Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

L'Institut a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- ☐ Coloured covers / Couverture de couleur
- ☐ Covers damaged / Couverture endommagée
- ☐ Covers restored and/or laminated / Couverture restaurée et/ou pelliculée
- ☐ Cover title missing / Le titre de couverture manque
- ☐ Coloured maps / Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black) / Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations / Planches et/ou illustrations en couleur
- ☑ Bound with other material / Relié avec d'autres documents
- ☐ Only edition available / Seule édition disponible
- ☑ Tight binding may cause shadows or distortion along interior margin / La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure.

- ☐ Additional comments / Commentaires supplémentaires:

- ☐ Coloured pages / Pages de couleur
- ☐ Pages damaged / Pages endommagées
- ☐ Pages restored and/or laminated / Pages restaurées et/ou pelliculées
- ☑ Pages discoloured, stained or foxed/ Pages décolorées, tachetées ou piquées
- ☐ Pages detached / Pages détachées
- ☑ Showthrough / Transparence
- ☑ Quality of print varies / Qualité inégale de l'impression
- ☐ Includes supplementary materials / Comprend du matériel supplémentaire
- ☐ Blank leaves added during restorations may appear within the text. Whenever possible, these have been omitted from scanning / Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été numérisées.

CANADIAN

PHARMACEUTICAL JOURNAL

PUBLISHED BY AUTHORITY OF THE

ONTARIO COLLEGE OF PHARMACY.

EDITED BY

E. B. SHUTTLEWORTH,

Lecturer on Practical Pharmacy, Medical Department, Victoria University.

VOLUME VII.—1873-74.

TORONTO, CANADA:

THE MONETARY TIMES PRINTING ESTABLISHMENT, 64 AND 66 CHURCH STREET.

1874.

INDEX TO VOLUME VII.

CANADIAN

PHARMACEUTICAL JOURNAL

VOL. VII, NO. 1. TORONTO, AUGUST, 1873. WHOLE NO. LXIV

Original and Selected Papers.

LABORATORY NOTES.

BY H. H. CROFT,

Professor of Chemistry, University College, Toronto.

Phosphomolybdic acid has long been used as a test for alkaloids. Phosphotungstic acid has also been recommended for the same purpose, and recently Scheibler has called attention to two new acids prepared by him, the formulæ of which seem somewhat doubtful, but which are excellent tests for alkaloids. The writer has made a few experiments with a solution prepared very easily, by boiling, for a few minutes, common tungstate of soda with half its weight of syrupy phosphoric acid. Quinine gives a distinct milkiness almost immediately in 10,000th dilution, and after 24 hours in 100,000th dilution. Morphine gives the reaction plainly enough in 10,000 dilution, but not in 100,000. Strychnine gives it quite plainly in 200,000th dilution, as stated by Scheibler. This strychine precipitate may be used for the chromic acid test, and the morphine

and quinine compounds for the ordinary tests for those alkaloids. Bromine water, which can be prepared in a minute, is more handy than chlorine water, and answers just as well, or better, in conjunction with ammonia in the test for quinine; also in the ferrocyanide test. Fluckiger has found that it will detect one part of genuine in 20,000 of water. The ferrocyanide test (Vogel's) is not so delicate, detecting the alkaloid in 2500 parts of water.

ON INFUSION OF WILD CHERRY BARK.*

BY J. B. MOORE.

The formula of the U. S. Pharmacopœia for the infusion of wild cherry bark affords an unsatisfactory preparation.

The infusion, to be an efficient remedy, should be carefully made, and should represent the tonic as well as the sedative properties of the bark; and, since water extracts but a meagre portion of the bitter tonic principle of the drug, the infusion as made by the officinal process can be said to faithfully represent only the sedative properties. Moreover, when made with water alone as the menstruum, the infusion is a very unstable preparation, liable to spoil, in warm weather especially, in a very short time.

Glycerin is one of the best solvents for the bitter principle of wild cherry bark that we have, and when associated with water forms a menstruum perfectly adapted for extracting the entire medicinal virtues of the bark; and it is with such a menstruum that I propose making the infusion, and would offer the following formula and process, which after repeated trials has proved perfectly satisfactory:

℞	Powd. Wild Cherry Bark, No. 60,	ʒss, troy.
	Glycerin,	f ʒij.
	Water, temperature 86°.	
	Water,	each a sufficient quantity.

Moisten the bark with six fluid drachms of water, at the temperature of 86°. Allow the mixture to stand for two hours in an air-tight vessel, at about the same temperature. Then pack it firmly in a glass percolator. Mix the glycerin with ten fluid ounces of water at the temperature of 86°, and gradually pour the mixture upon the bark, and when it has all passed from the surface continue the percolation with water until one pint of infusion is obtained.

* From the American Journal of Pharmacy.

In the above formula I have refrained from mixing glycerin with that portion of the water with which the bark is moistened, lest it might possibly interfere with or retard its reaction upon the bark.

As prepared by the above formula, the infusion is much darker in color than that as made by the officinal process, and much more bitter; the taste of which, however, is modified and rendered more agreeable by the glycerin it contains. The hydrocyanic acid odor is also strongly marked in it.

I think that the formula for this infusion might be still further improved by doubling the strength of the infusion, that is, using one troy ounce of bark to the pint of infusion instead of half a troy ounce as is now employed. I can see no possible objection to such a change, but can see many reasons why it should be made. It would greatly lessen the bulk of the dose, which is a large draught for a delicate person to swallow. The dose may then be reduced from two or three fluid ounces to two or three tablespoonfuls.

In the course of my experiments to test the relative merits of the above formula and process with those of the officinal, I made upon several occasions a sample of the infusion as directed in the above formula, also one by the same process, but doubling the quantity of the bark, and another strictly in accordance with the officinal formula.

The sample on each occasion made by the above formula kept, without apparent change in sensible properties, for about ten days, with the exception of very slight turbidity and a little deposit of resinous or other insoluble matter, which was of no consequence. The characteristic hydrocyanic acid odor, however, remained apparently undiminished for that period, after which I could perceive a gradual loss of this odor, with an increased cloudiness and deposit; while the sample made by the same formula, with double the proportion of the bark (one troy ounce instead of half a troy ounce to the pint), kept without visible change, beyond a slight cloudiness and a little deposit, for about sixteen days, retaining its characteristic odor and taste but very slightly diminished for that time. But the sample on each occasion, which was made in strict conformity to the officinal formula, with water alone as the menstruum, exhibited in a very short time a cloudiness, which rapidly increased, and the hydrocyanic odor was entirely lost in four or five days, while the infusion became entirely spoiled and unfit for use in less than a week.

These samples were all kept in the same situation in my store room, at a temperature ranging from 60° to 70°. These results show that there can be no question about the advantages in the use of glycerin in the preparation of this infusion, and also illustrate the advantages of increasing the strength of the infusion, as it seems to give increased stability to the preparation.

The glycerin not only contributes to its preservation, but also

forms a better and more potent menstruum for the solution of the virtues of the bark, and affords a much more active and efficient preparation. The sweet taste of the glycerin also serves to conceal in a measure the bitterness of the infusion, and renders it more agreeable to the taste. Glycerin itself, possessing alterative, nutrient, and demulcent properties, is useful in almost all cases in which the infusion of wild cherry bark would be employed; while in no case can there be any possible objection to its use.

It is a fact well known to all observing pharmacists that the proportion of hydrocyanic acid in all preparations of wild cherry bark gradually diminishes with time, and sooner or later entirely disappears, especially if the medicine is exposed to the light.

This fact alone gives, I think, additional importance to the infusion as a therapeutic agent, which, when carefully and properly made, furnishes a preparation embodying all the medicinal virtues of the bark in a fresh or nascent state, and in an eligible form for administration; and, as the proportion of the menstruum to the bark is so large, it will always, with ordinary care, insure its perfect exhaustion of all that is medicinally desirable.

I am surprised that physicians do not more frequently avail themselves of the use of this preparation; I presume the cause of its being so seldom prescribed is owing to the liability of the officinal infusion to spoil quickly, and the prevailing impression of its inefficacy. If, however, physicians can have this preparation made so that it will keep, and retain its medicinal properties unimpaired for two or three weeks, and prepared in such a manner that it will fully represent the entire active properties of the bark, I have no doubt that it would become a more popular remedy.

I have directed in the above process a two hours' preliminary maceration, instead of an hour as in the officinal. This may, even with advantage, be prolonged to five or six hours, when circumstances will permit, so time will be given for the necessary reactions which develop the sedative properties of the bark to become more complete.

The temperature of the water with which the bark is moistened preparatory to maceration should never be below 86° to 90°, and the maceration should be conducted at about the same temperature, as this temperature serves to promote the reactions referred to above. Yet care must be exercised not to allow the temperature to much exceed that point, otherwise there will be more or less loss of hydrocyanic acid. Attention to this point is of like importance, also, in the manufacture of all preparations of wild cherry bark where it is desirable to secure its full sedative power.

Especially is this necessary in cold weather. In summer the water is usually warm enough, and the temperature of the atmosphere such as to render the resort to artificial warmth unnecessary.

Some pharmacists, when making the syrup of wild cherry bark,

after moistening the bark with water place it in the cellar to macerate; but this should not be done as most cellars are too cold at any season for this purpose. It is also necessary that the maceration be conducted in an air-tight vessel, otherwise the hydrocyanic acid will escape almost as fast as it is generated. There is another precaution, also, that it is well to observe in this matter, and that is to pack the bark rather firmly into the vessel in which it is macerated, as this will tend to confine the acid and prevent its waste.

There are many cases of disease in the treatment of which the physician may wish to combine the properties of tar with those of wild cherry bark; if so, an elegant and valuable combination of this kind may be formed in the following manner:

℞ Tar, pure - - - - - - 1 pint.
Infusion of Wild Cherry Bark - - 4 pints.

To the infusion, in a suitable bottle, or other air-tight vessel, add the tar. Set it aside to macerate for two or three days. Stir the mixture well with a stick, and shake it vigorously frequently during the maceration. Then filter through paper.

The *stirring* directed in the preparation of this compound infusion is an important part of the process, as it breaks up the tar and thus presents a larger surface of it to the action of the solvent, which enables the liquid to more thoroughly and more quickly exhaust the tar of all that is soluble in it; whereas, if the mixture is simply shaken the tar will often remain in an impermeable mass, the interior of which is entirely inaccessible to the menstruum. This same treatment could, I think, be adopted with advantage in making the officinal "Infusum Picis Liquidæ."

When prepared as above directed and filtered, this infusion is quite a handsome preparation, and to those who have not an aversion to the taste of tar it is not an unpleasant one.

Glycerin being a good solvent of the medicinal virtues of tar, this compound infusion possesses the properties of the latter in a high degree, and in my opinion it is superior medicinally to the "Wine of Tar," and may be substituted for it with advantage in almost all pectoral diseases.

It will be found an excellent remedy in chronic pectoral and bronchial affections, and may often be used also with good effects in the treatment of certain diseases of the kidneys and bladder. The physician may at pleasure combine with it any of the usual expectorant, diuretic, anodyne or diaphoretic medicines.

It may be administered in the dose of from one to two tablespoonfuls every two or three hours, as required.

This infusion is not so liable to spoil as the simple infusion of wild cherry bark. Being impregnated with the antiseptic properties of tar, it will keep for a long time unchanged, if kept in a cool, dark place.

In the late revised edition of the U. S. Pharmacopœia, I observe that the Committee of Revision have given some attention to the infusion of wild cherry bark, and have substituted a "fine powder" for the "moderately coarse" one employed in the edition of 1860. This was a judicious change, and I regret that they did not make the same alteration in the formula for the syrup of wild cherry bark. In fact, a "very fine" powder for that preparation would not be at all too fine; while a coarser powder than No. 60 will not yield a satisfactory syrup; for, no matter how firmly packed, the percolation, when a coarser powder than "No. 60" is used, proceeds too rapidly, and the bark is in consequence but imperfectly exhausted.

PHILADELPHIA, March, 1873.

LABORATORY NOTE ON THE RED AND GREEN IODIDES OF MERCURY.*

BY F. R. WILLIAMS.

Nearly 10 years ago I was frequently engaged in the manufacture of considerable quantities of red and green iodides of mercury. At first I was in the habit of washing the green iodide with alcohol to purify it from adhering red iodide, as is usually done. But on one occasion, by reason of a misunderstanding, the proportion of iodine was considerably increased, and therefore the union between it and the mercury was almost instantaneous and very violent, so much so that the whole material was for a moment in a complete state of fusion, the evolution of heat being sufficient to fill the spacious apartment with dense violet vapors. The proportion of the materials was then rectified by supplying the deficiency of mercury, and the mixture was now thoroughly triturated. The resulting compound did not have the deep olive green color that this preparation usually possessed; but on the contrary, it was of buff or yellowish green cast. Alcohol did not change its color, and therefore I presumed that the intermediate iodide had been largely formed, or that the mixture contained an extraordinary amount of the red iodide. The washing with alcohol was then continued, and the filtrate at intervals examined by dropping it into water, the production of a precipitate indicating the presence of red iodide. Formation of turbidity remaining undiminished, I was led to believe that alcohol could not purify this lot. Very little satisfaction was obtained by referring to authorities, and at last I concluded that as the Edinburgh process for preparing red iodide of mercury consisted

* From the Chicago Pharmacist.

in part by crystallizing it from a hot solution of chloride of sodium, this might also answer for purifying the green iodide, consequently I boiled the refractory mixture with a strong solution of chloride of sodium and succeeded admirably in removing the poisonous red compound. After this I never employed alcohol, but always washed the green iodide with a hot solution of chloride of sodium for purification. I found this to be the most economical, expeditious, convenient, and thoroughly efficient operation that could possibly be devised.

In the manner of preparing the red iodide I resorted almost at the outset to a very important modification of the ordinary way. The unnecessarily great amount of water employed is a disagreeable feature when the process is applied in the production of large quantities. Knowing that red iodide of mercury is only sparingly soluble in a strong solution of hydrochloride of ammonia, I introduced this latter salt into the formula, so as to obtain a very concentrated solution of corrosive sublimate, and in this manner get rid of an enormous quantity of water. The strong solution of the chloride of mercury made with the aid of the ammonia salt is mixed with a similarly concentrated solution of iodide of potassium and the heavy precipitate of the red iodide subsides rapidly. Pints of water accomplish here what formerly gallons only could effect. My process is given below:

℞ Corrosive Chloride of Mercury, 4 parts.
Iodide of potassium - - 5 "
Hydrochloride of Ammonia 2 "
Water, a sufficient quantity.

If not already in powder, pulverize the ammonia salt coarsely. Then put the mercury chloride into a convenient wedgewood mortar and crush it (this can be easily and quickly done); add to it the hydrochloride of ammonia, and pour on three or four parts of water, triturating until the salts have dissolved. Now dissolve the iodide of potassium in five or six parts of water, and pour into it the first solution, collect the precipitate on a strong filter, wash it thoroughly with water and dry it in the open air.

MUSK.*

Three kinds of musk find their way into the English market, the first of which, Kabardeen, or Russian musk, comes to us from Siberia through Russia. It is of a very inferior quality, being poor in odour, and is said to be the produce of a different species from the Himalayan musk deer, called *Moschus Sibiricus*. The pods are large, and usually are to be depended on as to genuineness, which is much more than can be said for the pods we import in caddies from China. The Chinese musk generally is valued at from four to six times as much as the Russian, and in buying this very dear substance the purchaser would require to beware of bargaining for a pig in a poke. It is frequently adulterated with baked blood, dried liver, bark, pellets of lead, etc., to such an extent that only the smell of the original tenant remains in the pod. The perfumers further distinguish Assam musk from the Chinese or Tonquin musk, by its possession of a much more rank smell than that imported from China. Regarding the musk of the Western Himalayas, I find the following note in the catalogue of of the Agra Exhibition of 1867:—"The Simla musk balls, which are presented as complimentary nazars by hill chiefs, are an inferior kind, and do not command anything like the price of the genuine Thibet balls. About 100 musk bags are imported from Changthan *viâ* Yarkand, of which about forty go to Yarkand; the rest go to Kashmir and Jammu, and are taken by Yarkand pilgrims to Mecca, for sale in India or other Asiatic countries. They are produced in the north-west of Rodokh and Nepal, and valued at Le (in Kashmir) from seven to fifteen rupees, at Yarkand from twenty-one to twenty-six rupees. In former times, musk bags of the Dasht-i-Khuttan, or great Tartar Desert, were in high repute, and fetched at the least forty-two rupees; but all supply from that quarter has long ceased."

Among animal perfumes musk not only stands pre-eminent, but in many respects it is the most wonderful material nature places at the disposal of the perfumer, and it has in all times been the most highly prized among the oriental peoples who possessed or could purchase it. According to the author and prophet of the Mussulman faith, the floor of the seventh heaven, or paradise of the faithful, is composed of pure wheaten flour mixed with musk and saffron, and the black-eyed houris who will welcome the immortal braves to these realms of odoriferous bliss are themselves fashioned out of pure musk. So enchanting to the senses of the followers of the prophet is the odour of musk, that it is said there exist two mosques in the mortar of which an enormous quantity of pure musk was mixed up; and such is the penetrating and enduring odour of this substance, that probably the perfume will continue powerful

*Extract from a paper read before the North British Branch of the Pharm. Soc., by James Paton, Assistant Keeper, Museum of Science and Art, Edinburgh. Published in Pharm. Journal and Transactions.

and persistent as long as the finger of time permits the walls to hold together.

Besides the *Moschus moschiferus*, which is practically the only source of musk in commerce, many other animals and even plants are possessed of a powerful musk odour. Among the creatures possessing the scent are the musk ox, *Ovibos moschatus*, of the northern regions; the musk rat of India, *Sorex myosurus*; the European musk rat, *Mygale moschata*; and of all other sources, the alligators and crocodiles of both hemispheres. This source of musk is well known and utilized in India, as an extract from the catalogue of the Madras Exhibition of 1855, speaking of the alligator in Travancore, will show. "Musk," it says, "is taken from the glands of the jaw, which is very fine if well prepared, and separated from the flesh, otherwise it will give a very bad smell." Among the articles exhibited by Egypt in the Paris Exhibition of 1867, there occurred the musk of the crocodile as one of the ingredients in Egyptian perfumery. Many insects are also powerfully pervaded with an odour of musk. Among plants possessing the odour there may be named the seeds of *Abelmoschus moschata*, and the *Mimulus moschatus*, an American importation common in nearly all gardens, and which has taken so kindly to many of our water-courses that the whole reach of many of our streams is yellow with them in July. The most powerful odour of musk is, however, contained in the Sumbul or musk-root, *Hyalolena Siverzovii*, an umbelliferous root which comes to us from Afghanistan.

GLYCERIN IN FLUID EXTRACTS.*

BY WILLIAM C. GILL.

Extracted from an Inaugural Essay.

Sixteen troyounces of valerian root, reduced to proper form, was exhausted and made into fluid extract in the usual manner; the result was a clear reddish-brown preparation, odor and taste strong of valerian, and indicating a good extract. Another sixteen troyounces was treated, after Mr. Campbell's process, with a menstruum consisting of alcohol, three parts; glycerin, one part. The fluid extract obtained was of a very dark reddish-brown color, with the characteristic odor and taste, but to all outward appearance much stronger than the preceding. Both preparations were labelled, dated and set aside. At the expiration of five weeks the fluid extract containing glycerin had changed to a muddy liquid, very unsightly and with considerable precipitate; the other, on the contrary, remained

*From the American Journal of Pharmacy.

clear, with but a very slight precipitate. The glycerin preparation was then filtered; the filtered liquid again presenting a beautiful clear appearance, and seeming to have lost but little of its strength, and by many would have been pronounced the best preparation of the two. In this instance the glycerin served merely to dissolve the coloring matter (which it was unable afterwards to hold up), and thus placed the preparation in a false light, giving rise to what by a vulgar expression is called "strong" simply on account of its depth of color.

Similar experiments were made with buchu, cubebs, lupulin and ginger. In the first three the result was very nearly the same as with the valerian, namely, a strong-looking preparation, but one which in each instance precipitated after standing some time. In fact, with the cubebs and lupulin it was apparent that glycerin was not at all suitable, while the buchu yielded, instead of the rich green color noticed in the alcoholic fluid extract, a preparation having a brownish hue. The fluid extract of ginger made with the addition of glycerin was, however, superior to that simply made with alcohol, not only presenting a much nicer appearance, and proving on dilution to be equally as strong, but remaining permanent.

While performing these few experiments with the above well-known drugs, an order was received for fluid extract of poke root. Having previously used diluted alcohol as a menstruum, and with considerable success, we thought to improve on the same by addition of glycerin. A dark reddish-brown preparation was the result, coming up fully to our expectations; and, feeiing perfectly satisfied, we placed what remained on hand after filling the order, on a shelf. On going to the bottle some three weeks after we found, on examination, the extract had gelatinized, and was in a semi-solid condition. Since then we have noticed a similar change in several other fluid extracts which were stable before glycerin was used in preparing them, yellow dock, golden seal, and elecampane being among the number.

In making the above statements we do not wish to condemn the use of glycerin in fluid extracts; on the contrary, we rather approve of it; but its indiscriminate use, as recommended by many, we do certainly disapprove of. In many cases the use of glycerin seems specially called for. In the fluid extract of senega it appears to be the only preservative; for, no matter what menstruum we use, if glycerin is omitted the preparation will precipitate, while if this liquid is used in the proportion of one-fourth to the usual menstruum, a fluid extract is obtained which will remain permanent, with but very slight precipitation, for an indefinite period.

The above observations are more of a practical than experimental nature, and are, perhaps, a little at variance with the ideas generally published; though adding nothing new to our knowledge of glycerin, they show that we must be guarded in its use, and carefully study the composition of the drug before using it as a menstruum.

NOTE ON AQUÆ MEDICATÆ.*

BY F. W. REINHOLD, JR.

The notion that medicated waters should be made by distillation has still a strong hold in the views of many pharmacists. Recently a modification of the distillatory process has been advanced, and that is, to distil the volatile oils with water, instead of the herbs, barks, etc. If the volatile oil is pure there is certainly an advantage in this change. Defenders of the methods by distillation would lead us to believe that medicated waters, particularly those made from fresh herbs, are so very superior in the characteristic flavor, strength, and general permanence. But the best authorities on this question rather confirm the popular supposition that such distilled products, on the contrary, possess a very disagreeable herbaceous rankness, the peculiar leaf-odor and taste, which is anything but desirable. Waters of this kind must always have age, during which time the rankness disappears, leaving them a natural and pleasant fragrance. Medicated waters prepared from dried but not too old herbs, yield pleasanter products than the fresh. Many volatile oils, when freshly distilled, have the same peculiar rankness, which disappears after some time. But the same volatile oil may later again become rank through oxidation, if not properly protected against atmospheric action. There is no use for agitators in favor of distillations to try so hard in widening the sphere of this process. Pharmacists generally are not so much in love with the retort business as to extend its utility to the medication of waters. Medicated waters are prescribed so largely and so indiscriminately, that many pharmacists would have to keep a special medicating laboratory of stills in constant action for their required supply. Besides waters thus prepared would entail extra and unnecessary expense on the consumer, without a really intrinsic value in return. The plea that the distilled waters are far the strongest is vain. Water will only dissolve a certain amount of volatile oil to become saturated, and therefore no manipulation will impregnate or supercharge it with more. Water can be easily saturated with any particular volatile oil without taking refuge in the retort.

So-called concentrated waters are also used, especially in England. These waters are said to be stronger than the officinal. They are sold to retail pharmacists for the purpose of making the ordinary medicated waters. But such traffic, in its very nature, is fraudulent in the last degree. When the officinal waters are already assumed to be saturated, how, in the name of reason, can simple water then dissolve sixteen times its saturating proportion of volatile oil? But the case is made plain when we know that diluted alcohol will just

* From the Chicago Pharmacist.

do this very thing. Most volatile oils will form a perfect or nearly perfect solution with diluted alcohol, or a mixture of equal parts of the strongest alcohol and water, in the proportion of four mimims, or eight drops, to the fluid ounce. This solution, when poured into about 15 fluid ounces of water, will form a clear solution in most cases. A pint of this kind of medicated water will then contain additionally half a fluid ounce of alcohol, equal to about three per cent.

The best way to make these concentrated waters is to dissolve the oil in half the alcohol and mix the remainder of the alcohol with twice its volume of water, and then pour into this the first solution, with constant stirring. After standing a few hours the solution is filtered, if desirable, through magnesia alba.

To make concentrated camphor water 16 grains of camphor are dissolved in 2 drachms of alcohol, and poured with rapid stirring into a mixture of two fluid drachms of strongest alcohol and half an ounce of water. This makes a clear solution. On pouring this into 15 fluid ounces of water it also makes a clear solution on shaking. The water then contains one grain of camphor to the fluid ounce, which makes it rather stronger in camphor than usual. The reason is that water containing even so little as three per cent. of alcohol is a better solvent than pure water. This also holds good in regard to volatile oils. Medicated waters containing a trace of alcohol are not so apt to become turbid, in contact with saline substances, which is a very annoying feature, particularly with camphor water, which throws out abundance of camphor and assumes an unpleasant appearance when certain salts are dissolved in it. For the prevention of this precipitation the presence of a little alcohol is especially good.

I believe, however, that the best way after all to make the medicated waters, is to prepare them by simple maceration. That is, to shake the volatile oil with the water, then set it aside for a day or two, and shake the mixture occasionally, and finally filter. I find that this saturates the water completely and avoids the presence of magnesia and alcohol. The results I deem superior to the distilled waters, if care is taken to use pure and good oils. I find that the solubility of oils of bitter almond and gaultheria is far greater than that of the other volatile oils proper. The act of solution is almost instantaneous in each case, so that no time is required to arrive at complete saturation of the water. The oil of bitter almond seems to be the most soluble of the two.

One minim of volatile oil of bitter almond will dissolve perfectly and instantly in six fluid drachms of water, without the addition of alcohol or magnesia alba. According to this the originator of the officinal aqua amygdalæ amaræ did not immortalize himself much when he concocted a formula which employed a quantity of magnesia alba for no purpose at all, and then used only six minims of oil to 12 fluid ounces of water, when the same quantity of water

would have completely dissolved 16 minims of oil without the aid of magnesia alba.

In making camphor water the camphor is first pulverized and then shaken with the water, similar to the manner of making the other waters. The camphor can be powdered, with the addition of a few drops of alcohol, but even this alcohol is not required, because the addition of the same amount of water will accomplish the purpose equally well.

CUPRO-AMMONIUM.*

Take a bottle half full of ammonia solution, of gravity .880, immerse some shreds of copper, and notice the result. Almost immediately the solution acquires a tinge of blue, which tinge can be referred to a solution of a portion of the copper, the question being, by what is the metal dissolved.

Air, or rather the oxygen of air, is necessary to the result, as may be demonstrated by absolutely filling a bottle with the solution of ammonia *plus* the copper shreds, instead of partially filling it, when no solution of the metal will issue.

It will be proper here to remark that, although ammonia will first precipitate hydrated oxide of copper from any ordinary copper salt, and an excess of ammonia will dissolve the oxide, yielding a blue solution, yet the latter is not the cupro-ammonium to which our remarks will refer, having none of the properties of that fluid save identity of color.

Although the incidence of chemical action is made evident to the eye at once, yet the maximum degree of chemical action will only be arrived at after the lapse of about six weeks, and not even then except care has been taken to remove the stopper of the bottle, from time to time shaking the contents—still better, pouring the contents from one bottle to another—the general result arrived at being to give air. In practice on the large scale, the same result is more speedily attained by means of an air force-pump. After the lapse of the requisite time, the solution will be found to have acquired a deep blue color, and also certain very curious properties, amongst others that of dissolving a number of things usually regarded as insoluble. For example, cupro-ammonium so rapidly dissolves silk that, when in good condition, a yard length of white Persian or sarsanet, if plunged into the solvent, dissappears as rapidly as a lump of sugar in a tumbler of hot water. Lignin or cellulose dissolves also with great facility, but with a facility not quite equal to silk. Of all forms of lignin, perhaps, white blotting

* From the Engineer.

paper dissolves most readily, but there is no form or variety of lignin which it will not dissolve under the condition of adequate time.

Taking advantage of this solvent property of the agent, a curious series of operations become possible. Paper, linen, wood, any sort or varieties of lignin, may easily be agglutinized together, without the intervention of any other cement than its own substance brought to the state of solution by cupro-ammonium. A curious fact, too, is that, when surfaces of paper or other ligneous materials have been thus agglutinated, the copper which they hold may be extracted by a weak acid, leaving the paper or other lignin pure and white, but not in any way interfering with the adhesion of one layer of lignin material to another.

The chemical enquirer need not be told that the designation cupro-ammonium is only empirical. What the exact formularization of the substance may be, the name does not express, and is not intended to express. That the copper exists in a peculiar electro-chemical state not participated by ordinary copper salts is well demonstrated by difference of the action of the two on iron. For example, whereas sulphate of copper (blue vitriol), if dissolved and iron immersed in the solution, deposits copper on the iron at the expense of iron dissolved, the cupro-ammonium does nothing of the sort, but actually guards the very brightest of iron and steel against all chemical action so long as immersion is continued. This reminds us of a reply to a naval surgeon who has sent to us a letter in which he asks whether cupro ammonium would protect his instruments against rust, to which they are subject between decks. The answer is yes, cupro ammonium will infallibly do that; but, we are sorry to say, it will also dissolve all such parts of surgical instruments (*e. g.*, knife handles) as have ivory, wood, or bone entering into their composition.

PETROLEUM AND ITS PRODUCTS.

Professor Chandler recently made a report to the New York Board of Health which contains much interesting information in regard to the manufacture and safety, of the so-called coal oil. From a portion of this report, which was published in the *Druggists' Circular*, we make a few extracts.

The crude petroleum is first subjected to fractional distillation, the apparatus consisting of an iron still, connected with a coil or worm of wrought-iron pipe, which is submerged in a tank of water, for the purpose of cooling it. When the still has been filled with crude oil the fire is lighted beneath it, and soon the oil begins to boil. The first products of distillation are gases; at ordinary temperatures they pass through the coil and escape without being con-

densed. By cooling the coil with ice or by compressing these gases by an air-pump into a strong receiver, very volatile liquids called "rhigolene" and "cymogeme" are obtained.

Soon the vapors begin to condense in the worm, and a stream of oil trickles from the far end of the coil into the receiving tank. The first oils obtained have a gravity of about 95° Beaumé; as the distillation proceeds the product becomes heavier, 90° B., 85° B., 80° B., 75° B., 70° B., and so on.

In most establishments it is customary to run the product into one tank till the gravity reaches 65° B. to 59° B.; the product, known as *crude naphtha*, being subsequently separated by redistillation into (1) *gasolene*, the lightest; (2) *naphtha*: (3) *benzine*. When the stream of oil runs from the coil with a gravity from 65° to 59° B., it is diverted into the *kerosene* tank and continues to run into this receiver till the gravity reaches about 38° B., or until the color deepens to a yellow. This second fraction is the burning oil or *kerosene*, and is subsequently purified by sulphuric acid and alkali.

After taking off the burning oil, the stream is directed to the *paraffine oil* tanks, and continues to run there till nothing remains in the still save coke. The last products have a gravity of about 25° B.

This oil is chilled to crystallize the paraffine, and is then folded in cloths and exposed to pressure to squeeze out the oil. The solid paraffine is purified by repeatedly melting it in naphtha, chilling, and pressing; the oil separated from it is purified with sulphuric acid and alkali and used for lubricating purposes.

When very large stills are employed, of a capacity from one thousand to thirty-five hundred barrels, the distillation is not continued till coke is formed; but is interrupted when there remains in the still a thick tarry residuum amounting to from five to ten per cent of the original oil. This residuum is afterwards distilled to coke in smaller stills.

By slow distillation in high stills the heavier oils are "cracked" into lighter oils, so that the refiner need not produce any heavy oil. In many of the largest establishments only three products are obtained from crude oil: 1. Crude naphtha. 2. Burning oil. 3. Residuum. The *burning oil* is deodorized and bleached for market with sulphuric acid and alkali; *crude naphtha* is sold for from 3 to 5 cents per gallon, and poured down the oil wells, nominally *to clean them*, but practically to be sold to the refiner again in the crude oil at 14 cents per gallon; or it is sold to be redistilled for gasolene, refined naphtha, and benzine. The well-owners are many of them dishonest enough to pour the nahptha into the crude oil tank. This adulteration averages fifteen per cent.. The residuum is sold to be distilled for paraffine and lubricating oil. or it is cracked in high stills, and the product put into the large stills with the crude oil. In this case no lubricating oil or paraffine is manufactured. This is the

practice at Cleveland and Pittsburg. Some redistil the last ten per cent., the colored portions of the burning oil, with the crude oil.

Some place the crude petroleum in large stills and blow steam through it, and thus take off the crude naphtha, before the oil is run into the fire still.

Some manufacturers, who pride themselves upon the superior quality of their special brands of oil, separate certain portions of the distillate, and send them to market as unusually safe oils.

The "*Astral Oil*" is probably the oil which runs from about 54° to 44° B., in other words, the "heart" of the burning oil. As it does not contain the lighter portions of the ordinary oil, its flashing point is 125° F., or 25° above the standard of safety, although its average gravity is 49° B. The "*Mineral Sperm*"* is a heavy oil, which probably runs between 40° B. and 32° B., averaging 36° B. This is so heavy, and requires so high a temperature to volatilise it, that it does not evolve an inflammable vapor below 262° F., nor take fire below 300° F. Practically it is as safe as whale oil.

After the oil has been fractioned it is subjected to the action of sulphuric acid to remove a little color, but more particularly to *sweeten* it, *i.e.*, to remove the disagreeable odor which it still retains. About two per cent., by measure, of acid is poured into the oil, the mixture is thoroughly agitated, and, on standing, a dark, tarry sediment separates; this is removed, and the clear oil is then agitated with water, then with alkali, either caustic soda or ammonia. This neutralises the last traces of acid, and, after removal by water, leaves the oil "*sweet.*" Some of the more careful refiners then subject it to a somewhat elevated temperature to expel a small percentage of naphtha or benzine which it still contains, while a few subject it to redistillation.

Why most of the Kerosene in the market is unsafe.

The crude naphtha sells at from three to five cents per gallon, while the refined petroleum or kerosene sells for twenty to twenty-five cents. As great competition exists among the refiners, there is a strong inducement to turn the heavier portions of the naphtha into the kerosene tank, so as to get for it the price of kerosene. They change the direction of the stream from the coil of the still when it reaches 65° to 63° B., instead of waiting till it reaches 58°. Thus the inflammable volatile naphtha or benzine is allowed to run into the kerosene, rendering the whole highly dangerous. Dr. D. B. White, President of the Board of Health of New Orleans, found that, experimenting on an oil which flashed at 113 F., an addition of

* For the manufacture of this, the safest burning oil yet made from petroleum, see the *American Chemist* for May, page 404.

One per cent. of naphtha caused it to flash at					103° F.
Two	"	"	"	"	92° F.
Five	"	"	"	"	83° F.
Ten	"	"	"	"	50° F.
Twenty	"	"	"	"	40° F.

After the addition of twenty per cent. of naphtha, the oil burned at 50° F.

It is, therefore, the cupidity of the refiner that leads him to run as much benzine as possible into the kerosene, regardless of the frightful consequences which result from the frequent explosions.

On every gallon of naphtha run into the kerosene tank there is a profit to the refiner of twenty cents, or on every per cent. of naphtha added to the kerosene a reduction of one-fifth cent per gallon in the cost of production, which, with kerosene at twenty-five cents per gallon, amounts to one and one-fourth per cent. For every gallon of naphtha sold as kerosene, the refiner can afford to throw away four gallons. Nothing is more desirable than the discovery of some use to which the naphtha can be put, which will make such a demand for it as to raise its value above that of kerosene, that it might be the interest of the refiner to separate *as much* instead of *as little* as possible. It must not be supposed that the specific gravity of the oil can be considered a safe index of its quality; on the contrary, the specific gravity gives very little idea of the quality, for while naphtha tends to render the oil lighter, the average gravity of good oil is maintained by the heavier oils present. A poor, dangerous oil may be heavier than a safe oil.

The *Astral Oil* illustrates this fact; while it does not flash below 125° F., its gravity is 49° B.

Ordinary kerosene flashes at 86° F., but has a gravity of 47° B.

THE USE OF NUT OIL IN PHARMACY, AND ESPECIALLY IN THE PREPARATION OF UNGUENTUM HYDRARGYRI NITRATIS.*

BY M. FALIERES.

In a brief review of former formulæ for the preparation of citrine ointment, the author calls attention to the large increase which has taken place in the relative proportion of the nitric acid to the mercury. The proportions indicated by Baumé, in 1785, were nitric acid 128 parts, mercury 96 parts, lard 1000 parts. The mercury has been gradually decreased until, in the Codex for 1866, where equal parts (500) of olive oil and lard are ordered, the nitric acid is

* 'Bull. des Travaux de la Societe de Pharmacie de Bordeaux,' vol. xiii. 165, in Pharm. Jour. and Trans.

100 parts, and the mercury 50. Thus the proportions which originally were 4 of nitric acid (sp. gr. 1·28) and mercury 3, have become nitric acid (sp. gr. 1·42) 2, and mercury 1.* Without blaming the progressive diminution of the metal, since even with this reduction the medicament still remains very powerful, the author objects to the great excess of acid. Suggestions have been made to remove the excess of acid by washing the ointment with a large quantity of water, and then adding an equal weight of almond oil, but have been rejected in consequence of the length and difficulty of the operation, and it being far from certain that the whole of the acid excess would be thus removed.

The author having had occasion to make a comparative investigation of pure olive oil and the oil of the ground nut (*Arachis hypogœa*), found that the arachis oil possesses a great aptitude for the nitric solidification. Hence he conceived the idea of suppressing entirely the lard in the preparation of nitrate of mercury ointment. The product so obtained appeared to present such marked advantages as to induce him to make known the process.

Mercury	5 parts.
Nitric Acid (sp. gr. 1·42)	10 "
Nut Oil	100 "

Dissolve without heat the mercury in the acid; pour the mercurial solution into the oil, agitating from time to time with a glass or earthenware spatula After two or three hours, according to the quantity operated upon, and at a temperature of about 20° C, the mixture begins to take a milky consistence, which lasts for about an hour, then thickens to that of a soft butter. This latter stage lasts at least two hours, during any portion of which time the ointment may be poured out. The mass spreads with perfect regularity in a paper mould; the thickness of the layer is uniform, and there is no separation between the oily and mercurial elements, showing that the combination is complete. The product does not set so rapidly as the official one; at the end of ten or twelve hours it is easily divided by a wooden knife, but this is more conveniently done after it has stood for twenty-four hours; its consistence is then similar to that of cacao butter in the summer. Two or three days afterwards it appears to attain its maximum of firmness, and some have been kept upwards of two months without showing any appreciable difference in its consistence. Compared with the Codex preparation, the author considers that the ointment made with nut oil has greater cohesion, is not friable, and appears much better adapted for friction, as it melts and spreads upon the skin with greater facility.

M. Faliéres is of opinion that no serious exception could be

* In the B. P., where more olive oil is used, the proportions are nitric acid 3, mercury 1.

taken to the change of fat excipient which he proposes. The process attained in the manufacture of arachis oil has provided a white, bland, tasteless article, which is, commercially speaking, neutral. Perfumers, who are not, like pharmacists, bound by a formal code, make large use of the ground nut oil in the manufacture of pomades, cold cream, etc. A perfect type of a non-drying oil, it absorbs relatively small quantities of perfume; it requires the least wax, spermaceti, or stearine for its solidification, and finally may be kept almost indefinitely without turning rancid. The author promises at some future time to show in detail the advantages that may be obtained from the use of nut oil in a large number of pharmaceutical preparations.

ON GLYCERITE OF GINGER.*

BY J. B. MOORE.

There is, perhaps, no aromatic more popular or more highly prized for its therapeutic properties than ginger. And as a domestic remedy, in the form of the officinal "tincture," under the popular and well-known title of "Essence of Ginger," there is scarcely a preparation of our Pharmacopœia more extensively or more universally used. The popularity it has acquired in this form is some evidence of its therapeutic value. Although the "Tincture of Ginger" is, for many purposes, a most excellent and trustworthy preparation of the drug, yet in many cases of children and delicate persons, its strongly alcoholic character disqualifies it for use, and this especially in diseases of the stomach and bowels when irritation or an inflammatory condition exists. The "Syrup of Ginger," as made by the U. S. P., is too weak to possess much medicinal value, and even in its use as a flavor it is of but trifling importance. So there would seem to exist a necessity for a preparation of ginger intermediate in strength, between the tincture and syrup, and at the same time free from alcohol. The "Glycerite of Ginger," a preparation whose formula I here present, is admirably adapted to supply this want. It it about triple the strength of the officinal syrup of ginger and contains no alcohol, and mixes in all proportion with water and syrup without precipitation or turbidity.

The following is the formula and process for its preparation:

℞ Ext. Zingiber. fluid,, f ʒ i.
Magnes. carbon., ʒ x.
Glycerin. f ʒ xvj.
Aquæ, q. s.

*From the Pharmacist, June 1873.

Mix the glycerin with an equal measure of water. Triturate the fluid extract of ginger thoroughly with the magnesium carbonate. Then add gradually, one pint of the mixture of glycerin and water, rubbing well after each addition of liquid, and strain the mixture through strong, close muslin with strong expression. Rub the residue in like manner with the remaining part of menstruum. Then transfer the mixture to a half gallon bottle containing the expressed liquid first obtained and shake the whole vigorously together. Lastly, filter, through paper, passing sufficient water through the filter to make the filtered liquid measure 32 fluid ounces.

To insure a good preparation, such as the formula and process will afford, if properly manipulated, it is necessary that some care and judgment be exercised in its manufacture. In the first place, the fluid extract of ginger, if purchased, should be of known reliable quality, or else it should be prepared by the pharmacist himself. Secondly, the fluid extract and magnesium carbonate must be thoroughly triturated together before the menstruum is added, which adding must at first be very gradual, with much rubbing after each small addition. The straining and expression directed after the incorporation of the first pint of menstruum, being a little troublesome, may be omitted, and the whole of the menstruum supplied in successive portions at once, and the whole afterwards well shaken in a bottle. But the manipulation directed in the process insures the most reliable product, and I would advise that it be carried out.

The "Glycerite of Ginger," prepared as above directed, contains the activity of 15 grains of ginger to the fluid ounce, and is about the color of sherry wine, and possesses the characteristic flavor and pungency of the ginger very strongly marked. Both of which, however, are somewhat marked and blunted by the glycerin.

It will prove an excellent corrigent addition to the various tonic, diarrhœa and stomachic mixtures. It can be associated in prescription with almost all kinds of mixtures. For pain in the stomach, accompanied by sickness, acidity or flatulence, and for many other purposes which may suggest themselves to the physician, the following formula furnishes an excellent combination, and is not an unpalatable mixture:

℞ Sodae Bicarb., ʒ j.
Liq. Morph. Sulph., ʒ ss.
Tr. Cardamom. Comp., f ʒ ij.
Sp. Ammon. Aromat., f ʒ ij.
Sacch. Album. ʒ iij.
Glycerit. Zingiber., f ʒ ij.
Aquæ Menth, Pip. q. s. ut ft. f ʒ iv.

Sig.

For an adult, one tablespoonful as required. The physician may, of course, vary the ingredients and their proportions to suit his

own views. In cases of diarrhœa and other lax conditions of the bowels, Tr. Krameriæ, Tr. Catechu, Tr. Kino or other astringent remedies may be added, and the desired quantity of Tr. Opii or Tr. Opii Camph. substituted for the Liq. Morph., as these preparations are generally preferable to morphine in astringent mixtures. In cases of diarrhœa, etc., accompanied by tenesmus, a little castor oil, say from one or two fluid drachms, will be found a valuable addition to the above. The castor oil can be formed into a smoother mixture with the other ingredients, by the addition, also, of about two drachms of powdered gum arabic. By omitting the solution of morphine from the formula as it stands, and adding one fluid ounce of Comp. Tinct. Gentian., it will form a most elegant and efficient remedy in certain forms of dyspepsia and other disordered conditions of the stomach. As an astringent addition to the above preparation, I would recommend the tincture of krameria as preferable to either the Tinct. of Catechu or Kino. It being, as far as my experience and observation has gone, not only equally efficient, therapeutically, with either of the latter preparations, but at the same time more agreeable to the taste and forms a more elegant mixture with this and other similar combinations. It is especially preferable to Tinct. Catechu in these respects. This, however, is simply the opinion of a layman. The physician will, of course, interrogate his own experience and gratify his own peculiar notions in choosing his remedies.

LIEBIG'S FIRST VISIT TO PARIS.

The following personal reminiscence of the late Baron Liebig is from the pen of Dr. Quesneville, and is published in the May number of the *Moniteur Scientifique-Quesneville* :—

"The editor of this journal had the happy privilege of assisting Liebig in his earliest researches—by washing his glasses and running to fetch the articles required by him—when, in 1822 and 1823, he came to Paris to perfect himself in the study of chemistry.

"Gauthier de Claubry, who is still living, and was then a man of considerable reputation and usually waited upon after the grand visit had been made to Thenard, presented Liebig to my father. At that time there was in Paris scarcely any place but the private laboratory in the Rue du Colombier where a chemist could work freely ; that is to say, without a protector taking the half of his labour for chemicals used and apparatus borrowed. This laboratory was one of the appurtenances of the manufactory of chemical products which my father had purchased from Vauquelin and the heirs of Fourcroy. Gauthier de Claubry, who was acquainted with this laboratory, where Vauquelin, Chevreul, Serrulas, and himself had

laboured and taught, mentioned it to Liebig, and it was in this commodious place that the illustrious chemist, newly arrived in the great city, prepared his first work on the fulminates.

"At this time I was twelve years of age and it was I that carried to the great German the articles required for his experiments. My mother also conceived a great liking for him and charged herself with his firing. She filled his stove, and even fitted up at his hotel a fireplace *a la prussienne* : for the young chemist was not rich, and was completely without fuel in the middle of a most rigorous winter. Liebig laboured there one entire year, and when his memoir was finished he dedicated it to Thenard. Gay-Lussac was astonished by it, and requested Liebig to communicate to him his ideas : the second investigation was made in conjunction with Gay-Lussac and in his laboratory.

"But Liebig never forgot his early days in Paris and the assistance he received from my father, so that when he learned from Gerhardt, in 1840, that I had founded the *Revue Scientifique*, and that I had engaged the latter to abstract foreign memoirs for its pages, he wrote to me at once as follows :—

"It will not be necessary to send you my journal by post, for, as I have already promised, you will receive proofs of all original memoirs before the numbers of the journals containing them are printed and published ; in this manner you will be able to make these memoirs known to the French public four or six week earlier. This winter I have had the good fortune to count among my pupils six very clever young chemists ; I have proposed to them to undertake together a thorough investigation of the fat bodies, and this work, commenced eight months since, is now nearly finished.'

"Liebig finished his letter with the following declaration, which it is curious to read in the present day :—

" 'You may, my dear Quesneville, give provisional information as to the results, and I will send you the complete memoirs as soon as I can. You will see, though, that while they were occupying themselves at Paris in useless discussions on the theory of substitutions, we cultivated our field with organized forces. To-day we collect the fruit. Can you be astonished that I have taken so little part in these combats fought about theories so ephemeral, and that in my book I have not even spoken of them ? It was because I would not draw off the attention of my readers towards matters so purely personal. In a couple of years they will not be spoken of, and the importance attached to them to-day will have vanished like a dream.' "

ON THE TASTELESS IODIDE AND CHLORIDE OF IRON.

The following letter was addressed to the editor of the American *Journal of Pharmacy*, and relates to the subject treated of in Mr. Creuse's former paper, reproduced in this journal, Vol. vi. No. 12, p. 428:

DEAR SIR,—If you ask me what kind of combination citrate of potassa can form with sesqui-iodide of iron, I will answer frankly that I cannot say with certitude; it is probably a combination similar to the medicinal pyrophosphate of iron or the green scales of sesqui-phosphate of iron and citrate of potassa I sent you last year. That they form a combination does not admit of any doubt, for the physical and chemical changes are such as would not be presented by a simple mixture. But, be the combination what it may, I believe the new salt represents exactly the results of what happens in the stomach when protoiodide of iron is administered. Protoiodide of iron cannot be absorbed as it is, for no protosalt of iron is ever found in the animal system; when ingested into the stomach it must change in whole or in part into sesqui-iodide, which, combining with the citrates, tartrates, oxalates, malates or lactates, etc., always present in human food, becomes ready for absorption. The balance of the iodide of iron is probably eliminated, like all unabsorbed substances (I leave acetates purposely out of the list, for acetic acid is monobasic, and this class of compounds seem to be limited to the salts of polybasic vegetable acids. This explains also why protoiodide of iron is best administered just before a meal; for the food supplies the stomach with both the oxygen and the vegetable salts necessary for the digestion of the ferrous compound,

The new iodide of iron according to this theory, ought to be more effective and more uniformly so than the protoiodide, for it comes all ready for absorption, while the old salt, being absorbed only with the help of other variable substances, will vary more or less in its effects, besides interfering with the natural functions of the stomach.

Experiments made by Dr. Lalanne, of this city, have confirmed this view and have served to determine the medicinal dose of the new combination. This was necessary on account of the entirely different character of the new and the old form of iodide of iron. It has been found that from one to three grains of the salt have the same medicinal effect as an average dose of the U. S. Pharmacopœia syrup of protoiodide. As the new salt contains about 42 per cent. of iodine and 9 per cent. of metallic iron, this shows that its effects are proportionately greater than those obtained from the same substances administered as protoiodide.

Its medical properties are, otherwise, precisely the same as those of the officinal iodide of iron, and its administration has always been followed by the most gratifying results; but it is not my province to speak of this, except to mention that it has found great favor among children and female patients, on account of its relatively pleasant taste, and because it never blackens their teeth.

Much of this applies also to the tasteless tincture of muriate of iron. The officinal tincture is still more injurious to the teeth than the syrup of protoiodide of iron; it not merely blackens them, but destroys them when used long enough. I have heard some dentists speak very strongly on the subject. The tincture I send you contains the same proportion of iron as the tinct. ferri sesquichloridi, U. S. P. I left the dose the same as that of the officinal preparation, but I have no doubt that experiments now being made will warrant a reduction in the dose.

In regard to the quantity of citric acid needed for one fluid ounce of tincture of muriate of iron, I have found from recent experiments that it requires from 90 to 95 grains of citric acid neutralized by 180 to 190 grains of crystallized carbonate of soda to transform that quantity into the tasteless compound. It seems singular at first sight that the more acid is the solution of muriate of iron, the more citric acid it requires; but it is easy to account for that apparent anomaly; for, any excess of muriatic acid decomposing a corresponding quantity of citrate of soda, more of that salt is needed in proportion to the free acid present.

J. CREUSE.

NEW YORK, May 20, 1873.

ANALYSIS OF COBRA POISON.—Cobra poison has been recently tested as to its enduring action when taken from the snake and preserved. Some was kept in small bottles and then injected under the skin of various animals with fatal effects. It was also chemically analyzed and gave as the result:—Carbon, 46; nitrogen, 13; oxygen, 6; sulphur, 25; the rest of hydrogen. This, as M. Dumas remarks, is exactly the composition of beer-yeast, and supports the idea that the cobra poison is of the nature of an animal ferment.—*Phila. Med. and Surg. Reporter.*

SOLUTION OF ISINGLASS IN WATER.*

BY C. CARROLL MEYER.

One hundred grains each of the following kinds, American ribbon, American sheet, Russian and Prussian(?) isinglass were treated separately, first with f℥viii of water to soften, then f℥viii more of water were added and boiled until all soluble matter was extracted, then filtered, and the following table will show the solubility of the different kinds experimented with:

ISINGLASS.	QUANTITY USED.	SOLUBLE.	INSOLUBLE.
American strip	100 grs.	70 grs.	30 grs.
" sheet	100 "	82 "	18 "
Russian	100 "	88 "	12 "
Prussian	100 "	80 "	20 "

From the foregoing experiments it will be seen that the Russian is the most soluble and the American strip the least soluble.

The bladder of a hake fish, weighing ℥xv, was washed with water to remove salt, and boiled with sufficient water until all soluble matter was obtained, then filtered, and found to contain ℥i of insoluble matter.

As aqueous solutions are prone to decompose, experiments were made to see if anything would arrest decomposition, and glycerin was found to answer very well in the proportion of one part glycerin to fifteen parts solution of isinglass. Solutions to which glycerin was added kept sweet and were quite palatable, while those to which no glycerin had been added soon decomposed, and became quite offensive to both taste and smell.

* From the American Journal of Pharmacy.

Editorial.

LAW IN REGARD TO THE SALE OF WINES AND SPIRITUOUS LIQUORS BY DRUGGISTS IN ONTARIO.

It is not generally known that, towards the close of the last session of the Ontario Legislature, an Act was passed which has an important bearing on the right of druggists to dispense or sell liquors for medicinal purposes. It is entitled an Act to amend the Acts respecting Tavern and Shop Licenses, and may be found in full on the ninety-second page of the *Ontario Gazette Extra* of April, 1873.

It will not be found necessary to consult the Act *in extenso*, as the portion which relates to the interests of druggists is altogether comprised in the first section, and is exceedingly concise. After requiring that all persons who deal in spirituous, fermented, or other manufactured liquors, shall be duly licensed under the provisions of former Acts, it is stated that this clause does not apply to brewers and distillers, "nor to any chemist and druggist, duly registered as such, under and by virtue of the *Pharmacy Act of* 1871, who keeps or has such liquors for medical purposes only."

It will it be remembered that when the Pharmacy Act was framed a similar clause was introduced, but was expunged when the measure was discussed in committee, and it was then confidently stated, by competent authority, that any further attempt to push the clause would certainly prevent the passing of the bill. We are glad to see, however, that the Legislature are now prepared to recognize the improved status of the body of pharmacists, and by granting this privilege to members of the College, have given the best earnest of an increased confidence, which, we trust, our druggists will never abuse.

We cannot, at present, say, with certainty, how this Act will affect municipality licenses, but presume that they will follow the same regulations as those collected into the Consolidated Revenue Fund of the Province.

We may note that we have heard that the tavern keepers of some towns have appealed against some of the provisions of the

Act, and have taken the ground that the entire Act is illegal as it was not competent for the Provincial Legislature to pass a measure affecting trade and commerce, generally; such legislation being confined to the Dominion Government. How this matter is, or how it will terminate, we cannot say, and as it may be assumed that the provincial legislature is a very fair authority, we do not think it necessary to hazard an opinion.

PORTABLE GAS APPARATUS.

Some four or five years ago, there appeared in the *Scientific American*, a description of a patent which had been granted for carburetting hydrogen gas. The apparatus, of which illustrations were given, consisted, essentially, of a vessel for the generation of hydrogen, an arrangement for washing and carbonizing the gas, and a gasometer. The hydrogen evolved from a mixture of iron, or zinc turnings, water, and sulphuric acid, was made to pass through a vessel containing petroleum naphtha, by which means the gas which would otherwise burn with a pale, blue, almost non-luminous flame, became possessed of the light-giving property. The residue in the gas-generating vessel, consisting of sulphate of zinc, or iron, was said to be sufficient to pay the greater part, if not the entire expense of the process.

Being somewhat anxious to test the practicability of this process we devised an apparatus for making the experiment on a small scale, and, by the aid of a Pepy's gasometer, collected about ten or twelve gallons of the carburretted gas. Attachment with a gas burner was made, and on lighting the jet a clear and luminous flame appeared. The experiment was repeated with fresh quantities of gas, and the conclusions arrived at were: (1st) that the luminosity was equal to that of ordinary coal gas; (2nd) that the rate of consumption was greater than with coal gas; (3rd) the *hold*, or adhesion of the gas to the burner was so slight that the flame was easily blown out, (this may have arisen from deficient pressure); and (4th) that the cost would not compare favorably with that of ordinary gas.

Our reasons for stating these experiences are, that a patent has recently been obtained in Canada for the same process, and a company has been formed, through which every endeavor is being made

to push business. In many of our country towns the druggist is required to act in the capacity of consulting chemist, and we doubt not the advice of some of our readers has already been asked. We hope these details will prove useful, and, in addition, we tender the following computation, extracted from the *American Chemist*, of the cost of this illuminating material as compared with coal gas:

To make one cubic foot of hydrogen gas there will be required—

Oil of vitriol	0·26 lb.
Zinc	0·17 "

Or if iron be substituted for zinc,

Iron	0·15 lb.

The cost of hydrogen by this process will be per cubic foot:

From Zinc.

Oil of vitriol, 0·26 lb. at 2½ cents	0.65 cent.
Zinc, 0.17 lb. at 8 cents	1·36 "
	2·01 "

From Iron.

Oil of vitriol, 0·26 lb. at 2½ cents	0.65 cent.
Iron (wrought scrap), 0·15 lb. at 2 cents	0·30 "
	0·95 cent.

Petroleum oil will not answer for carburetting this hydrogen, though if of a poor quality, that is, contains naphtha, etc, it will yield up these latter impurities and thus carburet a small volume of gas. Gasoline and benzol are the best carburetting liquids. Compared with ordinary coal gas, however, there is a great economy in the use of the latter. The highest price charged for coal gas is $4 per 1000 cubic feet, which would be 0·4 cent per cubic foot against 2·01 cents, or 0·95 cent for the hydrogen, to which must de added the cost of the carburetting material, as of course, the hydrogen has no luminosity. So that the person who proposes to furnish a six-feet-per-hour gas light, equal to ordinary coal gas, for 0·84 cent per hour, is convicted of ignorant or fraudulent pretentions. If the carburetting material cost nothing, such a light could not be afforded for less than 5·7 cents. City gas works, which the gas is claimed to rival in economy, even at the high price of $4 per 1000 cubic feet, would furnish the same light for 2·4 cents.

STATUE TO BARON LIEBIG.—The German Chemical Society has resolved to erect a statue in honor of the late illustrious chemist, and, in aid of this object, to invite the assistance of pupils and friends, as well as that of chemists, throughout the world.

Editorial Summary.

Improved Formula for Tincture of Rhubarb.—J. B. Moore, *(Am. Jour. Pharm.)* remarks on the liability of this tincture to deposit, through which cause its pharmaceutical, as well as medicinal value is affected. Chrysophanic acid, which is supposed to be concerned in the medical activity of the drug, has been found in the precipitated matter, and the sediment is to druggist and patient a very unsightly object. Some experiments were made with a view of producing a most stable preparation, and, in this, the author says he has been eminently successful. The formula recommended is as follows:

℞.	Pulv. Rhei, No. 40.....	three troy oz.
	" Cardamomi, No. 40...	half troy oz.
	Glycerinæ	four and one quarter fl. oz.
	Alcohol. fort..... ...	seventeen fl. oz.
	Aquæ.	twelve and three quarter fl.oz
	Alcohol. dil	q. s.

Mix the glycerin, alcohol fort. and water. Moisten the powders, previously mixed together, with the mixture; pack the moistened mass in a glass jar or other close vessel, and let it stand for twenty-four hours. Then rub the powder through a No. 20 sieve, and pack it in a glass funnel prepared for percolation, and gradually pour upon it the remainder of the menstruum, and when it has all been absorbed continue the percolation with diluted alcohol until thirty-two fluidounces are obtained.

Recovery of Quinine Waste.—F. R. Williams, (*Pharmacist*) proposes a method for the recovery of the alkaloid from solutions, from which it has been in great part precipitated, but, owing to the solubility of quinia in water, and especially in water containing ammonia, which still contain a notable quantity of alkaloid. It was found that, with the most careful manipulation, and the most judicious application of water, 20 grains of pure anhydrous alkaloid were lost in the washings from one troy ounce of sulphate of quinia. This loss is equal to about $5\frac{1}{2}$ per cent., and, at present prices, would represent the sum of 10 cents, which amount, considering the number of preparations in which precipitated quinia is required, would certainly repay any attention bestowed upon its recovery. The author proposes to precipitate this quinine as a tannate, and from this source to supply the shop demand for the sulphate. The

solution should first be rendered slightly acid by the addition of a sufficient quantity of sulphuric acid, and tannic acid in solution should then be added as long as a precipitate appears. If the tannic acid be added to the alkaline liquor, the precipitate will have a darker color than when sulphuric acid is used. The precipitate should be well washed, pressed, and then dried by exposure to the air. Twenty-five grains of sulphate yield about a drachm of tannate, the latter salt containing less than one-third its weight of pure quinia.

Opium in Proprietory Medicines.—S. Dana Hayes (*American Chemist*) calls attention to the unrestricted use of opium and its preparations in the nostrums largely used by an indiscriminating public. From analyses made, the author finds that in many cases where the medicine is intended for internal use, the quantity of morphine present varies from one quarter of a grain to one and a half grains, in each dose as stated in the printed directions accompanying the medicine. A most noted piece of rascality was that of a "Cure for the Opium Habit," which was found to be a clear solution of sulphate of morphia, colored pink by aniline red and sweetened with sugar; and a dose containing very nearly two grains of sulphate of morphia, was to be taken three times a day by the patient when suffering severely from depression and other symptoms. The "brandy," sold by a dealer in medicines in the country was found to have been mixed with laudanum and extended with water in such proportion as to insure large profits, but it contained morphia equal to two and a half grains of opium in four fluid ounces of the "brandy." A tooth wash contained nearly four-tenths of a grain of morphia in each fluid ounce; and a cough mixture, more than three-tenths of a grain in the dose directed for a child.

Iodide of Starch.—E. Duclaux, *(Ann. Chim. Phys., in Am. Chemist)* differs from the general opinion that iodide of starch is a definite chemical compound, he considers that it is merely a case of molecular adhesion, and that the iodide is a true solution of iodine in starch, using that term in a very general sense. He bases his view on several of the physical and chemical characteristics of this body. The composition of the iodide is by no means constant, as it can be obtained with the iodine varying from 2 to 41 per cent. Different methods of preparation, give products which vary very greatly in their composition. The formation of iodide of starch in solution depends essentially on three conditions: 1, on the quantity of starch; 2, on the amount of iodine present; and 3, on the quantity of water

used. From experiments made by the author, it was found that, in the presence of large quantities of water, a considerable excess of iodide must be used in order to develop the blue color; and that it seems necessary for the solution to contain a certain proportion of iodine before its action on starch will commence. For further particulars in regard to the color, and decolorization of the so-called iodide we must refer those interested to the original paper.

Test for Bismuth in Ores.—Von Kobell *(Nues Report f. Pharm., in Pharmacist)* proposes, as a test for small quantities of bismuth, that the powdered ore be mixed with equal weights of iodide of potassium and sulphur, and placed upon a charcoal support. If bismuth be present, the mixture will, when heated before the blowpipe, assume a scarlet color, due to the formation of iodide of bismuth. If the ore contain sulphur, the sulphur in the formula may be omitted.

Preparation of Caramel.—A writer in *Dingler's Journal* recommends a process for sugar coloring in which carbonate of ammonia is added to the boiling sugar at the time that the charring action commences. The proportion of carbonate used is three ounces to each ten pounds of sugar. The salt should be in the condition of a coarse powder.

Compound for removing Nicotine from Tobacco Smoke.—Some years ago it was announced that tannin possessed the property of abstracting nicotine from tobacco smoke. We notice that this has recently been made the subject of a patent in the United States. The smoke is drawn through a sponge saturated with a solution of tannic, tartaric or citric acids, glycerine, and a flavoring ingredient, as Florida, or clove water.

Meconate of Quinia.—P. T. Austen, *(Am. Chemist)* has obtained this salt by adding to an alcoholic solution of quinia a similar solution of meconic acid. The meconate falls as a white, curdy precipitate, which is soluble in hot water, crystallizing therefrom in definite and regular form. The aqueous solution gives reactions for meconic acid and quinia. The salt contains, by calculation, 56.66 per cent of alkaloid.

Improved Method of Bending Tubes.—A writer in the *Journal of the Franklin Institute* recommends the use of sand for producing an even and regular bend in glass tubes. The tube to be bent is filled with dry sand, the ends are stopped, and heat is applied. It is said that the tube may be doubled upon itself without unsightly creases, or a flattening of the external angle. Sand is often thus applied in the bending of lead pipe.

Estimation of the Tannin Value of various Substances used for Dyeing.—Accrding to Kurz (*Reimann's Farberzeitung*) one pound of tannic acid represents, respectively, 40 pounds sumach, 18 pounds myrobalans, 14 pounds divi divi, or 11 pounds gall-nuts.

Books and Pamphlets.

PHARMACEUTICAL LEXICON; *A Dictionary of Pharmaceutical Science, containing a concise explanation of the various subjects and terms of Pharmacy, with appropriate selections from the collateral sciences; by* H. V. SWERINGEN, Member of the American Pharmaceutical Association. Philadelphia: LINDSAY & BLAKISTON, 1873, 8vo., pp. 576.

To do thorough justice to so comprehensive a title as that borne by the work under review, would entail a task of no ordinary magnitude, and, for its elucidation, would require a volume of no common size. The range of subjects embraced by the term, pharmaceutical science, is very extensive, comprising four, if not five, distinct branches of knowledge, each containing an almost endless variety of subjects. The author appears to have recognized this fact, and, on behalf of his work, modestly concedes a certain amount of imperfection, but, at the same time, claims to have produced, within reasonable limits, a work which will prove practically serviceable for ready reference, by supplying immediate and concise information upon *many* of the innumerable and varied topics of professional inquiry. In this respect we think he has succeeded, and we believe the dictionary will prove very useful to those whose time will not allow of more extended research, and whose purposes do not require them to go beyond an extended definition of the term or subject upon which they may desire information.

The book is divided into two parts, the first containing the dictionary, which extends over four hundred pages; and the second, which embraces a number of tables and other useful information, to which we shall afterwards call attention. In order to show the scope of the definitions given in the dictionary, we cannot do better than transcribe half a page:

LUGOL'S SOLUTION. R. Iodine, 6 drachms; iod. potassium, one and a half ounces; distilled water, one pint.

LUNA. Silver.

LUNA CORNEA. Chloride of silver.

LUNAR CAUSTIC. See *Argenti Nitras Fusa.*

LUNGWORT. (*Pulmonaria officinalis.*) An herbaceous, perennial, European plant, cultivated in this country in gardens, the leaves of which are considered pectoral and demulcent.

LUPININE. A neutral organic principle, greenish, amorphous, bitter, insoluble in absolute alcohol and ether, obtained from the seed of Lupinus albus.

LUPULIN. (*Lupulina.*) The yellow powder attached to the strobiles of Humulus lupulus.

LUPULINE, } See *Humulin.*
LUPULITE. }

LUPULUS. See *Humulus.*

LUTE, } A composition of clay
LUTING. } or other tenacious substance, used for stopping the juncture of vessels so closely as to prevent the escape or entrance of air, to protect them when exposed to heat.

LUTEIN. A name given to the crystallizable yellow coloring principle found in the yoke of eggs, in the yellow fat of butter, in annotta, in the carrot, and in the anthers and petals of many plants.

LUTEOLIC ACID. See *Luteolin.*

LUTEOLIN. (*Luteolic Acid.*) A peculiar yellow coloring matter obtained by sublimation from Reseda luteola, composed of $C_{40}H_{14}O_6$.

LUTESCENT. Of a yellowish color.

LUTIDINA. An aromatic oil of the composition $C_{14}H_9N$, obtained from cinchonia by the action of potassa.

LYCIA, } A peculiar alkaloid con-
LYCIN, } tained in the matrimony
LYCINA. } vine, or Lycium barbarum, a thorny shrub growing in Asia and the south of Europe, the leaves of which are used by the physicians of Japan.

The second part of the book extends over about one hundred and fifty pages, and, as we have said, is of somewhat varied contents. It is commenced by a list of the abbreviations most commonly employed in writing prescriptions. This is followed by a lengthy enumeration—about forty pages—of "select prescriptions," classified according to the leading therapeutical properties of the various mixtures. This part of the work would have been rendered much more valuable if the authority for the recipes had been affixed. This has been altogether withheld, so that we are at a loss to know whether this list is a compilation, or whether the author of the book is responsible for the prescriptions, which, in many cases he so highly recommends. While speaking of this, we feel compelled to say that, throughout the entire work, the author has been somewhat lax in acknowledging his indebtedness to others, and though, except in the case noted, the usefulness of the book is not impaired by this oversight, it would have been more courteous—to use the

mildest term we can employ—if a little more attention had been given to this particular.

The long posological table of Garrod is reproduced entire; and we have also a list of the technical names of diseases, with a concise definition of each, which will serve to render the perusal of medical literature more profitable to those who are unacquainted with the terms by which our ailments are technically designated. This is followed by a very good and well arranged list of poisons, with the symptoms produced, and the appropriate treatment. The chemical tests for each substance are also given. We have also the usual tables of weights and measures, boiling points of various solutions, atomic weight of the elements, specific gravities of common solids, liquids, and gases, with other useful tables pertaining to pharmaceutical and chemical matters.

A chapter on chemical formulas, and also one on the atomic theory in chemistry, will give the reader an idea of the general principles of chemical philosophy, as recognized by the majority of chemists of the present day. It would have been better if these more recent views in regard to combining weights had been applied in the revision of the lengthy table of "pharmaceutical equivalents," reproduced from the U. S. Dispensatory. Turning to the chapters aforesaid, and also to the atomic weights of the elements, as given in another part of the book, we find the weight of oxygen stated as being 16, while in the table of equivalents it figures throughout as 8. This would be somewhat puzzling to an uninformed reader. A very useful portion of the book is that which relates to the dietary for invalids, as also that on the preservation of dead bodies for interment, or dissection, in which the methods used in the leading colleges and hospitals are given. A far more pleasing, though, perhaps, less instructive part, is that entitled, "Leaves from an old Dispensatory." From this the reader will learn the condition of pharmacy in the year of our Lord 1676, when the ancient Salmon, of respected memory, had the regulation of matters pharmaceutical. In those days the worthy doctor found it no less a task to compile his dictionary than does our author of the present, inasmuch as he tells us that in the preparation of his book he had "delivered the Sum and Substance of Great Volumes, and, as in a glass, represented the reduction of Hercules his labors."

REMARKS ON STRICTURES OF THE URETHRA OF EXTREME CALIBRE; *with cases, and a description of new Instruments for their Treatment;* by F. N. OTIS, M.D. New York: D. Appleton & Co., 1872.

This is the title of a pamphlet of some 25 pages, containing the substance of a paper read before the New York Medical Journal Association. It more particularly refers to the instruments required in the treatment of cases of urethral strictures, and is illustrated by engravings of a number of these appliances.

OPTHALMIC AND AURAL SURGERY REPORTS, by JULIAN J. CHISHOLM, M.D. Baltimore.

This pamphlet contains reports of cases of special interest which have been presented for treatment at the Baltimore Eye and Ear Institution.

ANNUAL REPORT *of the Superintendent and Physician of the New York State Inebriate Asylum.*

ANNUAL ANNOUNCEMENT *of the Woman's Medical College of Pennsylvania,* 1873-4.

Correspondence.

To the Editor.

I hope the forthcoming meeting of Council will be productive of some energetic action concerning those who neglect to register. I am satisfied that if the College of Pharmacy is not be brought into complete contempt, these delinquents must be attended to. Would it not be a good plan to have the registrar write to one member in good standing in each district, asking for the names of all persons doing business in their neighborhood. Then compare his list, so obtained, with the list of registered chemists and druggists, and just notify and then prosecute the delinquents through some respectable lawyer; or the *Dominion Directory* might be examined, and compared with the registrar's list. Perhaps some one will think of a better plan, but I feel sure something must be done. Out of five druggists in the town in which I reside, but two have paid their fee for this year.

JUSTICE.

July 13, 1873.

Practical Formulæ

Syrup of Tar.—Mons. Latour gives the following formula in the *Reportorie de Pharmacie :*

Tar, washed with boiling water	100	grammes.
White sugar	600	"
Powdered gum Senegal	100	"
Water	400	"
Simple syrup	2,000	"

The tar must be triturated in a porcelain mortar with sugar and the powdered senegal until a perfect mixture is obtained. Then the mixture should be turned into an evaporating dish, previously made hot, and the water, with sufficient syrup, boiling, added. The mixture is to be continually triturated until a perfect emulsion is obtained, and the rest of the syrup, boiling, is to be added by degrees, having brought the syrup to the boiling-point, and strained while hot. One part of tar is contained in thirty parts of the syrup. M. Latour adds that a teaspoonful mixed with a tumblerful of bitter water gives a proper draught of tar water, in which the tar flavor is well disguised.—*New Remedies.*

Lotion of Acetic Acid for Baldness.—The following lotion is said to be superior for a shampooing liquid, for removing dandruff, and useful and pleasant application for baldness. It is, of course, moderately stimulating, and in those cases in which the hair-follicles are not destroyed, but have become merely inactive, we should think it might prove both efficacious and agreeable: Take of acetic acid, 1 drachm; Cologne water, 1 ounce; water, to make in all 6 ounces. Mix.—*Druggists' Circular.*

Varnish for Harness.—Take of alcohol 95 p. c., 1 gallon; white turpentine, 1½ pounds; gum shellac, 1½ pounds; Venice turpentine, ¼ pound. Let it stand in a jug in the sun or by a stove until the gums are all dissolved, then add: Sweet oil, 4 ounces; lampblack, 2 ounces. Mix well together.—*Ibid.*

Substitute for Cocoaine.—Take of cocoa butter, 3 drachms; castor oil, 15 fl. ounces; alcohol, 95 p. c., 15 fl. ounces; glycerine, 2 fl. ounces. Melt the oils together with gentle heat, transfer to a bottle, and gradually add the alcohol, then the glycerine or as much of it as it will take without becoming milky. Perfume to suit. This is nearly transparent; but the addition of a larger proportion

of cocoa butter will give the hair-oil that *lardy appearance* appreciated by some persons.—*Ibid.*

Ginger Beer.—Take of refined sugar, 3 pounds; bruised ginger, 2 ounces; cream of tartar, 1 ounce; lemons, sliced, number, 4; boiling water, 4 galls.; yeast, 8 ounces. Pour the water on the first four ingredients, and infuse for two hours; then strain, add the yeast, and when fermentation has continued for a few hours, put it into stone bottles and secure the corks.—*Ibid.*

Lemon Kali.—Take of bicarbonate of soda; tartaric acid, of each, ʒ ijss.; sugar (white), ʒ xi. All to be in the state of a fine powder, and separately dried by a gentle heat, after which they are mixed together and flavored with oil of lemon, 10 drops, and otto of rose 1 drop. Passed through a sieve and put into dry bottles well corked.—*Pharmacist.*

Varieties.

ROBUR.—This new form of spirit originated from the practical observation of a well-known traveller that, by combining a preparation of theine with spirit, he obtained a beverage which was eminently stimulant and restorative after a hard day's work. From what is known of the action of the active principle of tea and the equally known effects of alcohol, this is thoroughly intelligible; and the idea of the combination of the nervine tonic—which, in the form of tea, coffee, cocoa, or mate, is the beverage of the whole civilized world—with alcohol, selected by an equally strong and universal instinct, may be considered to be a very happy one. Both have the prescriptive claim to confidence derived from the argument *quod ubique quod ab omnibus*. That it is at once a stimulant, a nervine tonic, and an aid to weak digestion, follows from its composition, and these effects have been verified in practice. The main practical problem was to render it entirely palatable while maintaining its purity. This has been satisfactorily accomplished, and a hot toddy of robur is one of the most palatable of alcoholic drinks. In the treatment of exhaustive diseases, wherever spirit is now employed, robur is, we think, called to render great services, and deserves a very ample trial. As an alcoholic beverage, its qualities speak for themselves. It is, we fully believe, more wholesome and far less liable to abuse than any of the customary forms of spirit.—*London Medical Record, in New Remedies.*

JOINING RUBBER.—Rubber is easily joined and made as strong as an original fabric, by softening before a fire and laying the edges carefully together, without dust, dirt, or moisture between. The edges so joined must be freshly cut in the beginning. Tubing can be united by joining the edges around a glass cylinder, which has previously been rolled with paper. After the glass is withdrawn the paper is easily removed. Sift flour or ashes through the tube to prevent the sides from adhering from accidental contact.—*Ibid.*

A NEW SUBSTITUTE FOR QUININE.—Among the specimens of drugs exhibited in the International Exhibition in Vienna is the Echisess scholaris, a plant of the natural order *Apocyneæ*. It is especially abundant at Luzon, in the province of Batanga, in the Phillipine Islands, and its bark has long been used by the natives, under the name of dita, as a remedy in all kinds of fever. Herr Gruppe, an apothecary in Manilla, has found it in an uncrystallizable very hygroscopic bitter substance, to which he has given the name of ditain. The principal Spanish physician in Manilla, Dr. Miguel Zina, has given it to numerous hospital patients under his care, and has found that ditain is not only a perfect substitute for quinine, but that its use is not followed by any disagreeable results which often attend the use of quinine. It is given in the same doses and in the same way as quinine. In many cases, also, its activity as a tonic was well marked. The ditain is prepared from the bark in the same way as quinine from cinchona: 100 grammes of bark give 2 grammes of ditain, 0.85 gramme of sulphate of lime, and 10 grammes of a perfectly inactive extractive matter. A single tree yields a large quantity of bark without injuring its growth. It is calculated that the price of ditain in Europe would be about 160 francs per kilogramme (3s. 6d. to 4s. per ounce).—*British Medical Journal.*

ANOTHER PREVENTIVE OF MERCURIAL POISONING.—A few months since we gave the results of some experiments which indicated that chlorine gas would prevent the dangers which workmen suffer in mercury mirror factories. A later sugestion, which was made to the French Academy, is to use ammonia. M. Myer has employed it with success in the mirror factory at Chauncy for several years. Since 1858 no workman has been attacked by the mercury, while those men who were subject to the attacks of the disease have since suffered more rarely and less severely. It is recommended that the ammonia should be thrown round the shops in the evening rather than in the morning.—*Jour. of App. Chem.*

PORTABLE INK.—At a recent meeting of the Frankfort Polytechnic Asociation, Prof. Boettger exhibited a novel kink of ink, which is adapted to take on journeys and exploring expeditions. White blotting-paper is saturated with aniline black, and several sheets are pasted to form a thin pad. When wanted for use, a small piece is torn off and covered with a little water. The black liquid which dissolves out is a good writing ink. A square inch of the paper will give enough ink to last for a considerable writing, and a few pads would be all that an exploring party need carry with them. As water is available, the ink is readily made.

DRUGS, MEDICINES, &c.	$ c.		$ c.
Acid, Acetic, fort	0 14	@	0 15
Benzoic, pure	0 23		0 30
Citric	1 50		1 60
Muriatic	0 05		0 06
Nitric	0 11½		0 15
Oxalic	0 27		0 30
Sulphuric	0 03¾		0 07
Tartaric, pulv	0 50		0 50
Ammon, carb. casks	0 23		0 24
" jars	0 23		0 24
Liquor, 880	0 25		0 28
Muriate	0 14		0 15
Nitrate	0 45		0 60
Æther, Acetic	0 45		0 50
Nitrous	0 35		0 37
Sulphuric	0 50		0 50
Antim. Crude, pulv	0 13		0 17
Tart "	0 65		0 70
Alcohol, 95 per ct.....Cash	1 60		1 72
Arrowroot, Jamaica	0 16		0 22
Bermuda	0 50		0 65
Alum	0 02¾		0 03½
Balsam, Canada	0 45		0 50
Copaiba	0 85		0 90
Peru	3 80		4 00
Tolu	0 90		1 00
Bark, Bayberry, pulv	0 20		0 22
Canella	0 17		0 20
Peruvian, yel. pulv	0 42		0 50
" red "	2 10		2 20
Slippery Elm, g. b	0 15		0 20
" flour, packets	0 28		0 32
Sassafras	0 15		0 20
Berries, Cubebs, ground	0 20		0 25
Juniper	0 06		0 10
Beans, Tonquin	0 62		1 10
Vanilla	26 00		28 00
Bismuth, Alb	3 40		4 00
Carb.	3 65		4 00
Camphor, Crude	0 38		0 40
Refined	0 45		0 50
Cantharides	2 80		3 00
Powdered	2 85		3 10
Charcoal, Animal	0 04		0 06
Wood, powdered	0 10		0 15
Chiretta	0 20		0 30
Chloroform	1 10		1 65
Cochineal, S. G	0 80		0 95
Black	1 10		1 20
Colocynth, pulv	0 50		0 60
Clolodion	0 90		1 00
Elaterium	5 80		5 90
Ergot	0 50		0 60
Extract Belladonna	2 00		2 25
Colocynth, Co	1 25		1 75
Gentian	0 50		0 60
Hemlock, Ang	0 85		0 95
Henbane, "	2 10		2 40
Jalap	5 00		5 50
Mandrake	1 75		2 00
Nux Vomic	0 40		0 50
Opium	1 50		
Rhubarb	5 00		5 50
Sarsap. Hon. Co	1 00		1 20
" Jam. Co	4 00		4 50
Taraxicum, Ang	0 70		0 80
Flowers, Arnica	0 17		0 25
Chamomile	0 32		0 40
Gum, Aloes, Barb. extra	0 70		0 80
" " good	0 40		0 50
" Cape	0 16		0 20
" " powdered	0 20		0 30
" Socot	1 05		1 35
" " pulv	1 00		0 00
Arabic, White	0 70		0 75
" powdered	0 60		0 75
" sorts	0 28		0 30
" " powdered	0 42		0 50
" com. Gedda	0 13		0 16
Assafœtida	0 35		0 42
British or Dextrine	0 13		0 15
Benzoin	0 35		0 75
Catechu	0 12		0 15
" powdered	0 25		0 30
Euphorb, pulv	0 35		0 40
Gamboge	1 40		1 50
Guaiacum	0 35		1 00
Myrrh	0 50		0 70

DRUGS, MEDICINES, &c.—*Contd.*	$ c.	$ c.
Sang Dracon	0 60	0 70
Scammony, powdered	6 00	6 50
" Virg. "	14 50	—
Shellac, Orange	0 55	0 60
Gum, Shellac, liver	0 50	0 52
Storax	0 40	0 45
Tragacanth, flake	1 10	1 40
" common	0 53	0 65
Galls	0 28	0 32
Gelatine, Cox's 6d	1 15	1 20
Glycerine, common	0 25	0 30
Vienna	0 25	0 30
Prices	0 60	0 75
Honey, Canada, best	0 15	0 17
Lower Canada	0 14	0 16
Iron, Carb. Precip	0 20	0 25
" Sacchar	0 40	0 55
Citrate Ammon	1 50	1 50
" & Quinine, oz	0 53	0 58
" & Strychine "	0 17	0 25
Sulphate, pure	0 08	0 10
Iodine, good	10 00	10 50
Resublimed	10 75	11 00
Jalapin	1 25	1 50
Kreosote	2 40	2 50
Leaves, Buchu	0 22	0 30
Foxglove	0 25	0 30
Henbane	0 35	0 40
Senna, Alex	0 27	0 60
" E. I	0 14	0 20
" Tinnevilly	0 20	0 30
Uva Ursi	0 15	0 17
Lime, Carbolate.....brl	5 50	—
Chloride	0 06	0 07
Sulphate	0 08	0 12½
Lead, Acetate	0 14	0 15
Leptandrin.....oz.	0 60	—
Liq. Bismuth	0 50	0 75
Lye, Concentrated	1 75	2 00
Liquorice, Solazzi	0 50	0 55
Cassano	0 23	0 40
Other brands	0 14	0 25
Liquorice, Refined	0 35	0 45
Magnesia, Carb. 1 oz.	0 20	0 25
" 4 oz.	0 17	0 20
Calcined	0 65	0 75
Citrate.....gran.	0 63	0 75
Mercury	1 30	1 35
Bichlor	1 30	1 40
Chloride	1 45	1 55
C. Chalk	0 65	—
Nit. Oxyd	1 60	1 70
Morphia Acet	4 45	4 60
Mur.	4 45	4 60
Sulph	4 60	4 75
Musk, pure grain.....oz	23 00	—
Canton	0 90	1 20
Oil, Amonds, sweet	0 42	0 50
" bitter	14 00	15 00
Aniseed	4 00	4 25
Bergamot, super	6 25	6 50
Carraway	3 20	3 50
Cassia	2 80	2 90
Castor, E. I	0 15	0 15
Crystal	0 22	0 25
Italian	0 26	0 28
Citronella	1 25	1 35
Cloves, Ang	2 20	2 40
Cod Liver	1 25	1 50
Croton	1 75	2 00
Juniper Wood	0 80	1 00
Berries	6 00	7 00
Lavand, Ang.....oz.	0 90	1 00
Exotic	1 40	1 60
Lemon, super	5 00	5 50
ord	3 20	3 40
Orange	4 00	4 25
Origanum	0 65	0 75
Peppermint Ang	13 00	14 40
" Amer	3 50	3 75
Rose, Virgin	8 50	8 75
" good	6 80	7 00
Sassafras	0 90	1 00
Wintergreen	6 00	6 50
Wormwood, pure	4 00	6 50
Ointment, blue	0 90	1 00
Opium, Turkey	8 50	8 75
pulv	10 50	10 75

DRUGS, MEDICINES, &c.—*Cont'd*	$ c.	$ c
Orange Peel, opt.	0 30	0 36
" good	0 12½	0 20
Pill, Blue, Mass.	1 00	1 00
Potash, Bi.chrom	0 23	0 27
Bi-tart	0 33	0 35
Carbonate	0 14	0 20
Chlorate	0 55	0 60
Ni rate	10 50	11 00
Potassium, Bromide	11 5	1 40
Cyanide	0 75	0 80
Iodide	7 75	8 00
Sulphuret	0 25	0 35
Pepsin, Boudault's.....oz	1 40	—
Houghton's..... doz.	8 00	9 00
Morson's.....oz.	0 85	1 10
Phosphorus	0 95	1 00
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	2 50	—
" 100 oz. case.	2 45	—
" 25 oz. tin..	2 45	—
Root, Colombo	0 13	0 20
Curcuma, grd	0 12½	0 17
Dandelion	0 17	0 20
Elecampane	0 16	0 17
Gentian	0 08	0 10
" pulv	0 15	0 20
Hellebore, pulv	0 17	0 20
Ipecac, "	1 50	1 60
Jalap, Vera Cruz	1 00	1 25
" Tampico	0 70	1 00
Liquorice, select	0 12	0 13
" powdered	0 15	0 20
Mandrake "	0 20	0 25
Orris, "	0 20	0 25
Rhubarb, Turkey	2 50	2 75
" E. I.	1 10	1 20
" " pulv	1 20	1 30
" " 2nd	0 90	1 00
" French	0 75	—
Sarsap., Hond	0 40	0 45
" Jam	0 88	0 90
Squills	0 10	0 15½
Senega	0 90	0 95
Spigelia	0 25	0 30
Salts, Epsom	2 25	3 00
Rochelle	0 32	0 35
Soda	0 02½	0 03
Seed, Anise	0 13	0 16
Canary	0 05	0 06
Cardamon	2 25	2 50
Fenugreek, g'd	0 09	0 10
Hemp	0 06½	—
Mustard, white	0 14	0 16
Saffron, American	1 15	1 50
Spanish	12 00	13 00
Santonine	8 25	9 00
Sago	0 08	0 09
Silver, Nitrate.....Cash	14 85	16 50
Soap Castile, mottled	0 11	0 14
Soda Ash	0 04	0 05
Bicarb. Newcastle	—	6 50
" Howard's	0 14	0 16
Caustic	0 06½	0 06½
Spirits Ammon., arom	0 35	0 35
Strychnine, Crystals	2 60	2 70
Sulphur. Precip	0 10	0 12½
Sublimed	0 03½	0 05
Roll	0 03	0 04½
Vinegar, Wine, pure	0 55	0 60
Verdigris	0 35	0 40
Wax, White, pure	0 75	0 80
Zinc. Chloride.....oz	0 10	0 15
Sulphate, pure	0 10	0 15
" common	0 06	0 10
DYESTUFFS.		
Annatto	0 35 @	0 60
Analine, Magenta, cryst	3 00	4 00
liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitrol, pure	0 10	0 10
Camwood	0 06	0 09
Copperas, Green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 02½	0 04
Indigo, Bengal	2 40	2 50
Madras	0 90	0 95
Extract	0 30	0 35

DYESTUFFS—*Continued.*		
Japonica	0 06½	0 07
Lacdye, powdered	0 33	0 38
Logwood	0 02	0 03
Logwood, Camp	0 02	0 3½
Extract	0 10	0 14
" 1 lb. bxs	0 13	—
" ½ lb. "	0 14	—
Madder, best Dutch	0 15	0 16
2nd quality	0 12	0 14
Quercitron	0 03	0 05
Sumac	0 06	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
SPICES.		
Allspice	0 11½@	0 12
Cassia	0 39	0 40
Cloves	0 27	0 28
Cayenne	0 30	0 35
Ginger, E. I.	0 16	0 17
Jam	0 20	0 30
Mace	1 75	1 75
Mustard, com	0 20	0 25
Nutmegs	1 15	1 20
Pepper, Black	0 22½	0 23
White	0 48	0 50
PAINTS, DRY.		
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
Green, Brunswick	0 07	0 10
Chrome	0 16	0 25
Paris	0 30	0 35
Magnesia	0 20	0 25
Litharge	0 07	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 07½	0 08
Venetian	0 02½	0 03½
Sienna, B. & G	0 07	0 08
Umber	0 07	0 10
Vermillion, English	1 50	1 60
American	0 25	0 35
Whiting	0 85	0 90
White Lead, dry, gen	0 08½	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.		
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, 1 lb tins	0 11	0 12
Putty	0 03½	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25 lb. tins	2 50	—
" No. 1	2 25	—
" No. 2	2 00	—
" No. 3	1 75	—
" com	1 30	—
White Zinc, Snow	2 75	3 25
NAVAL STORES.		
Black Pitch	5 00 @	5 25
Rosin, Strained	4 50	—
Clear, pale	7 80	—
Spirits Turpentine	0 60	0 65
Tar Wood	5 50	5 75
OILS.		
Cod	0 63 @	0 65
Lard, extra	0 90	—
No. 1	0 80	0 85
No. 2	0 75	0 90
Linseed, Raw	0 76	0 80
Boiled	0 81	0 85
Olive, Common	1 10	1 20
Salad	1 80	2 30
" Pints, cases	4 20	4 40
" Quarts	3 25	3 50
Seal Oil, Pale	0 75	0 80
Straw	0 68	0 75
Sesame Salad	1 30	1 35
Sperm, genuine	2 20	2 40
Whale refined	0 90	0 95