particular is punishable by the imposition of a fine of twenty dollars. As the mere application for registration, if made after July 1st, would be an open avowal of the law having being broken, the Registrar could not honestly receive such.

Those persons who were in business at the time of the passing of the Act, but who have since discontinued, and those who were in business for a period of three years, previous to the passing of the Act, and who may not, in July next, be so engaged; and those assistants who have served in that capacity for the prescribed period, may effect registration at any future period, provided the evidence of such qualification is presented to the Registrar.

By reference to the minutes of the last meeting of the Society, it will be seen that a resolution was passed by that body, declaring themselves lawfully constituted a part of the College of Pharmacy mentioned in the Act. The question arose whether registration could be effected by members of the Society, without any other evidence being given as to qualification. The Registrar, being present, gave assurances to the meeting that no other evidence than that furnished by the roll of membership of the Society would be required. Members of the Society will therefore be accepted by merely sending in the fee of four dollars.

Although we do not think that it was the intention of the framers of the Act that two separate organizations should be created, yet, somehow or other—perhaps through the amendments made by the Parliamentary committee—this is the fact. We have, first, the members of the Ontario College of Pharmacy; and then those persons entered on the roll of "Pharmaceutical Chemists." It has been thought that members of one body are entitled to the privileges of the other, and *vice versa*. This is however not the case. Members of the College are entitled to all the advantages which may be derived from such association, and without further fee, enjoy the rights of pharmaceutical chemists to conduct business and to deal in poisons; while those entered as pharmaceutical chemists can carry on business, but if they desire membership with the College, must pay an additional fee of four dollars before they can be admitted. It will be well for those making application to bear this in mind.

A FRIEND calls attention to the fact that medical men are getting into the habit of expressing the hydrate of chloral by the contraction *hyd. chlor.* This is an error which should be at once corrected, as the sign belongs, by long established usage, to the chloride of mercury, and, with careless druggists, might lead to the substitution of one article for the other; indeed, nothing but the difference of the dose would indicate which was required. The word *chloral* is equally short, and is free from objection.

Putrid Water.

An American exchange says that water may be preserved in a perfectly sweet condition by putting therein a few scraps of wrought iron, or some clean iron turnings. For keeping cistern water sweet, the turnings should be enclosed in a bag, so that detached rust may not find its way to the laundry. The offensive smell from the water in which flowers are kept may be prevented by dropping a few tacks or nails in the vases. An application in pharmacy is suggested by the fact that leeches may be kept for a length of time in the same water if a few pieces of iron are placed in the vessel. Our cotemporary accounts for this preservative action by saying that water in which there is no oxygen, or air, cannot become putrid, and that the iron, in its convertion to oxide, acts as a consumer of oxygen.

Rather Curious.

In the *Journal of Education* we notice an item extracted from the Boston *Journal of Chemistry*, in which Dr. Nichols asserts that "the human body contains phosphorus enough for four hundred ordinary two-cent packages of matches, but not quite sulphur enough for them. There is water enough to drown a person. The sodium in a human body of 155 lbs. weight, weighs two ounces 116 grains. There is enough iron for a good sized penknife blade, and enough magnetism to form the silver to a dozen rockets." While acknowledging our indebtedness to the author of these curious and abstruse calculations we must confess our inability to follow the writer in that mathematical nicety with which the quantities are expressed. We have, indeed, an idea that the phosphorus value of an able-bodied man is somewhere near that of 400 bundles of matches, at two cents per package; but is it not an unkind provision that there should not be sulphur enough to ensure a thorough dipping? And then in regard to the water—we are told it is enough to drown a person, but as its manner of application is involved in mystery, we cannot conceive of the precise quantity required; even supposing a person weighing 154 pounds to be wholly aqueous, we should have thought the supply of fluid too small for the wants of even the most determined suicide. That magnetism is a source of silver we shall certainly make a note of, but the rockets we must leave to the pyrotechnic editor of the *Journal of Chemistry* who, it seems is rather fond of indulging in literary fireworks.

Separation of the Nitrates of Silver and Copper.

Taking advantage of the fact that nitrate of copper dissolves readily, or is retained in solution, by nitric acid, and that nitrate of silver is insoluble, a process has been devised for the purification of the silver prepared from coin or other alloy of copper. The solution of mixed nitrates is evaporated to an oily consistency, avoiding solidification, and when cool, mixed with nitric acid—sp. gr. 1·250, has been found to answer. The silver salt is precipitated, and, to free it from all traces of copper, must be washed with concentrated acid. The acid is driven off from the washed nitrate by the application of heat. The fire crystals are then dissolved in distilled water and allowed to crystalize, when a pure salt is obtained.

Ozokerit.

As most of our readers are aware, the term "Ozokerit" has been applied to a new candle, or rather a new material for candles, which, after the most extensive advertising, has been put into the English market. The meaning of the word was, for a long time, involved in mystery, and as it was placarded in every corner and appeared in every paper, no small amount of curiosity was excited in regard to it. The appearance of the new candle settled the question, at least as far as the word was concerned. Latterly we have had some little discussion as to the origin of the material. In speaking of this, the editor of the *Gas Light Journal* says:—

As our scientific contemporaries are passing around an item from *Engineering* upon this mineral product, it may be well to set the public right thereupon. *Ozocerite* (odorous wax) instead of having been "discovered some two years since by a Russian engineer," as *Engineering* promulgates, is a familiar species in cabinets since 1833, and has long been made into candles, in the countries where it is found, one of which is the United States. Ozocerite is nothing more, or less, or other, than mineral paraffine, which is an abundant natural product concomitant with our Pennsylvania petroleums.

It was first discovered as a mineral species in 1833, in Moldavia, by Von Meyer, and is known throughout the German countries quite familiarly as "*Erdwachs*" (earthwax). Even its occurrence in the Caspian region is by no means a novel announcement. Quenstedt in his *Mineralogie*, p. 648, under *Ozokerit*, speaks of it from the island Tschilikeu in the Caspian. Its composition approaches carbon 85 hydrogen 15, which appears to indicate (if it belongs to the saturated hydrocarbons, as the most eminent of living chemists, Berthelot, appears to have proven, or what he calls the "formene" or marsh gas series, of the generic or molecular formula $C^n H^{n+2}$) somewhere about the composition $C^{34} H^{36}$, which corresponds exactly to this. It must be remarked that Berthelot's examination of American paraffines by his method of synthesis by hydrogenation, gave him a molecule more highly condensed than this, namely $C^{30} H^{32}$ calling for the centesimal composition carbon 85.04, hydrogen 14.96. An analysis of Galician ozocerite, by Hofstaedter, is cited by Dana, in his last edition (p. 732) which gave carbon 84.94 hydrogen 14.87. All paraffines, however, both natural and artificial, are evidently mixtures of compounds of typical composition, which may vary within small centesimal limits.

Pharmacy under the Commune.

The following extract is taken from the letter of a Paris correspondent of the *Pharmaceutical Journal:*

Since the horrors of the siege, Paris had been gradually sliding into the old grooves; strangers reappeared, letters and telegrams seemed no longer a strange and new pleasure, and commerce had reinstated herself. It was unfortunately but the lull before the storm. Three days before, the Place Vendôme had been occupied by the insurgent battalions of the National Guard, the pretending friends of order, who, at the approach of a peaceful unarmed deputation headed by the journalist Henri de Pène, discharged more than 500 shots into the crowd, killing over twenty and wounding about sixty persons. In an instant the pavement was red with blood, and the dead and dying were carried into the neighboring pharmacies, to receive what attention could be given to them, awaiting the arrival of the surgeons. Ambulance stretchers were seen procured, and mournful processions, headed by men bearing large white flags with the Geneva cross, traversed the streets of Paris, exciting the hate and loathing with which all orderly citizens regard the resumption of a new reign of terror at the hands of the Belleville insurgents. All business, except the mournful duty of stanching death-wounds, is over for the present in this usually gay quarter of Paris. Half-a-dozen blood-stained mattresses piled in a corner of nearly every pharmacy tell their own sad tale, and the once white marble floors are variegated and slippery as the pavement of the Piazza San Marco, at Venice, on a rainy day. All the shops are closed, and peremptory commands to shut all windows fronting the street are issued in loud tones, accompanied by menaces from loaded chassepots. In comparison with this, the siege was quite enviable; then, at all events, shops were open, and one could walk about the central parts of the city in perfect safety.

And then a certain amount of business was done—business of the pathetic kind. Wives, sisters and sweethearts came and bought pocket pharmacies, little stocks of lint and plaster, perchloride of iron, etc., for their dear friends about to start for the fields of battle. Many a tear was shed over the purchase, many a wish uttered that those dear to them should never require the sad appliances of modern civilization to heal the wounds caused by the destructive engines of modern barbarity. Alas! how many hopes have been scattered to the wind! How many pale, weeping figures, clothed in black, are daily to be seen carrying in pious hands wreaths of immortelles," to deck the rude crosses that lie thick at Montretout and for miles round. The past was dreadful enough, gilded over by a coating of patriotism; the present is doubly fearful—brother against brother, and no canopy of glory, but one reeking shroud of vengeance, hatred and bloodshed.

The siege, by provoking the appetite, instigated curious researches among the edibles generally found in pharmacies. As long as a few tins of concentrated milk remained we fared luxuriously on arrowroot puddings and oatmeal gruel; in fact, a tolerable pharmaceutical dinner, save the monotony, was daily procurable, and consisted of a soup of Liebig's extract thickened with tapioca or pearl-barley. A *hors d'œuvre* of anchovy paste or olives; then a *pièce de résistance*, such as carried horseflesh, or a cat's thigh strong with garlic, a salad of mustard and young flax, which we grew in boxes in the cellars, a dessert of Jordan almonds and conserve of hips, and a strong cup of coffee with which to wash all down. When the bread became almost uneatable, Hard's food was brought into requisition—the dough was cleanly made in a large pestle and mortar, with a due proportion of bicarbonate of soda and hydrochloric acid, and baked into light little loaves, or rather cakes, of surpassing delicacy of flavor. Our distaste for horseflesh induced us to invent sundry *bouquets*, the success of which was so great imparting a really pleasant flavor to the insipid meat, that I am sure no *cordon bleu* should ignore their utility. The favorite consisted of a clove of garlic and a pinch of peppercorns, coriauders, cloves, parsley seed, dried thyme and ginger, bruised together and tied in a piece of muslin.

The only article for which an extraordinary demand existed was extract of meat. Tonics were much taken, and resulted in several new specialities, rather more ingenious than tasty, such as a combined essence of calisaya and Liebig prepared with Cognac!

Secale Cornutum.

The following particulars in regard to the nature and development of ergot of rye, were communicated to the *Pharmaceutical Journal* by Mr. M. C. Cooke:

We will say nothing of the difference of opinion as to the ergot itself being a transformation of the germen, or a parasite of the germen, but start at once with the *Secale Cornutum*, as the first stage. In this condition it is called by botanists a *sclerotium*, and this particular one is *Sclerotium clavus*. What is to be understood by a *Sclerotium?* is a very natural question to suggest itself. It will not do to pass it as a generic name, since it has no value as a genus, and even were it not so the answer would be insufficient. Fungi are known to be developed in the majority of instances from certain root-like filaments called mycelium. Sometimes these filaments are very much compacted, and in the present, and some allied instances, assume the form of a compact cellular mass called a sclerotium. So that a sclerotium is, in fact, a compact mycelium, a sort of bulbous mycelium, of variable shape. Such is ergot. Whether produced on wheat, rye or the grasses, this sclerotium differs very little in form, being horn-shaped, whilst other kinds of sclerotium are spherical, discoid or irregular.

The earliest condition of this species is manifested by the presence of a thick gummy matter on the spikes of corn or grass, and this contains granules. During the growth of the sclerotium it is invested by a coating described in detail by Professor Quekett, in a memoir devoted by him to this subject. What the relation is between the gummy matter and the sclerotium and its coating is uncertain, unless it be accepted that the sclerotium is developed ultimately from the base of a spermogone, which, in the first instance, exuded spermatia in the aforesaid gummy mass. The coating was considered a distinct fungus, parasitic on the ergot, by Quekett, and called by him *Ergotella abortifaciens*, whilst Berkeley retains it in *Oidium*, with the same specific name. It is now regarded as the spermatiferous condition of the complete fungus.

The ultimate stage consists in the growth of little stalked bodies with rounded heads from and upon the sclerotium. If ergot of rye, wheat, etc., be slightly covered with soil in spring (March or April), and kept moderately moist with rain water, in the course of time a crop of these stalked bodies will be produced, but patience is quite necessary, for six months may be required for their growth. These are the *Cordyceps purpurea*, or *Claviceps purpurea*, by which name the whole of the forms of this polymorphous fungus should be called. Hence we have the stroma, or compact mycelium (sclerotium), conidia, spermatia, and finally the ascophores containing the sporidia, and all appertaining to *Claviceps purpurea*, Tulasne.

The ascophores, or stalked bodies with globose purplish heads, are minute and delicate, several of them being often produced upon the same sclerotium. The globose head is the fruit-bearing portion. Numerous cells, with distinct walls (perithecia) are immersed in the substance of the head. Each of these cells contains a mass of long, narrow, cylindrical, transparent sacs, termed asci, which are thickened at their apices. Each ascus enclosed eight hair-like sporidia, flexuous and delicate, slightly attenuated toward each end. This is the final and highest development which the fungus attains. A closely allied species is found on the sclerotium of reeds, and another on the sclerotium of *Elcocharis*—the latter, as far as we are aware, never having been found, except as a sclerotium, in Britain.

Testing Quartz for Gold.

Mr. W. Skey *(Chemical News)* calls attention to an easy and expeditious method for detecting the presence of gold in quartz:

Two grammes of roasted quartz sand, which contained two ounces of gold to the ton, was shaken up with an equal volume of a tincture of iodine, and after the sand had settled to the bottom, and the liquid above was clear, a piece of Swedish filter paper was immersed

it, and afterwards burned. The ash was not white, but purple, and the coloring matter was quickly extracted by bromine. One gramme of the same gold-bearing quartz was taken and thoroughly mixed with other rock, so that the gold did not exceed 2 dwts. per ton, and left for two hours with constant stirring, in contact with the iodine tincture. A strip of filter paper was then immersed five times in the liquid and tried each time, then burned and treated with bromine as before, when traces of gold were made evident. Hematite ore was mixed with gold quartz in such proportions that the gold did not exceed 0·5 dwt. to the ton, and yet it was easily detected in this way. By the amalgamation method it is scarcely possible to detect gold, even when 100 grammes are put into test, where the amount does not exceed 2 dwts. to the ton.

Quinine Pills.

A writer in the *Pharmacist* recommends the quinine to be made into a mass by the aid of glycerine, rolling the pills in sifted arrowroot. A beautiful white pill is made with gum arabic, which, by fastidious persons, is preferred to glycerine, on account of technical difficulties, but the writer has found the latter by far the best excipient, more especially as it prevents the pills from becoming hard.

STUDENTS' DEPARTMENT.

ANSWERS.

I.—The reaction between iodide of potassium and perchloride of mercury may be expressed :—

$$Hg\,Cl_2 + 2KI = HgI_2 + 2K\,Cl.$$

271 parts of the perchloride require 332 of the iodide, giving 454 parts of red iodide of mercury. As the proportions of the *Pharmacopœia* are not according to this formula—the potassium salt being in excess—the product must be calculated from the perchloride. If 271 parts yield 454, 4 parts will give 6·7. (6.7 oz.) *Ans.*

II.—Crystallized carbonate of soda, or sal soda, generally contains 10 equivalents of water of crystallization, which may be driven off by heat. 286 parts of the crystals are equivalent to 106 parts of the anhydrous salt; 8 oz. will, therefore, yield 2·96 oz. *sodæ carb. exsiccat.*

III.—56 parts of iron combine with 254 parts of iodine producing 310 parts of $Fe\,I_2$. The excess of iron, according to the B. P., over that actually required is ·84 of an ounce, as the quantity of iodide ordered—3 oz.—only requires ·66 oz. for combination, while 1·5 oz is ordered.

IV.—Tincture of opium contains 1½ oz. of the drug in 1 imperial pint, or 656·25 grains in 9600 minims, giving 14·6 minims to each grain.

V.—*J. Williams.*—The simple tinctures of the B. P. may be grouped as follows, according to the quantity of the drug in each pint of fluid:

1—2.		1—10.
Tinctura.	Conii.	Aurantii.
Zingiberis Fort.	Cubebæ.	Kino.
	Digitalis.	Nucis Vomicæ.
1—4.	Gallæ.	
Ergotæ.	Hyosciami.	1½—20.
	Jalapæ.	Opii.
1—5.	Krameriæ.	
Cinchonæ Flav.	Limonis.	1—20.
Guaiaci Ammon	Lobeliæ.	Armiæ.
Pyrethri.	" Æth.	Belladonnæ.
Veratri Viridis.	Lupuli.	Cannabis Indicæ
	Myrrhæ.	Castorei.
1—8.	Sabinæ.	Croci.
Aconiti.	Scillæ.	
Assafœtidæ.	Senegæ.	3—80.
Buchu.	Serpentariæ.	Capsici.
Calumbæ.	Stramonii.	Quassiæ.
Cascarillæ.	Sumbul.	
Chiratæ.	Tolutana.	1—54 11-16.
Cinnamoni.	Valerianæ.	Quiniæ.
Cocci.	" Ammoniata.	
Colchici Sem.	Zingiberis.	1—80.
		Cantharidis.

ORDER OF MERIT.

NUMBER OF MARKS AWARDED FOR ANSWERS.

Questions—	I.	II.	III.	IV.	V.	EXTRA.	Total
1. *Price Jackes*.....	5	5	5	5	5	5	30
2. *W. A. C., Orono*.....	5	5	5	5	5	3	28
3. *H. Maclagan, Lindsay*	5	5	5	2	5	3	25
4. *Jos. Williams, London*	5	5	5	2	5	1	23
5. *X. Y. Z.*.....	5	3	2	2	5	0	17
6. *W. Hamilton*.....	3	2	1	5	5	0	16

As we have not yet learned the intention of the Council in regard to a further issue of the JOURNAL, the questions are, for the present month, omitted.

BOOKS AND PAMPHLETS.

WESTERN MEDICAL ADVANCE AND PROGRESS OF PHARMACY. Edited by W. H. LATHROP, A. M., M. D., Detroit, Mich., U. S. Vol. I., No. 1.

This is the title of a new quarterly devoted to the interests of medicine and pharmacy. The issue before us contains a number of interesting articles and papers, several of which are original. It is proposed to publish, with each issue, a chromo-lithograph of medical plants, microscopic drawings, apparatus, &c. The plate given with the present number is remarkably pretty, and is, moreover, calculated to answer a very useful purpose in rendering familiar the appearance of a number of narcotic plants, eight of which are represented in full flower. The subscription is 50 cents per annum.

THE CANADIAN ENTOMOLOGIST. Vol. III., No. 1.

Entomology is generally regarded as one of the least practical of the sciences; its bearings on the welfare of mankind are thought to be of the most trivial character, and the advantages to be derived from its study are confined to those actually engaged in its pursuit. The journal before us is certainly calculated to dispel such ideas as these, and cannot fail to convert the most sceptical in regard to the utility of the science. Amongst other articles, we refer to those on the Plum Sphinx Moth, Quebec Currant Worms, and a most useful paper by Mr. W. Saunders, of London, entitled "Hints to Fruit Growers." These are quite sufficient to show that our entomologists regard their study as something more than giving to an insect "a name in science and a pin through the body." We cordially recommend the *Entomologist* to our readers, as one of the neatest, most instructive, and interesting journals we have ever seen. The paper is mailed, free, to all members of the Entomological Society, the annual fee to which is one dollar per annum.

ONTARIO COLLEGE OF PHARMACY.

MONTHLY MEETING.

The regular monthly meeting was held on Friday evening, 2nd inst., at the usual place, with the President in the chair. The minutes of last meeting were read and adopted.

Mr. R. W. Elliot reported from the printing committee that the poison books were printed and being bound, that the certificates were being engraved and would be placed in the Registrar's hands about the fifteenth of the month, or it might perhaps be a little later on account of press of work on hand.

Mr. R. W. Elliot said that he thought it would be necessary to make some kind of a declaratory resolution to show that the society here was the same as the one authorized in the 4th section of the Pharmacy Act, so that there might be no impediment in the way of the registration of the members, as he understood there were some doubts in the minds of some of the members that the act was placing them in a somewhat inferior position, while nothing of the kind was intended. As the act made all fees payable on the 1st day of May in each year, it would only be necessary for members to pay the balance of their fees, if any, up to that time in order to entitle them to registration. He moved, seconded by Mr. Miller, That this society hereby declare itself constituted under the fourth section of the Pharmacy Act of 1871, and its members in good standing with the Treasurer are thereby entitled to registration as provided in section 17 of the same act.—Carried.

The Chairman said that this being the last meeting of the society for the year, it was necessary to appoint two auditors, one by the meeting and the other by the Chairman.

It was proposed, in view of the labor involved, to make an appropriation for the purpose of remunerating the gentlemen to be appointed, but the amount was left over till next meeting.

Mr. Watson was nominated by resolution, and the Chairman named Mr. Shapter.

The Chairman said there should be a meeting to hear the report of the auditors, before the first meeting of the council, which took place on first Wednesday in July.

A resolution was carried appointing the the Monday previous to that date as night for meeting.

Meeting adjourned.

H J. Rose, Sec'y.

Additional List of Members

Who have paid fees to May 72, and others entitled to be registered.

Aldridge, Geo .....Caledonia.
Allison, S. E.....Port Perry.
Bain, Thos. B.....Tilsonburg.
Berry, Jas. G.....Belleville.
Blackader, D. R.....Brantford.
Borland, E. B.....Fenelon Falls.
Brendon, F.....Brantford.
Bray, W. T.....Dingle.
Bruce, Robt. C.....Cobourg.
Boulton, H. C.....Exeter.
Buck, A. C.....Caledonia.
Caldwell, O. B.....Ingersoll.
Canniff, B. W.....Belleville.
Carroll, F.....Wroxeter.
Coulson, W .....Buffalo.
Chapman, C. A.....Picton.
Coulter, Wm .....Peterboro.
Crampton, R.....Carleton Place.
Cullingford, —.....Cobourg.
Cumines, Thos.....Welland.
Dawson, C.....Warkworth.
Eastwood, Alf.....Lloydtown.
Eby, M. F.....Port Elgin.
Fenwick, E. J.....Kingston.
Fitzmaurice, W. G.....Oshawa.
Gayfer, J.....Ingersoll.
Gibbard, Jno.....Toronto.
Grant, J. R.....Dingle.
Greaves, Jos.....Collingwood.
Halson, R.....Wellington Square.
Harkness, G. W.....Mono Mills.
Harvey Thos. P.....Niagara.
Henderson, John.....Toronto.
Hurdon, W. H.....Kincardine.
Holden, S .....Markham.
Inglis, Wm. M.....Brockville.
Kane, Mrs. M. A.....Amherstburg.
Kellock, J. F.....Perth.
Kelman, Jas.....Newmarket.
Kidd, J. P.....Widder.
Kilborn, Horace.....Newboro.
Law, R. E .....Richmond Hill.
Leach, Alf.....Millbrook.
Lewis, Isaac T.....Toronto.
Lowe, Jno.....Amherstburg.
Lyman, Henry.....Montreal.
Mason, C. S.....Brantford.
Massey, George.....Toronto.
Massey, William M .....New York.
Matthews, E.....Waterford.
Milburn, Thos.....Acton.
Mills, Jas., jr .....St. Catharines.
Mitchell, Geo.....Port Hope.
Mitchell, Jno.....Port Hope.
McCallum, F. H.....New Hamburg.
McDonald, J. L.....Picton.
McKenny, Thos .....Thornbury.
McKinnon, D .....St. Williams.
McLean, D., M. D.....Port Stanley.
McLeod, Angus .....Woodville.
Nelles, R. A.....Duart.
Niblett, W. C.....Dundas.
Orchard, Geo... .....Strathroy.
Ormond, Charles.....Peterboro'.
Parish, T. A.....Wallacetown.
Pasmore, C. J. .....Glenallan.
Pearce, Chas.....Oakville.
Pettit, Wm.....Port Perry.
Powell, G. A.....Wroxeter.
Price, Aaron.....Aylmer.
Puddicombe, R. W.....London.
Rankin, Geo.....Markham.
Rich, C. G.....St. Thomas.
Rock, Thos .....Hamilton.
Robinson, W. S.....Yorkville.
Sanford W. H.....Tottenham.
Scatter, John.....Seaforth.
Shrigley, E.....Welland.
Sidey, John.....Bowdley.
Spencer, J. W.....Lucan.
Stephens A.....Mitchell.
Stratford, Jos.....Brantford.
Striker, G., M.P.P.....Picton.
Strong, R. S.....Galt.
Templeton, R.....Perth.
Thomas, E. P.....Forest.
Thornton, J. M.....Perth.
Tomlinson, W. A.....Prince Albert.
Vandusen, C.....Glencoe.
Wade, Jas.....Port Stanley.
Wade, Mrs. Mary Ann..Port Stanley.
Watts, C. W. G.....Clinton.
Walsh Wm .....Peterboro'.
Wightman, R.....Owen Sound.
Williams, John .....London.
Williams, James.....Brockville.
Wilcox, W. M .....Prince Albert.
Wilson, C. G.....Madoc.
Wilson, F. C.....Bayfield.
Wood, Robt.....Erin.
Wood, R. S.....Oakville.
Zoellner, C.....Tavistock.

ASSOCIATES.

Caulfield, Chas.....Stratford.
Clark, John A.....Guelph.
Curtis, J. W.....Hamilton.
Fraser, Thos. B.....Napanee.
McKenzie, Alex.....Acton.
Mitchell, C.....St. Thomas.
Wood, Geo.....Strathroy.

H. J. Rose.

The attention of members is called to the report of monthly meeting, by which it will be seen that members who pay their fees up to May, '72, are entitled to registration without further proceedings.

In consequence of numerous applications, the Registrar has made arrangements for sending frames for the certificates to those wishing them :

A neat, black walnut Oxford frame, glazed and packed for express.....	$0 75
Two frames in a package.....	1 30
Three " "	1 90

The poison books, 75 cents each, *postage paid*, or 60 cents if obtained through any of our wholesale dealers, can be packed with them. Parties wishing them will please send the amount to

H. J. Rose,
Provis'l Registrar.

SELECTIONS.

Preparation of Grape Sugar.

The manufacture of grape sugar has become one of the most important industries of the country, and it is well to consider some of the improvements that have recently been introduced.

It has been found that the addition of a small quantity of nitric acid greatly facilitates the transformation of the starch into sugar. If, for example, 3,300 pounds of fresh and wet starch are to be converted into syrup, as soon as the sulphuric acid is weighed, add two ounces of concentrated nitric acid for every pound of the sulphuric. For syrup, one pound of sulphuric acid is usually taken for every 110 lbs. of starch. We require for 3,300 pounds of starch, 30 pounds sulphuric acid and 4 pounds of nitric acid. The nitric acid is mixed at once with the sulphuric, and the mixture poured into the reducing kettles. After boiling for three-quarters of an hour, the iodine test is applied, to see if all the starch is decomposed; and this test is repeated every five minutes, until the entire contents of the boiler are changed to grape sugar. Great importance is attached to making the iodine test. The boiling must be continued until the tincture of iodine is no longer violet or red, but shows the true iodine color. If the boiling be superseded too soon, the syrup has a tendency to ferment; and if it be continued ten or fifteen minutes too long, the syrup crystalizes; and in both cases, the syrup obtained is not easily sold. In order to give the syrup a clear color, after filtering through bone black, it is well to bleach with sulphurous acid, and this acid also prevents fermentation, in case the syrup was not boiled sufficiently long. The sulphurous acid is introduced as follows:—After the acids have been neutralized by chalk,

and the requisite quantity of bone black has been added, for 3,300 pounds original starch mixture, 15 pounds of an aqueous solution of sulphurous acid is poured in, and the whole well agitated; to assist the escape of the acid fumes, an ounce of crystallized soda, dissolved in a pint of water, is added for every pound of acid.

Where it is desired to make sugar instead of syrup, the proportions of acid to be employed are different, 45 pounds of sulphuric acid and 6 pounds of nitric acid being taken to reduce the 3,300 pounds of starch. Before the use of nitric acid was discovered, the boiling required four hours; it can now be accomplished in less than two hours. After boiling three-quarters of an hour, it is well to begin the iodine tests, and after it is ripe for syrup, to continue the operation some time longer, until, on cooling, sugar will readily crystallize. It is one thing to make syrup, and another to produce sugar, the proportions of acid and the time being different in each case.

After shutting off the steam and suspending the boiling, 15 pounds of bone black must be strewn in, and the liquid set to boil for five minutes. It is then ready to run into the neutralizing vats.

After neutralization, 30 pounds of bone black must be added, under constant agitation, and 15 pounds sulphurous acid and 1 pound crystallized soda, as before, and the whole left 6 to 8 hours to settle. The clear sweet liquid can be introduced into the vacuum apparatus for concentration. It can be boiled down in open vessels by steam, but is not so white and pure as when the vacuum pan is employed. As soon as the syrup shows 36°, it is filtered, and run into suitable crystallizing vessels. On the filter will be collected the gypsum produced by the neutralization; and as it contains considerable sugar, it must be pressed out and washed. In Germany, the filter consists of strong cloth placed inside of a conical basket, fitted to a suitable barrel. The liquid runs through perfectly clear, and requires three or four days for its crystallization; to hasten the crystallization, some farina sugar can be stirred in. When nearly dry, it is poured into boxes of a suitable size for transportation. The solid grape sugar is extensively employed in breweries, in the manufacture of wines, for distillation, and in candy. The price of the sugar is higher than for syrup, and it is not liable to deteriorate, if it be properly prepared.

The form of the boiler has been considerably modified. Instead of performing the reduction by steam under pressure, a coil of copper pipe, in the bottom of the wooden vessels, serves to convey the heat for boiling the mixture. The dilution of the liquid by the condensation of the steam in the vat, and the necessity of boilers that could resist several atmospheres of pressure, are avoided. There is also less liability to explosion. The employment of nitric acid is a new feature, and the use of sulphurous acid, for the double purpose of bleaching the syrup and preventing fermentation, ought not to be overlooked.

Pure starch syrup resembles honey so closely that few could detect any difference. It is fast becoming a substitute for molasses and syrup from cane, and as the syrup resulting from the best root sugar is only suited to fermentation and the recovery of potash, the starch syrup must fast grow in favor.

Grape sugar can also be made from shavings, rags, saw-dust and any kind of cellulose, but the cheapest material is the starch from corn and grain. To insure a good quality, attention must be paid to removing all traces of the lime and soda used in neutralizing, and to a proper bleaching by bone black and sulphurous acid. With these precautions, and by aid of improved machinery, there is no reason why the industry should not be made a profitable one to all who are disposed to invest in it.—*Scientific American.*

The Comparative Efficacy of Antiseptics.

Dr. F. Crace Calvert has performed two series of experiments in order to ascertain the comparative powers of various substances ordinarily used as antiseptics. The first consisted in placing in bottles (not corked) solution of albumen and flour-paste. To these he added various proportions of some of the substances patronized at the present time as antiseptics, and the following table shows the time in which an offensive odor became sensible at a temperature from 70 to 80 degrees F.:

Antiseptic employed.	P c. of antiseptic.	Albumen.	Flour paste.
M'Dougall's disinfecting powder	5	11 days	25 days
Carbolic disinfecting powder...	5	Sound	Sound
Chlor-Alum (made lately).....	2	9 days	—
Chloride of zinc.....	2	15 days	—
Chloride of lime.....	5	16 days	14 days
Permanganate of potash.....	5	—	—
Tar oil	2	11 days	25 days
Carbolic acid.....	2	Sound	Sound
Cresylic acid.....	2	Sound	Sound
None.....	—	5 days	7 days

The above table he considers clearly to show that the only true antiseptics are carbolic and cresylic acids; and these results coincide with those obtained by Mr. William Crookes, F.R.S., Dr. Angus Smith, F.R.S., and Dr. Sansom. These two acids continued their action till the albumen solution and paste dried up. The second series had the object of ascertaining which of the undetermined substances is most active in destroying germs, and preserving animal substance. At the bottom of wide-mouthed pint bottles, Dr. Calvert placed a known quantity of each of the antiseptics, suspending over them by a thread a piece of sound meat; and, by daily examination, it was easily ascertained when the meat became tainted or putrid.

Antiseptic used.	Became tainted	Putrid
Permanganate of potash.....	2 days	4 days
Chlor-Alum	2 "	10 "
M'Dougall's disinfecting powder.	12 "	19 "
Chloride of lime	14 "	21 "
Tar oil	16 "	25 "
Chloride of zinc.....	19 "	—
Carbolic disinfecting powder	Did not become tainted, but dried up and became quite hard.	
Carbolic acid.....		
Cresylic acid.....		

—*British Medical Journal.*

Mace.

The mace known as a spice is the berry of the *Myristica officinalis* of Linnæus, and is indigenous to the Moluccas. It is cultivated in the Caraccas and Peru, and to a slight extent in other South American countries, but our chief supplies are derived from the island of Banda. The fruit is pyriform, of a whitish-roseate colour when ripe, becoming yellow when dried, and is but slightly succulent. It is the kernel divested of its different envelopes—the outer capsule, the membraneous pulp, and an interior skin, which loses its flavour on peeling off—which constitutes the spice. The mace is the most aromatic of all spices; the taste is hot, the flavour very expansive, comparable in this respect to cinnamon. In their preparation the kernels are steeped in sea-water, and afterwards dried. The grain is hard, very aromatic, and serves to season various condiments. In commerce we distinguish the female or cultivated mace from the male or wild mace, which latter is more coarse, less odorous, and consequently less valued. The mace is remarkable for its stimulating qualities, and on this account is largely employed in the preparation of balms. The tree is far from fertile, and approximates in general character to the orange-tree. From the tree itself a resin is extracted in South America known as *otoba*. A highly aromatic volatile oil is furnished by the distillation of the kernel, but there is also a fixed oil, retired by means of heat, but always mixed with a certain portion of volatile oil, which communicates its odour and colour. This mixed oil, of a yellow colour, inclining to red, is often designated butter of mace, owing to the numerous particles of great density which rise to the surface of the water in the course of separation. The spirituous extract is very active; the latter is less energetic.—*Grocer.*

Soluble Saccharated Oxide of Iron as an Antidote to Arsenic.

Dr. Kohler, of Halle, remarks that the long-known antidote, *hydrated oxide* of iron, has many practical inconveniences. The preparation now recommended only differs from the latter in containing a larger proportion of water (as hydrate.) Kohler used it with remarkable success in the case of a young man who had swallowed thirty or forty grains, or more, of arsenic. He comes to the following general conclusions about the new therapeutic: 1. That it precipitates arsenious acid from solution in the form of insoluble arseniate. 2. That on chemical grounds it should be justly substituted for the ordinary hydrated oxide as an antidote. 3. The experiments on animals fully bear out its practical efficacy. 4. That, while in other forms of metallic poisoning (especially with common sublimate) mechanical antidotes like albumen, etc., are useful, the latter treatment is only a hindrance to the efficient application of the oxide of iron in arsenical poisoning. 5. That the iron-treatment should *not* be accompanied by the use of neutral purgative salts, otherwise the antidotal combinations may be interfered with. 6. Since Schroff has proved that the arseniate of iron itself is always absorbed in minute quantities, emetics should be administered as soon as the antidotal combination of the iron with the arsenic may be supposed to have taken place. 7. As to the quantity of saccharated oxide of iron required to neutral-

ize a given quantity of arsenic, it appears that about ten or twelve parts of the oxide should be administered for every one part of arsenic believed to have been swallowed.—*Berlin Klin. Wochensch.—N. Y Med. Jour.*

Nature of Life.

We clip the following from the Philadelphia *Sunday Dispatch* of the 25th ultimo. Its perusal cannot fail to provoke a "molecular" smile, and to sharpen the "protoplastic" appetite of our readers:

"Professor Pocy, of Lycoming county, in this State, has been trying to tell us what 'life' is. According to Pocy, 'Life results from a double molecular motion, general and continuous, of composition and of decomposition in relation to the organism and the inorganic medium. The medium is the combination of external agents, physical and chemical, proper to furnish to the organism the principles necessary for its nutrition and the manifestation of the properties of the anatomical elements.'

Strange! how Error fastens itself in the human mind, and by its rank growth chokes the tender plant of Truth! During all the fourscore years of our existence we have cherished the fond delusion that Life was rather an immorigerous outgrowth of a retiary paradox, which engrafted upon the persiflage a mephitic diapason, causing it to permeate the neurosthenic rhomboid, and so producing isothermally protoplastic vitality. That is what we thought Life was. But we see the mistake now, since Pocy mentions it! It is hard, though—very, very hard—to see the idols of our youth thus thrown down and broken one after the other. And by a man named Pocy, too! It will make our whole Christmas season sad."—*Medical Times.*

Logical.

To the question "Why will not a pin stand upon its point?" an undergraduate at Cambridge is reported to have returned the following elaborate and conclusive answer:—

1. A pin will not stand on its head, much less is it possible that it should stand on its point. 2. A point, according to Euclid, is that which has no parts and no magnitude. A pin cannot stand on that which has no parts and no magnitude, and therefore a pin cannot stand on its point. 3. It will if you stick it in.

Lime Juice and Glycerine.

Take lime or lemon juice ½ pint.

Heat in a porcelain mortar to near the boiling point, and add gradually

Rose water,
Elder-flower water, and
Rectified spirits—of each, 2 ounces.

Agitate the whole well together. After 24 hours' repose, decant or filter through calico or muslin, then add

Glycerine, pure, 2½ ounces.
Oil of lemon, ½ drachm.

Again agitate them together for some time, and by careful manipulation you will have a somewhat milky liquid; but it should be quite free from any coarse floating matter or coarse sediment.—*Druggists' Circular.*

TRADE REPORT.

Trade since our last has been very active in all lines of goods. Payments have slightly improved, but are still a good deal behind.

The fluctuations are numerous, and in some instances show a very marked change.

The articles in favor of the buyer are Opium, which touched a very low point, but is now again tending upwards; Black Antimony which is considerably lower, as also sorts Gum Arabic, Morphias, Senega Root and Rochelle Salts.

Carb. Ammonia has made a decided advance, and is likely to command higher rates than at present quoted; Socotrine Aloes remain high; Shellacs are quoted at advanced prices, which would have been still higher but for the removal of the customs duty; Cit. Iron and Quinine very scarce and high; Mercurials still keep at our last quotations. Quinine is in very active demand, with none in stock, and would fetch almost any price at present.

In Spices, black and white Pepper are quoted at excessively high figures.

Naval Stores continue high, with active demand and short stocks. Spts. Turpentine is much wanted, and remains very firm in price.

In Oils, Linseed has made a decided jump upwards in England, and must sympathize here. Lard Oils are also likely to bring higher prices than at present quoted.

PETROLEUM REPORT.

As I anticipated in last months report, the oil refiners combination could not be brought to a satisfactory conclusion. The interests of some refiners were so complicated with others that it was found impossible to come to any unanimous agreement, and so the matter fell to the ground. I have now, however, to report a crude oil combination, which has just been formed in Petrolia. The producers have entered into a formal agreement to sell all their oil through a board of directors composed of eleven members, chosen from amongst themselves. Two distinct prices will be made, one for export trade and one for those who refine for the home market. For the former they will be guided by New York prices, and so regulated that when refined oil in New York is sold at 24 cents per gallon, crude in Petrolia (for the export trade) will be worth $1.40 per barrel. For every cent advance or fall in New York markets, crude will be affected to the extent of 20 cents per barrel. The exporting firms will, however, only be allowed to purchase whatever surplus may be on hand, as it is proposed by the management to raise the price for the home markets, forthwith, to at least $2.50 or $3 per barrel, and still more if practicable. The idea seems to have taken hold upon them that the country is now enjoying much to cheap a light, and strange to say, the same men, who only a few months ago, petitioned the Government to remove the excise duty of 5½ cents per gallon on refined oil, intended for home consumption, calling it an imposition upon the public, and an unjust tax upon an article of the first necessity to life and comfort, are now combined together to impose upon the public a still further tax of ten or fifteen cents per gallon, for the sole benefit of those interested in the production.

How the practical working of this new principle of free trade will turn out, it is impossible to foretell. As a general thing, a business which will not flourish without such artificial bolstering, soon comes to naught; and the experience of the past, in all that regards combinations and the like, proves beyond doubt that they are unreliable, and in example, dangerous. To-day a combination is formed to impose upon the public of Canada *a dear light*, and to-morrow we may see one formed having for its object *dear bread*.

Meanwhile, the Crude Oil market for exporters is active, and as New York has advanced Refined from 23 to 26 cents per gallon, Crude has also gradually advanced from $1.35 to $1.60 and $1.70 per barrel. The production remains about the same, say 7,000 barrels per week.

Refined Oil for export is on the move upwards, and prices range from 15c. to 17c. per gallon in bond. For the home trade, Refined has also advanced, this being due, in a great measure, to the general impression that the crude oil combination is going to work successfully. It is quoted to-day as worth 21c. to 22c. for the best quality, with good demand, but very few sellers. Tar is altogether neglected; nominally worth 50c. per barrel.

The shipments of Oil from Petrolia station for the month of May are as follows; Crude, 22,264 brls.; Refined, 741 brls.; distillate, 4,910 brls.

ONTARIO COLLEGE OF PHARMACY.

REGISTRATION NOTICE.

Druggists in business, and others entitled to be registered under the Pharmacy Act, will save delay by sending along with the fee of four dollars, a reference to a member of the Council.

Assistants wishing to be registered must send, with the fee, a proof of their having served three years as apprentice and one as assistant.

HENRY J. ROSE,
Provisional Registrar.

WHOLESALE PRICES CURRENT.—JUNE, 1871.

Drugs, Medicines, &c.	$ c.	$ c.
Acid, Acetic, fort	0 12	@ 0 14
" Benzoic, pure	0 25	0 35
" Citric	0 86	0 90
" Muriatic	0 01	0 06
" Nitric	0 11½	0 15
" Oxalic do	0 24	0 30
" Sulphuric	0 03½	0 07
" Tartaric, pulv.	0 40	0 42
Ammon., carb' casks	0 19	0 20
" " jars	0 19	0 20
" Liquor, 880	0 18	0 25
" Muriate	0 12½	0 15
" Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
" Nitrous	0 27	0 30
" Sulphuric	0 45	0 50
Antim. Crude, pulv.	0 13	0 17
" Tart. "	0 50	0 55
Alcohol, 95%.....Cash	1 65	1 72
Arrowroot, Jamaica	0 19	0 22
" Bermuda	0 45	0 65
Alum	0 02½	0 03½
Balsam, Canada	0 24	0 30
" Copaiba	0 68	0 75
" Peru	3 80	4 00
" Tolu	1 00	1 20
Bark, Bayberry, pulv.	0 18	0 20
" Canella, "	0 17	0 20
" Peruvian, yel. pulv	0 45	0 50
" " red "	1 40	1 80
" Slippery Elm, g. b.	0 15	0 20
" " flour, pkt's	0 28	0 32
" Sassafras	0 12	0 15
Berries, Cubebs, ground.	0 20	0 25
" Juniper	0 06	0 10
Beans, Tonquin	0 60	1 10
" Vanilla	14 50	17 00
Bismuth, Alb.	4 60	5 00
" Carb.	4 60	5 00
Camphor, Crude	0 33	0 35
" Refined	0 45	0 55
Cantharides	1 90	2 00
" Powdered	2 10	2 25
Charcoal, Animal	0 04	0 06
" Wood, pow'd.	0 10	0 15
Chiretta	0 25	0 30
Chloroform	1 00	1 50
Cochineal, S. G.	0 80	0 90
" Black	1 00	1 20
Colocynth, Pulv.	0 55	0 60
Collodion	0 07	0 70
Elaterium oz.	4 50	5 00
Ergot	0 55	0 65
Extract, Belladonna	2 50	2 75
" Colocynth, Co.	1 25	1 75
" Gentian	0 50	0 60
" Hemlock, Ang.	1 12	1 25
" Henbane, "	2 20	2 50
" Jalap	5 00	5 50
" Mandrake	1 75	2 00
" Nux Vomic...oz.	0 60	0 70
" Opium "	Variable.	
" Rhubarb	7 50	--
" Sarsap. Hon. Co	1 00	1 20
" " Jam. Co	3 25	3 70
" Taraxicum, Ang	0 70	0 80
Flowers, Arnica	0 25	0 35
" Chamomile	0 30	0 40
Gum, Aloes, Barb. extra	0 70	0 80
" " " good	0 42	0 50
" " Cape	0 12	0 20
" " pow'd	0 20	0 30
" " Socot	0 76	0 80
" " pulv.	0 90	1 00
" Arabic, white	0 60	0 65
" " " pow'd	0 50	0 55
" " sort	0 28	0 30
" " pow'd	0 42	0 50
" " com. Gedda	0 13	0 16
" Assafœtida	0 31	0 35
" British or Dextrine	0 13	0 15
" Benzoin	0 48	0 55
" Catechu	0 12	0 15
" " pow'd	0 25	0 30
" Euphorb, pulv.	0 32	0 40
" Gamboge	1 05	1 20
" Guaiacum	0 38	0 70
Myrrh	0 48	0 60
Sang Dracon	0 60	0 70
Scammony, pow'd	5 60	—
Virg. "	14 50	—
" Shellac, Orange	43	45

Drugs, Medicines, &c. *Continued.*	$ c.	$ c.
Gum, Shellac, liver	0 38	@ 0 40
" Storax	0 65	0 75
" Tragacanth, flake.	1 10	1 40
" " common	0 35	0 40
Galls,	0 27	0 32
Gelatine, Cox's, 6d.	1 10	1 20
Glycerine, com.	0 26	0 30
" Vienna	0 30	0 40
" Price's	0 60	0 75
Honey, Canada, best	0 17	0 20
" Lower Canada	0 15	0 18
Iron, Carb. Precip.	0 20	0 25
" " Saccharated	0 40	0 45
" Citrate Ammon.	0 90	1 00
" " & Quinine oz.	0 52	0 60
" " & Strychnine "	0 17	0 25
" Sulphate, pure	0 08	0 10
Iodine, good	5 00	0 00
" Resublimed	6 00	0 00
Jalapin oz.	1 40	1 60
Kreosote	1 60	1 70
Leaves, Buchu	0 25	0 30
" Foxglove	0 25	0 30
" Henbane	0 35	0 40
" Senna, Alex.	0 30	0 60
" " E. I.	0 12½	0 20
" " Tinnevilly	0 20	0 30
" Uva Ursi	0 15	0 20
Lime, Carbolate.....brl.	5 50	-
" Chloride	0 04½	0 06½
" Sulphate	0 08	0 12½
Lint, Taylor's best	1 30	1 35
Lead, Acetate	0 14	0 17
Leptandrin oz.	0 60	—
Liq. Bismuthi	0 50	0 75
" Opii, Battley's	6 50	8 00
Lye, Concentrated	1 50	2 00
Liquorice, Solazzi	0 46	0 48
" Cassano	0 23	0 40
" Other brands	0 14	0 25
Liquorice, Refined	0 35	@ 0 45
" " Hessin's doz	2 00	
Magnesia, Carb .....1 oz.	0 20	0 25
" " .....4 "	0 17	0 20
" Calcined	0 65	0 75
" Citrate...gran.	0 37	0 50
Mercury	0 90	0 95
" Bichlor	1 00	0 00
" Biniodid.....oz.	0 35	0 40
" Chloride	1 25	0 00
" C. Chalk	0 60	0 00
" Nit. Oxyd	1 30	0 00
Morphia, Acet	4 65	5 50
" Mur	4 65	5 50
" Sulph.	4 80	6 00
Musk, Pure grain.....oz.	21 00	—
" Canton	0 90	1 20
Oil, Almonds, sweet	0 37	0 45
" " bitter	14 00	15 00
" Anniseed	3 60	4 00
" Bergamot, super.	5 00	5 25
" Carraway	4 00	4 20
" Cassia	2 00	2 20
" Castor, E. I.	0 14	0 15
" " Crystal	0 22	0 25
" " Italian	0 26	0 28
" Citronella	1 25	1 60
" Cloves, Ang.	1 00	1 10
" Cod Liver	1 35	1 50
" Croton	1 50	2 10
" Geranium, pure, oz.	2 00	2 20
" Juniper Wood	0 80	1 00
" " Berries	6 00	7 00
" Lavand, Ang.	16 00	17 60
" " Exot.	1 40	1 60
" Lemon, super.	3 60	4 00
" " ord.	2 60	2 60
" Orange	2 70	3 00
" Origanum	0 65	0 75
" Peppermint, Ang.	15 00	17 00
" " Amer.	3 00	3 25
" Rose, virgin	7 75	8 00
" " good	5 50	6 00
" Sassafras	0 85	0 95
" Wintergreen	6 50	7 00
" Wormwood, pure	5 80	50
Ointment, blue	0 70	0 80
Opium, Turkey,	5 00	6 25
" " pulv.	8 50	10 00
Orange Peel, ppt.	0 33	0 42
" " good	0 12½	0 20
Pill, Blue, Mass	0 75	0 80

Drugs, Medicines, &c. *Continued.*	$ c.	$ c.
Potash, Bi-chrom	0 13½	@ 0 15
" Bi-tart	0 27	0 28
" Carbonate	0 14	0 20
" Chlorate	0 45	0 50
" Nitrate	10 50	11 00
Potassium, Bromide	1 20	1 80
" Cyanide	0 60	0 70
" Iodide	4 75	5 00
" Sulphuret	0 25	0 35
Pepsin, Boudault's...oz.	1 50	0 00
" Houghton's, doz	8 00	9 00
" Morson's.....oz.	0 85	1 10
Phosphorus	0 75	0 85
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 25
" Howard's	2 25	—
" " 100 oz. case	2 25	—
" " 25 oz. tin	2 20	—
Root, Colomba	0 13	0 20
" Curcuma, grd	0 12½	0 17
" Dandelion,	0 25	0 35
" Elecampane	0 14	0 17
" Gentian	0 10	0 12½
" " pulv.	0 15	0 20
" Hellebore, pulv.	0 20	0 25
" Ipecac "	2 20	2 30
" Jalap, Vera Cruz.	1 35	1 00
" " Tampico	0 90	1 —
" Liquorice, select.	0 11	0 13
" " pow'd	0 15	0 20
" Mandrake, "	0 20	0 25
" Orris "	0 20	0 25
" Rhubarb, Turky.	3 50	0 00
" " E, I.,	1 25	2 00
" " " pulv.	1 40	2 50
" " " 2nd	1 30	1 50
" " French	0 75	—
" Sarsap., Hond	0 40	0 45
" " Jam.	0 88	0 90
" Squills	0 10	0 15½
" Senega	1 20	1 30
" Spigelia	0 48	0 50
Sal., Epsom	2 25	3 00
" Rochelle	0 26	0 35
" Soda	0 01½	0 03
Seed, Anise	0 16	0 30
" Canary	0 05	0 06
" Cardamon	4 10	5 75
" Fenugreek, grd	0 08	0 10
" Hemp	0 06½	0 06½
" Mustard, white	0 14	0 16
Saffron, Amer.	4 00	5 00
" Spanish	17 00	18 00
Santonine	9 50	10 50
Sago	0 07½	0 09
Silver, Nitrate, cash	14 50	16 50
Soap, Castile, mottled	0 10	0 14
Soda Ash	0 03	0 04
" Bicarb. Newcastle.	3 75	4 00
" " Howard's	0 14	0 16
" Caustic	0 04	0 05
Spirits Ammon., arom.	0 25	0 35
Strychnine, Crystals	2 00	2 50
Sulphur, Precip.	0 10	0 12½
" Sublimed	0 3½	0 05
" Roll	0 03	0 04½
Tamarinds	0 15	0 20
Tapioca	0 15	0 18
Veratria ....oz.	2 75	3 00
Vinegar, Wine, pure	0 55	0 60
Verdigris,	0 35	0 40
" Pow'd	0 45	0 50
Wax, White, pure	0 80	0 90
Zinc, Chloride .....oz.	0 10	0 15
" Sulphate, pure.	0 10	0 15
" " com.	0 06	0 10

Dyestuffs	$ c.	$ c.
Annatto	0 35	@ 0 60
Analine, Magenta, cryst	3 25	4 00
" " liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitriol, pure	0 08	0 10
Camwood, pure	0 06½	0 08
Copperas, green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 02	0 04
Indigo, Bengal	2 40	2 50
" Madras	1 00	1 10
" Extract	0 28	0 35
Japonica	0 05	0 06½
Lacdye, pow'd	0 33	0 38
Logwood	0 02	0 03

Dyestuffs—*Continued*	$ c.	$ c.
Logwood, Camp	0 02	@ 0 1½
" Extract	0 10	0 14
" " 1lb bxs	0 14	—
" " ½lb "	0 15	--
Madder, best Dutch	0 16	0 17
" 2nd quality	0 15	0 16
Quercitron	0 03	0 05
Sumac	0 06	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06

Spices.	$ c.	$ c.
Allspice	0 08½	@ 0 10
Cassia	0 38	0 40
Cloves	0 12½	0 15
Cayenne	0 18	0 25
Ginger, E. I.	0 12	0 14
" Jam.	0 20	0 30
Mace	1 35	1 40
Mustard, com.	0 20	0 25
" D. S.	0 40	0 45
Nutmegs	0 76	0 80
Pepper, Black	0 19	0 20
" White	0 26	0 28

Paints, Dry.	$ c.	$ c.
Black, Lamp, com.	0 07	@ 0 08
" " refined	0 25	0 30
Blue, Celestial	0 08	0 12
" Prussian	0 65	0 75
Brown, Vandyke	0 10	0 12½
Chalk, White	0 01	0 01½
" Red	0 05½	0 10
Green, Brunswick	0 07	0 10
" Chrome	0 16	0 25
" Paris	0 25	0 35
" Magnesia	0 20	0 25
Litharge	0 06½	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 06½	0 08
" Venetian	0 02½	0 03½
Sienna, B. & G.	0 10	0 15
Umber, "	0 07	0 10
Vermillion, English	1 25	1 30
" American	0 25	0 35
Whiting	0 80	0 85
White Lead, dry, gen.	0 08	0 09
" " " No. 1.	0 07	0 08
" " " No. 2.	0 05	0 07
Yellow Chrome	0 12½	0 35
" Ochre	0 02½	0 03½
Zinc White, Star	0 10	0 12

Colors, in Oil.	$ c.	$ c.
Blue Paint	0 12	@ 0 15
Fire Proof Paint	0 06	0 08
Green, Paris	0 30	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1lb tins.	0 14½	0 16
Putty	0 03½	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25lb tins	2 30	—
" " No. 1 "	2 10	—
" " No. 2 "	1 90	—
" " No. 3 "	1 65	—
" " Com. "	1 30	—
White Zinc, Snow	2 75	3 25

Naval Stores.	$ c.	$ c.
Black Pitch	3 10	@ 3 50
Rosin, Strained	3 75	4 00
" Clear, pale	5 75	10 00
Spirits Turpentine	0 68	0 70
Tar Wood	3 40	4 00

Oils.	$ c.	$ c.
Cod	0 62	@ 0 65
Lard, extra	1 10	—
" No. 1	0 95	1 00
" No. 2	0 85	0 90
Linseed, Raw	0 77½	0 80
" Boiled	0 82½	0 85
Olive, Common	1 17	1 35
" Salad	1 80	2 30
" " Pints, cases	4 20	4 40
" " Quarts	3 60	3 00
Seal Oil, Pale	0 70	0 80
" " Straw	0 60	0 75
Sesame Salad	1 30	1 35
Sperm, genuine	1 90	2 00
Whale, refined	0 75	0 80