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CANADIAN

PHARMACEUTICAL JOURNAL

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Original and Selected Papers.

NOTE ON "SCRAPS," IN PHARMACEUTICAL JOURNAL, (p. 383).

BY H. H. CROFT.

The fact that iodine is separated when ferric chloride is added to potassium iodide, has been often noticed and forms a rather disagreeable reaction in the usual method of detecting acids by silver nitrate. Having reduced down the acids to those giving a white precipitate with the silver salt, insoluble in hydric nitrate, the action of ferric chloride is sometimes used for distinguishing or separating into groups hydroferrocyanic and sulphocyanic acids. The yellow or brownish color produced by an iodide is often mistaken by students for the blood-red of the sulpho-cyanate.

That the separation of iodine is owing to a reduction of the ferric salt, may be easily shown by making two solutions of ferric chloride and adding to one a few drops of solution of potassium iodide. On the addition of a little potassium-ferricyanide, the one solution will turn brown, the other dark blue, showing the formation of ferrous salt.

The decomposition may be represented thus:

$Fe^2\ Cl^6 + K^2\ I^2 = Fe^2\ Cl^4 + K^2\ Cl^2 + I^2$.

"Monad's" observation on the precipitate, obtained on adding $Fe^2 Cl^6$ to a solution of strychnine in presence of potassium iodide, attracted my attention, and having made a few experiments, I find

his statement quite correct. His explanation, however, is not entirely so; and if he had carried out his experiments they would have led him to a method of preparing some iodine products of the alkaloids—which method (as far as I am aware) is as yet unknown.

The precipitate formed in solutions of sulphate of quinine, in presence of ferric chloride and potassium iodide, is *not* iodine but herapathite—sulphate of iodo-quinine.

1. The precipitate is soluble in warm water; iodine is not so to any great extent.

2. The precipitate filtered, washed and dried, is greenish and not volatile at ordinary temperatures. Iodine is nearly black, and volatile.

3. The precipitate is easily soluble in warmed acetic or dilute sulphuric acid; iodine is not to any great extent.

4. The precipitate when treated with ammonia turns brick red; iodine remains of nearly the same color, forming teriodide of nitrogen.

5. Dissolved in acetic acid it gives a blue color with starch, showing feeble combination of the iodine. There are many other reactions which I have not had time to investigate, but I think that "Monad" has hit upon the best method of preparing iodo-quinine and analogous compounds. It is well known that this body, discovered by Herapath, is a capital substance for polarizing experiments, and has received the name of "artificial tourmaline." The usual method of preparing it has not always succeeded in my hands, but from the few experiments I have had time to make, I think "Monad's" process will prove very effectual.

The subject is one which deserves full attention; all or many of the alkaloids seem to act in the same way; and we have, perhaps, here a method of obtaining the iodo-alkaloids in a very simple manner. Query—Might not iodo-quinine be a valuable adjunct to our Pharmacopœia?

It is doubtful whether these substances—iodo-quinine, cinchonine, strychnine, etc., are really substitution products or merely compounds of the alkaloids with iodine. The dark color and the easy detection and separation of the iodine by starch, etc., seem to favor the latter view. Ultimate analysis can scarcely give a satisfactory result, only a few atoms of hydrogen being replaced by iodine in compounds of such large molecular weights:

Iodo, quinine, sulphate—Herapath—$C^{20}H^{24}N^2O^2I^3{}_4H^2SO^4 + 5H^2O$

Iodo cinchonine—Pelletier—$2C^{20}H^{24}N^2O$, 2I.

Iodo strychnine—Herapath—$2C^{21}H^{22}N^2O^2$, 6I.

Iodo brucine—Pelletier—$4C^{23}H^{26}N^2O^4$, 6I.

It seems as if the above reaction might be used as a test for some of the alkaloids. If a solution be made of potassium iodide with a few drops of ferric chloride, so as to give the liquid only a faint yellow color, and a drop of the solution be added to a drop of water containing $\frac{1}{1000}$th of a grain of strychnine, an immediate brownish color and precipitate is formed. I purpose to examine the delicacy of this test as compared with the phospho-tungstic and molybdic acids; as applied in the manner described, it is very sensitive for quinine, cinchonine and strychnine, but does not succeed well with morphine.

The result of further experiments will be communicated.

Laboratory University College.

ERGOT AND ITS LIQUID EXTRACT.*

BY A. W. GERRARD.

Teacher of Pharmacy at University College Hospital.

In bringing this subject forward, the prime objects I have in view are to point out some defects in the official process for preparing the liquid extract of ergot, and to give a method for making it which my experience has taught me will yield a superior preparation.

I will preface my remarks with a brief statement of our present knowledge as to the chemical properties and composition of ergot itself, for I consider this knowledge places one in a better position to judge or decide upon the treatment the drug should undergo for a proper extraction of its active constituents.

Standard works of chemistry and materia medica afford but brief information concerning this drug. Fluckiger and Hanbury, however, in their "Pharmacographia' have brought in coalition the researches of various investigators upon it up to the present time; this excellent work, therefore, contains the fullest information with reference to ergot of any book with which I am acquainted. Following are some of the more important extracts therefrom.

* Read at an Evening Meeting of the Pharmaceutical Society of Great Britain, on Wednesday, April 7, 1875, and published in the Transactions.

"According to Wenzell, ergot of rye contains two alkaloids combined with ergotic acid, soluble in water, which he designates ecboline and ergotine; ecboline possesses in a high degree the special medicinal properties of ergot; ergotine has, however, but little action; ergot also contains a sugar termed mycose, lactic acid, albumen, and red colouring matter.

"According to Wiggers this drug contains 30 per cent. of saponifiable oil, with portions of acetic and butyric acid combined with glycerine; the oil is also accompanied by small quantities of cholesterin and resin."

Fluckiger and Hanbury state the crystals which abound in the kept extract are acid phosphate of soda and ammonia, with a small portion of sulphate; my investigation of these crystals proves them to be acid phosphate of potash, with a trace of ammonia.

When to ergot or its liquid extract a caustic alkali is added and a gentle heat applied, a mixed ammoniacal odour is evolved characteristic of trimethylamine, which ammoniacal base it is pronounced to be; this effect is probably due to decomposition of albumen, of which ergot contains a considerable quantity.

It is thus seen that in ergot of rye we have a substance to deal with of a naturally delicate and chemically intricate character, rapidly undergoing change and losing its activity on exposure to atmospheric influences; its proper preservation is therefore a matter of paramount importance, dryness and close packing I have found most essential to this end. On the receipt of a parcel, which should be as fresh as possible, let it be examined as to its dryness, and if dry bottled immediately, fix a piece of lime, tied in muslin, to the interior of the stopper. By adopting this expedient I have found the ergot at the expiration of a year to yield an extract equally active as that prepared from the fresh sample.

I will now ask attention to some remarks upon the liquid extract of ergot of the British Pharmacopœia.

It is made by removing the oil from one pound of ergot by one pint of ether, or a sufficiency, macerating it in 3 pints of water for twelve hours at a temperature of 160° F., then pressing and straining and evaporating to 9 fluid ounces; when cold add 8 fluid ounces of rectified spirit, set aside to coagulate albumen, then filter. The product should measure 16 fluid ounces.

I will now report upon each division of this process step by step, and introduce suggestions which I have found to be improvements.

Removal of the oil by ether has been pointed out by Umney and others as a wasteful and unnecessary proceeding. My experience agrees with them, for it has been found that the resultant extracts with or without ether extraction differ not in their therapeutic effects, neither as pharmaceutical preparations.

The second step in the process in maceration of the ergot in 3 pints of water for twelve hours, at a temperature of 160° F. I find

after the ergot has been in contact with the water at this temperature for a few hours it swells, and the mass assumes a semi colloid condition, so that pressure and straining, the next part of the process, is absolutely impracticable.

These difficulties suggested to me the use of cold water as a solvent, and I find it perfectly successful, using 6 instead of 3 pints, and proceeding thus: macerate the ergot in 4 pints of cold distilled water for twenty-four hours, then transfer to a muslin strainer, when the fluid ceases to pass pour upon the ergot the remaining 2 pints of water, allow this to pass, then press the marc. By this method a more thorough exhaustion of the ergot is ensured than by the B. P. process, and the annoying property of partial gelatinization avoided.

During the summer months, at the temperature of 160° F., the mass speedily undergoes fermentation. If this takes place the resultant extract is very acid and has an unpleasant odour. This objectional property I consider to be an additional argument in favour of cold extraction.

The next and last step in the process is the evaporation of the strained fluid to 9 fluid ounces, allowing it to cool, then adding 8 fluid ounces of rectified spirit and set aside to allow all albumen to coagulate, then filter. The product, we are officially informed, should measure 16 fluid ounces; my experience proves that it does not measure this amount. Upon adding the 8 ozs. of rectified spirit to the 9 ozs., of extractive, condensation of volume takes place, it measuring 16½ ozs., being less by half an ounce than the original bulk. The albumen has now to be separated officially by filtration, which I find cannot be done; decantation and straining through tow answers best When this is performed the ultimate product measures 14½ instead of 16 fluid ounces. This result was almost invariable on several occasions.

My process then, of which the preceding remarks contain the details, consists simply of macerating 1 pound of ergot in 4 pints of distilled water for twenty-four hours, transferring to a muslin strainer, adding 2 pints more of water, allowing this to pass, then pressing the marc, evaporate the fluid to 10 oz., then add 8 oz. of rectified spirit, and when the albumen has coagulated, decant the clear portion and strain the remainder through tow. The product should be made to measure 16 fluid ounces.

A specimen of extract prepared by this process I have placed upon the table. There is also a bottle containing the crystalline separation of the acid phosphate of potassium which occurred in four days. The extract has a sp. gr. of 1·013, and is a preparation which I feel confident must be acknowledged superior to that of the B. P.

A point in the preparation to which I am desirous of referring is the large quantity of spirit it contains; this I consider unnecessary and even detrimental to the product, for the following reason, it causes

the separation and crystallization of large quantities of phosphates, especially when made by the process I have described. Whether these phosphates are an item of its activity I am unable to state, but I am inclined to consider them as such.

According to Wenzell, to whose investigations I have previously referred, the substance to which ergot owes its principal activity, viz., ecboline, is soluble in water; this, therefore, is an additional reason for reducing the quantity of spirit. I will recommend, therefore, the addition of one-fourth instead of one half its volume of rectified spirit; thus prepared it maintains its therapeutic effects equally with the other.

From a consideration of the continental and transatlantic formulæ I am of opinion that our British liquid extracts maintains a superiority; that this may at some future period be replaced by a better is a reasonable desire. I have lately been engaged in the preparation of an ammoniated extract, the addition of ammonia being said to give ergot increased activity. Results that have been obtained from its use are promising; further therapeutic data are, however, required: when these are forthcoming I trust to be able to give you a report upon it.

These remarks principally consist of my own experience in the pharmacy of ergot; it is a drug to which we cannot devote too much care and attention, for it is often the thread upon whose strength the life of mother and offspring depends.

WINE OF TAR.*

BY J. B. MOORE.

The formula usually employed by pharmacists in making wine of tar is that recommended by the late Prof. Procter ("U. S. Dispensatory," edition 1870, page 680,) which, as is well known to all, is a very troublesome and rather complicated process, while it affords a very unreliable product, being feeble in tar strength and very unsightly in appearance.

The copious mucilaginous deposit which takes place in the preparation on standing, when made by that process, appears to carry with it almost all the virtues of the tar which it may have contained when freshly made, and leaves the supernatant liquid of little more than the strength of ordinary tar-water. This process of depletion seems to continue almost indefinitely.

* Read at a Pharmaceutical Meeting, and published in the American Journal of Pharmacy.

Now, as the wine of tar still sustains its popularity with the medical profession, which renders it necessary for almost every pharmacist to keep it in stock, it is important that there should be a good and easy-working formula for its preparation, devoid of the faults just alluded to as adhering to the one commonly employed, so that every pharmacist may make it, of reliable quality, for himself. Besides, owing to the trouble attending its manufacture by the old formula, there are, as far as I can learn, but very few retail pharmacists who make it for themselves; they rely almost exclusively upon the wholesale manufacturers for their supply, and of course are liable to get a very indifferent article. For these reasons, I have been led, by experiment, to adopt an entirely new process for making this preparation, a process which obviates the objections attached to the old method, being much less troublesome, while it affords a more efficient and satisfactory preparation in every respect. The formula is as follows:—

R.—Tar, pure .... ℥xvi, troy.
Glycerin ....
Sherry Wine. .....
Honey .... *aa* f℥viii.
Acetic Acid .... f℥i.
Boiling Water .... O vi.

Mix the glycerin, sherry wine, honey, acetic acid and boiling water together, in a stone jug, or other suitable vessel of the capacity of a gallon. To the mixture add the tar, and shake the whole vigorously for several minutes. The vessel is then to be tightly stopped and placed upon a stove or in a water-bath, resting upon the folds of paper, and the mixture digested, for an hour or two, at a temperature of from 150° to 160°. During the digestion, the mixture should be frequently well shaken. When the digestion is completed, the mixture is to be set aside to macerate, in a warm place, for a few days, it being well shaken occasionally during the process. Lastly, strain through muslin, and filter the strained liquid through paper.

I here present two samples of the wine of tar; that marked No. 1 being made in exact accordance with the above formula, and the other, marked No. 2, made by the same formula, omitting the acetic acid. They have both been made for some time: No. 1 since the middle of last October, No. 2 since the 1st of last January.

These samples have been recently filtered, and are, as will be observed, beautifully bright and transparent. Both were of a lighter colour when freshly made, but have gradually become darker by age. This change seems to have been much greater in the sample containing acetic acid, which, in fact, when first made, was darker and seemed to be much stronger in the sensible properties of tar than the other.

The addition of the acetic acid to the formula I consider a decided advantage, as it not only increases the solvent power of the menstruum, but also imparts to the preparation the well-known and valuable refrigerant properties of vinegar. The proportion of the acetic acid, I think, might even, with advantage, be increased. The slight acescency given to the wine by the acetic acid improves its taste.

I can see no possible advantage that can be derived from the fermentation process employed in the old formula, as it cannot confer any special therapeutic value upon the preparation, while it renders its manufacture tedious and troublesome.

Wine of tar, at best, can only be valued, therapeutically, for its tarry properties. Any other incidental virtues which it may be imagined to contain must be simply negative.

Like all similar preparations of tar, the wine of tar, as above prepared, deposits on standing more or less inert oxidized resinous matter, and requires to be filtered occasionally, which restores it to the appearance presented by the samples.

Philadelphia, Pa., April, 1875.

VANILLA.*

BY JOHN R. JACKSON.

Curator of the Museums, Royal Gardens, Kew.

Vanilla, now seldom, if ever used in medicine, has an amount of interest attached to it owing to its natural affinities, early history, commercial value and uses, that may render some notes on the subject worth recording.

There has lately been issued from the French press a pamphlet of some fifty odd pages, devoted entirely to the consideration of the vanilla plant in all its bearings. Considering, however, that the author is a member of the Chamber of Agriculture of Reunion, a good deal of the book is devoted to vanilla as a product of that island. Nevertheless, it is a valuable addition to the literature of the subject. Its title is 'Etude sur la Vanille,' par A. Delteil.

How many, and what are the exact species of vanilla which furnish the commercial article, has always been a question amongst authors ever since that genus itself has been known. It will be well, however, to trace the history of the vanilla and then to point out the opinions of more recent writers. The plant being, as is well known, a member of the *Orchidaceæ*, was pretty fairly describ-

* From the Pharmaceutical Journal & Transactions.

ed by the old writers. Thus Pomet says, in his 'Compleat History of Druggs,' that the pods or cods of about half a foot long, of the thickness of a child's little finger, hung upon a plant of twelve or fifteen feet high, that climbs like a creeper; for which reason they grow most frequently upon walls or at the roots of trees, or else upon props or the like where they are supported. They have round stalks, disposed in knots like the sugar cane; from each knot there puts forth large thick leaves, about a finger's length, which are as green as the stalk, and fall off or wither away, as the great plantane does, after which come pods that are green at first, yellowish afterwards, and grow browner according as they ripen."

Originally a native of Eastern Mexico, it was in early times used by the natives to flavour their chocolate. It was brought to Europe by the Spaniards, but little seems to have been known about it or its uses till the middle or perhaps the latter part of the seventeenth century. Pomet says, however, that the "*Vanilla's* are much used in France for making up chocolate, and sometimes to perfume snuff,"—the former being at the present time one of its chief applications, but the latter, so far as we know, having quite died out. Many varieties of vanilla are known in commerce, but as of old, the Mexican sort is considered the best. At one time, *Vanilla aromatica*, Swartz, was supposed to be the plant from which most, if not all, the vanilla of commerce was procured. Pereira mentions five species as probably contributing "some of the vanilla of commerce," namely, *V. planifolia*, Andrews, *V. aromatica*, Swartz, *V. guianensis*, Splitberg, *V. palmarum*, Lindl., and *V. pompona*, Schiede. By some authors *V. sylvestris*, Schiede. and *V. sativa*, Schiede, have also been considered good species yielding some of the best Mexican vanilla. Dr. Pereira, however, considered them as varieties of V. *planifolia*. M. Delteil, in the pamphlet before alluded to, refers Mexican vanilla to the following species:—*V. sativa*, *sylvestris*, *planifolia*, and *pompona*; Guiana and Surinam to *V. guianensis*; Bahia to *V. palmarum*; and that from Brazil and Peru to *V. aromatica*. The most recent authority, however, and a very trustworthy one, namely, the 'Pharmacographia,' of Professor Fluckiger and the late Mr. Hanbury, gives the botanical origin of vanilla simply as *V. planifolia*, Andrews, and refers to no other species. Though indigenous to Mexico, vanilla is cultivated, as will be seen from the foregoing remarks, in various parts of tropical America, and has been successfully introduced into the Mauritius and Reunion, from whence large quantities are annually imported. Java also grows vanilla to a considerable extent. To the cultivator it is a remunerative crop in situations where climate and atmosphoric conditions are suited to it. It is very easy of cultivation by fastening shoots to the trees, into the bark of which they soon strike their roots, growing luxuriantly, bearing fruit when they are about three years old, and continuing to

do for about forty years. Under natural conditions the flowers are impregnated by insect agency, but artificial fecundation is frequently resorted to,—indeed it is one of the principal points of consideration in M. Delteil's work.

The gathering and drying of the pods as described by Pomet differs in some respects from the descriptions of modern writers. "When they are ripe," he says, "the people of Mexico, those of Guatemala and St. Domingo, gather them, and hang them up by one end in the shade to dry; and when they are dry enough to keep, they rub them with oil to hinder them from drying too much, and prevent their breaking, and then they put them up in little bags of fifty, a hundred, or a hundred and fifty to bring them hither. Nevertheless, there are some who value their gain more than their conscience, who let them hang upon the stalks till over ripe, and receive from them a black fragrant balsam, that flows till the essential part of the *vanilla* is exhausted, and it can run no more; and then they gather the pods, and pack them up for sale as aforesaid." The plan now adopted is to gather the pods before they are quite ripe and to allow them to ripen by alternately wrapping them in cloths and exposing them open to a moderate degree of heat. This process is said to preserve or develop their full fragrance. When ready for exportation they are made up into bundles and wrapped in paper. What the "black fragrant balsam," of which Pomet speaks, could have been used for, we have no record; indeed, referring to it in another part of his article, he says, "As to the balsalm, the Spaniards keep that, for we have none of it brought to us." His advice, with regard to the choice of vanilla holds good at the present time. On this point he says, "Choose such as are well fed, thick, long, new, heavy, not wrinkled, or rubbed with balsam, and which have not been kept moist, but of a good smell: and beware of those that are small and dry, and of little smell." The Mexicans in early times appear to have been very fond of the vanilla flavour in their chocolate, indeed, we are told that they were "mighty lovers of these plants."

With regard to the odorous principal of vanilla it is shown in the 'Pharmacographia.' that it is not contained in the fleshy exterior portion of the pod but in the interior alone. Its use is chiefly for flavouring chocolate and confectionary. It fetches a high price, and its imports are necessarily small when compared with other commodities.

APPARATINE.*

This is a new substance said to give excellent results when employed for preventing incrustation in boilers, besides being useful when gelatin and gelatin-like substances are required. It was discovered by Mr. H. Gerard. It is a colorless and transparent material obtained by treating starch, fecula, farina, and any other amylaceous substances with a caustic alkali. Hitherto it has been found to be best made with potato starch, treated with a ley of caustic potash, or soda, the following being the most suitable proportions and best method of preparing the apparatine: 15 parts potato starch are put into 76 parts water, and kept in a state of suspension by stirring, when 8 parts potash of soda ley at 26 deg. Baume are to be added, and the whole thoroughly mixed. In a few seconds the mixture suddenly clears, and forms a thick jelly, which is then beaten up vigorously, and the longer the operation is continued the better the quality of the apparatine. It is in this state a colorless, transparent substance, slightly alkaline to the taste, but devoid of smell, and of a stringy, glue-like consistence.

If exposed to the air it dries slowly, but without decomposing; and even when heated to dryness, although it thickens and swells, it continues as unchanged as when air dried. When dried in thin sheets it resembles horn but is more flexible, and may be folded back upon itself without breaking. For sizing textile goods of all kinds, silks, woollens, cottons, etc, apparatine is said to be admirably adapted, imparting to them a smoothness which hitherto has been found unattainable. When once applied to the goods and become dry, apparatine appears to be virtually insoluble, as three or four washings in hot water have been found to exercise little or no effect upon it, so that it may be used for all purposes in which glue or gum is required. Diaphanous or coarsely woven fabrics, when dressed with apparatine, are rendered stiff and rigid, like a sheet of metal; and the new gum may be used as a thickening in calico printing. It will be understood that we have indicated only a few of the uses of this valuable substance, which it will be seen is comparatively cheap. It is necessary to keep it in air-tight vessels to prevent it becoming dry, unless it is used up as soon as made, for although it does not dry very rapidly when in bulk, it is not easily rendered soluble when it has once become hard. To prevent incrustation in steam boilers, the apparatine may be placed in the boiler or be added to the feed water in the tank, but the best results have, we believe, been obtained by placing it in the boiler direct.

*Oil Paint & Drug Reporter.

CHEMICAL EXAMINATION OF JABORANDI.*

(*Pilocarpus pennatifolius ?*)

BY M. BYASSON.

The author has been engaged in an investigation having for its object to determine the nature of the active principle of Jaborandi, a portion of which drug had been intrusted to him by Dr. Coutinho, for the purpose. He reports the isolation of a small quantity of alkaloidal substance, which when injected into the viens of a dog caused an abundant flow of saliva.

The leaves under examination were first allowed to macerate in 90° alcohol, which treatment was continued during two months in consequence of the author's absence from home. The alcoholic liquor, which was of a green colour, was then separated from the leaves by filtration, and submitted to distillation. The addition of water to the distilled alcohol rendered it slightly turbid, indicating the presence of a little essential oil. A certain quantity of this oil was swallowed in suspension in the diluted alcohol without having any apparent effect. The taste was pungent and persistent. The residue from the distillation, allowed to stand, deposited a relatively considerable quantity of a green substance presenting all the characters of chlorophyll. After filtering, the liquid was of a reddish brown color, had a slight aromatic odour, and after a time deposited a brown matter, which, taken up by alcohol and precipitated by water, presented all the character of a resin ; it was slightly acrid to the taste, and did not appear to have any medicinal action. A portion of the liquid was evaporated and milk of lime added, when the reddish-brown colour was immediately changed to a fine yellow.

Desiccation having been effected at a temperature not exceeding 60° C., the residue was exhausted with a great excess of chloroform. Distillation and evaporation of this liquid yielded a yellow brown glutinous residue presenting no trace of crystallization and showing under the glass oleaginous particles. Treated with water acidulated with sulphuric acid it partly dissolved and formed a slightly brown acid and aromatic solution, which, when treated with ammonia in excess, threw down some glutinons flocks. Shaken with ether, and the ether evaporated, it yielded a viscous aromatic substance and some crystals of sulphate of ammonia.

This substance the author found to be soluble in absolute alcohol. It was precipitated by the general reagents for alkaloids and particularly by the double iodide of mercury and potassium in acid solution. The yellowish white precipitate resembled in its characters the best defined alkaloids. The taste of this substance

* Abstract of a paper in the *Repertoire de Pharmacie* 25th March, 1875, in the Pharm. Jour. & Trans.

was acrid, with a bitter after-taste, and a small quantity which was tasted by the author was sufficient to provoke the commencement of salivation but without sweating.

To another portion of the original liquid lime was added and it was submitted to distillation. There was an abundant evolution of ammonia, and, to judge by the characteristic odour, of methylamine or an analogous base. The distilled liquor, agitated with ether, yielded a small quantity of oleaginous and viscous substance presenting all the characters of the foregoing. When the distilled liquor no longer gave any reaction of alkaloid, the residue was evaporated and dried, then treated as before with chloroform with the same result.

After treatment with chloroform, absolute alcohol removed a small quantity of resin similar to that which was deposited spontaneously by the distilled liquor. The residue, of a fine yellow colour, yielded nothing to ether. The greater portion of it dissolved in boiling water, the insoluble portion being formed almost entirely of excess of lime. The aqueous solution deposited upon cooling a small quantity of white matter which was converted by calcination into carbonate of lime. The author was not able to determine the nature of the dissolved substances, among which there was a considerable quantity of an organic acid.

The quantity of the alkaloidal substance obtained was too small to allow of a chemical examination of it; but M. Byasson concludes from his experiments that the active principle contained in jaborandi leaves is a liquid, viscous, aromatic alkaloid, having an acrid and bitter taste, and capable, like nicotine, of being carried over in distillation by the vapour of water in the presence of ammonia. The method by which it was obtained shows that it is soluble in chloroform, ether, absolute alcohol, ammoniacal water, and dilute acids; also that it is displaced by ammonia and that ether removes it from aqueous solution.

M. Byasson proposes to call this new alkaloid "jaborandine;" but, as this name has already been appropriated to the alkaloid obtained from a species of *Piper* referred to before (see p. 781), the anticipatory suggestion of Mr. Holmes that it should be called "pilocarpine" seems to be preferable.

HARD GLASS.*

The subject of hard, elastic and malleable glass is beginning to attract considerable attention, and has several times been referred to in our columns. Some experiments made by Dr. A. Bauer, in Vienna, have recently been made public, and will, no doubt, prove

* Journal of Applied Chemistry.

of interest to our readers. He remarks at the outset that the plates of glass prepared by him do not differ essentially in external appearance from ordinary glass; when struck they have a peculiar ring, and may frequently be thrown on the ground without breaking; but when they do break, unlike other glass, they break into a multitude of small fragments with very sharp corners, which is a great disadvantage of this glass. They stand scratching well, but, like those made in France, they break when struck hard. Dr. Bauer prepared his plates in this way: An ordinary sheet of glass was heated until it began to bend, and was then dipped into a bath of melted paraffin at a temperature of 200° C. (392° F.) The principal object was not to cool the hot and soft plate steadily and slowly, as is usually done, but to cool it suddenly to a certain temperature and then to allow it to cool slowly. If the cooling takes place in this manner it is no longer possible to cut the glass with a diamond, and it is easy to prove by the ordinary scale of hardness that its hardness is greatly increased. The thickness of the glass has also increased with its hardness; the ordinary glass used by Bauer in his experiments was 2.429 to 2.438. It cannot be denied, says Bauer, that this glass will be useful for many purposes, and also that there are many uses to which it cannot be applied on account of its breaking into such small pieces when it does break. There are also difficulties met with in preparing this glass on a large scale, especially in introduciug hollow glass and large plates quickly and uniformly into the bath.

It is not as yet possible to explain the cause of the glass being hardened by this method of cooling. The phenomenon involuntarily reminds one of the well-known Bologne flasks and the Prince Rupert drops, but the breaking of the latter cannot be sufficiently explained, since we know that this does not happen if the ends are eaten off instead of being broken. We are also reminded that when cooled slowly the constituents of the glass separate to a certain extent, which can only be prevented by a rapid cooling. It was formerly believed that glass was a perfectly homogeneous and amorphous substance. In 1852, however, Prof. Leydolt proved by etching that all our glass, which apparently shows no signs of crystallization, consists of a mixture which is in part crystalline. When glass is heated to fusion, or even to softness, and then slowly cooled, it easily happens that the constituents separate and form crystalline groups. Reaumur made this experiment in the last century, hoping to make porcelain out of glass, and the product was called Reaumur's porcelain. Siegwart and others, a few years ago, although with a different view, made experiments on this change. These experiments showed that this separation takes place very easily if the glass is slowly cooled, and that sometimes the crystalline portion becomes visible, and when this takes place the glass is said to be devitrified. From these new

experiments we may conclude that fused glass in a fused state forms a tolerably homogeneous mass, which separates more or less on cooling. If it is cooled rapidly to a certain point, the separation does not go so far, and the glass remains more homogeneous, which may be the cause of its hardness on the one hand, and of its peculiar way of breaking on the other.

PREPARATION OF GERMAN YEAST.

The following directions are taken from the *Journal of Applied Science* :—Previously malted barley, maize, and rye are ground up and mixed, next put into water at a temperature of from 65° to 70° ; after a few hours, the saccharine liquid is decanted from the dregs, and the clear liquid brought into a state of fermentation by the aid of some yeast. The fermentation becomes very strong, and, by the force of the carbonic acid which is evolved, the yeast globules (the size of which average from ten to twelve millimetres) are carried to the surface of the liquid, and forming a thick scum, that substance is removed by a skimmer, placed on cloth filters, drained, washed with a little distilled water, and next pressed into any desired shape by means of hydraulic pressure, and covered with a strong and tightly-woven canvas. This kind of yeast keeps from eight to fourteen days, according to the season, and is, considered by bakers and brewers, very superior to that ordinarily used ; the extra good qualities of Vienna beer and bread are partly due to the use made of this yeast in preparing these articles. A new method of preserving yeast has recently been brought into use in this country, by which means it can be stored and rendered available for use at any time. The beer yeast is stirred up with cold water, in which a small quantity of carbonate of ammonia has been dissolved. It is then allowed to settle, drained, washed, and pressed into casks, to which is added a little starch and ground malt. These casks can be kept without deterioration for a considerable time. Some kinds of yeast settle with difficulty. In such cases, ice cold water in larger quantity may be employed, or a little alum may be added to the first water, but it must be completely removed by washing. Under these circumstances a larger amount of yeast can now be rendered available, whereas till lately it was to a great extent a waste product, most of our bakeries being supplied with prepared German yeast, except such as are in a position to be furnished direct from the brewers with fresh yeast.

CARDAMOMS.*

Cardamoms form an important product of the hill districts of India, chiefly on the western slopes of the mountains of Coorg and Mysore, at an elevation of from 2,500 to 5,000 feet above the sea. In February, the cardamom growers proceed to the forests and mark one of the largest trees on the steepest declivity. The ground at the foot of the tree is cleared of brushwood, and the tree is felled at about twelve feet from the ground. It falls down the side of the mountain head foremost, carrying a number of smaller trees with it in a great crash. Within three months, the cardamom plants begin to show their heads all over the cleared ground. During the rains they grow two or three feet, and twenty months after the felling of the tree, when the cardamom plants are the height of a man, the ground is thoroughly cleared of weeds. In the following April, the fruit-bearing branches shoot forth and become covered first with clusters of beautiful flowers and then with capsules. In the following October the first crop is gathered, and the harvests continue good for seven years, when they fall off. Then another giant of the forest is felled, and the process is renewed. The gathering in, entailing a walk of several miles through wet underwood, covered with leeches, is very hard work. In Coorg, the cardamom forests are rented out for £3,000 a year. Instructions were given in 1871-2 for the demarcation of such tracts of jungle as were favourable to the growth of this spice, and coffee-planters are beginning to turn their attention to its cultivation. With regard to the desirability of endeavouring to get the cardamom plant to bear on long floriferous stems rather than on the natural short underground shoots that at present produce the seeds, it must be remembered that this particular habit forms the great and remarkable physical difference between the gingers and the cardamoms, and that it is no more likely that this natural habit can be changed by taking "thought" than it is that mangoes can be got to grow like jacks on the parent stem by a like process. Attention has lately been drawn in the Indian papers to the desirability of encouraging and extending the cultivation of cardamoms, on the grounds of its facility, and that although the demand for the spice in Europe generally is limited, yet that there is a very fair consumption of it in Eastern countries, and also in European Turkey. Even in India, the consumption of cardamoms by the natives is but limited. They chew it with "betel" but slightly—perhaps if the price were reduced they might use it more—and they also use it medicinally in a small way, as Europeans do. With regard to its officinal use—in the curry, for instance—a very few seeds will go a very long way with them, and certainly no European could stand

* From the Journal of Applied Science.

more than one or two in his curry—to which, however, they are a very plesant adjunct. In Travancore, the monopoly is rigorously enforced, but instead of selling the right to collect the cardamoms to farmers or contractors, the Sicar reserves to itself the right of purchasing, at a price fixed by itself, all the cardamoms grown throughout the whole range of hills within the province. Formerly, the Travancore Government used to take what crops they could get by the above system; some years aggregating from 500 to 600 caddies, or from 5,000 to 3,500 cwts., the entire crop being collected at Allepee, which is the emporium for cleaning, dressing, and assorting the produce prior to the annual sale by auction, which is held by the commercial agent about April in each year. During the last few years, however, the Travancore Sicar has appointed a European superintendent of their cardamon hills, and he has been extending the cultivation considerably, but whether any improvement will take place in the actual working of the system generally under a purely native government is very doubtful.

SEPARATION OF LIQUIDS.*

BY BENJ. LILLARD, PHAR. D.

The separation of liquids is usually accomplished by a glass funnel, with a stop-cock. This answers very well; but, owing to its high price, it is but little used. As something of the kind is often wanted, the following is suggested. It can be extemporized in a few moments, in almost any drug-store, at a very small cost, is easily applied, and succeeds very well. As shown in the engraving, it consists of an ordinary glass funnel and a glass tube. The tube should be spread out a little at one end, or the ordinary funnel-tube, if convenient, can be substituted. It is then passed through a small piece of cork, that will fit accurately in the neck of the funnel, as shown in the cut. The perforation of the cork is nicely and economically attained by the use of the common rat-tail file, which I have found to be just as convenient, and cheaper than the cork-borers. After being carefully adjusted, the top of the funnel-tube is drawn up near the edge of the funnel, and the separator placed on a retort-stand, or support, when it is ready for use. The mixed liquids are then carefully poured on and allowed to stand until they separate. The funnel-tube is then carefully drawn down by a slow, screw-like motion, and as the upper *stratum* gradually flows into it, it is collected in a suitable receptacle below. A rubber tube and pinch cock can be added to the end of the funnel-tube; and if, toward the bottom of the upper *stratum*, any of the lower liquid should be drawn into it, it could be easily separated by the pinch-cock. In some instances it will be found convenient to apply the rubber tube, with suitable pinch-cock, at once to the neck of the funnel, and then draw off the lower liquid in the usual way.

*From the Pharmacal Gazette.

Editorial.

THE ELECTION FOR COUNCIL.

At the expiration of the time allowed for nominations it was found that the following twenty-three gentlemen had been proposed as candidates for election: Messrs. Bickle, Hamilton; Brendon, Brantford; Brent, Port Hope; Brierley, Hamilton; Carpenter, Collingwood; Christie, Ottawa; Gregory, Lindsay; Greenwood, St. Catharines; Hodgetts, Toronto; Jordan, Goderich; Love, Toronto; Lyman, Toronto; Mills, St. Catharines; Miller, Toronto; Paffard, Niagara; Parker, Kingston, Roberts, Ottawa; Stork, Brampton; Sutton, Windsor; Tapscott, Brantford; Walsh, Peterboro'; Williams, Brockville; Yeomans, Belleville.

The nomination was declined by six of these candidates, the reason alleged being in each case want of sufficient leisure to conscientiously carry out the duties incumbent upon the position. Four of the gentlemen proposed were found to be ineligible on account of having neglected to pay their annual fees by the time specified by law.

It will thus be seen that but thirteen names remained, which is the precise number of members composing the Council: consequently there can be no election, and the following gentlemen will represent the College during the ensuing two years:

Mr. T. BRENDON, Brantford. Mr. C. BRENT, Port Hope.
" E. GREGORY, Lindsay. " W. W. GREENWOOD, St. Catharines
" F. JORDAN, Goderich. " N. C. Love. Toronto.
" B. LYMAN, Toronto. " H. MILLER, Toronto.
" E. H. PARKER, Kingston. " J. ROBERTS, Ottawa.
" S. TAPSCOTT, Brantford. " W. WALSH, Peterboro'.
Mr. L. W. YEOMANS, Belleville.

It will be seen that the question of holding an election depended altogether on the eligibility of the candidates, and this again principally depended on the payment of the annual fees. Although we must confess that we would rather have had an election, we are conscious that the line must be drawn somewhere, and that conclusively. On previous occasions of this character there has been much uncertainty and confusion as to who were to be considered

eligible for election, or qualified to vote. Usually, the law has been construed with much latitude, and members have voted, have been elected, and have held seats in the council, while they were at the same time in arrears of fees. This should not be, and the law evidently contemplates this emergency when it specifies that on the 15th of June, a fortnight before the time of election, a list shall be published containing the names of those in good standing, and thus entitled to keep open shop, to vote, or be eligible for election.

In the May number of the JOURNAL, and in another form in the June issue, we ventured an opinion which we have always held—that members in arrears were neither entitled to vote nor eligible for election. To this opinion some question was taken, and the Registrar deemed it advisable to obtain for his guidance a decision by competent legal authority. Consequently, the matter was subjected to the solicitors of the College and the following opinion obtained :

"Our opinion being regarded whether, under the Pharmacy "Act and the By-laws of the College, persons who have omitted to "pay the registration fee under Sec. 17 of the Act, are eligible for "election to the Council of the College, or are entitled to vote for "members of the Council.

"We are of opinion that regard being had to Sec. 20 of the "Act, and to the 11th By-law, such persons are neither eligible as "members of Council nor are qualified to vote.

"(Signed) MOWAT, MACLENNAN & DOWNEY."

Coming from the Attorney General this decision may be regarded as final, and though we should have been better pleased had present circumstances been unaffected by the change, we are still glad that the matter is settled once and for all.

A SUGGESTION REGARDING PATENT MEDICINES—THE POPULAR HEALTH ALMANAC.

The patent medicine question has been at various times discussed in this journal, both editorially and otherwise, and it will be sufficient for us on the present occasion to state the general conclusions which have been arrived at. The first consideration relates to the public welfare, and on this point there can be no doubt but that an unadvised and reckless use of patent medicines tends to great

injury of public health, and, often enough, to the destruction of life itself. Secondly, the system is in great part based on falsehood and exaggeration, and, where these exist, cannot, therefore, be deemed either honest or respectable. Thirdly, the traffic is directly injurious to the drug-trade proper, and to the medical profession; and thus the profit which should flow into these legitimate channels is chiefly diverted into the pockets of the patent medicine manufacturer.

In view of these considerations it becomes the duty as well as the interest of pharmacists to discountenance, and if possible reduce the trade in these ready-made medicines. Various projects have been discussed, and many suggestions made with this intent, but so mighty and all prevailing is the evil that, until the present no one has been found courageous enough to carry any of them into execution. In November last, however, a paper on this subject appeared in the *Chicago Pharmacist*, in which the writer suggested, amongst other expedients, that pharmacists should at least withdraw their aid in the spread of the patent medicine trade by declining the indiscriminate distribution of the nostrum almanacs, which generally carry upon their covers the advertisment or business card of the distributor, which is thus regarded by the public as a sort of endorsement or recommendation.

The force of this view of the subject is so apparent that it was suggested that an almanac, containing general information, and applicable to all sections of the country, should be prepared and furnished to druggists at as low a rate as possible. We are glad to state that this project has been taken up by Mr. E. Steiger, the well known educational publisher of New York, and that Dr. Frederick Hoffman has been secured as the editor of the little work. It is proposed to issue a neatly printed pamphlet of 32 duodecimo pages, containing the following subject matter;—the annual astronomical calendar; postal rates etc.; statistical and general information upon health matters and requirements; a series of simple and approved household remedies; brief directions for the prompt application of antidotes to the common poisons in daily use in domestic economy, and in the arts and trades; first help in accidents and emergencies; brief popular essays on the origin and absurdities of the nostrum traffic; a statement of the composition of all those patent and proprietary medicines used in the United States, which have been analysed.

The almanac will be issued this autumn, and druggists ordering in time can have their business cards upon the cover; but we understand that no other advertisment, whatever, will be allowed. The rates will be made very low and may be learned by addressing the publisher.

We can only say that we are sure the editor and publisher will spare no pains to make this undertaking a success, and we heartily give it our endorsation and support.

PHARMACEUTICAL EDUCATION.

Changes during the last decade have so gradually dawned upon the pharmaceutical world that very few of us have as yet grasped their true import. One fact, however, is sufficiently well developed to necessitate our earnest attention. The advanced Pharmacopœias of to-day have eliminated from their pages the methods of preparing many of the chemicals in daily use, and have confined their instructions to describing characters, tests and doses. As for instance, iodine, bromine &c. Therefore, we who are engaged in the work of advancing the scientific education of pharmacists, should at once turn our attention to the development of this modern pharmaceutical idea and see that our lecturers instead of dwelling too much on the obselete details of manufacture, should impart to our students such practical information as will hereafter enable them to detect and separate the true from the false, the adulterated from the unadulterated, not only as regards natural products, but also the more delicate medicinal chemicals produced by the chemical manufacturer.

A very interesting part of practical pharmacy has thus been detached from the former duties of the pharmacist; while a still more difficult task has fallen to his share, requiring the constant exercise of the practical experience gained during his apprenticeship, and of the equally necessary experience gained in the lecture room.

In short, analytical chemistry and microscopy must, in the natural order of things, soon become one of the most important branches of a sound pharmaceutical education.

At the same time, let us not ignore the importance of a knowledge of Botany. There are hundreds practising pharmacy to-day

who have scarcely a rudimentary idea of this science; how many of them there are who do not daily regret the many opportunites lost in early life of obtaining an insight into this absorbing study? The green fields, the forest glades, the river banks, how temptingly they call us to the task.

Some of the most important remedies in the hands of the physician are derived from the vegetable kingdom, and when the flora of so many countries, and even of our own dear Canada, remains comparatively unexplored, there cannot be a doubt but that many important remedies only await discovery to reward the labors of the enterprising botanist. Let us therefore cultivate a love for the study of Botany, and perhaps in a few years Canadian pharmacy may place in the hands of the sister profession more abundant and more certain means for the relief of the many ills which flesh is heir to.

H. R. G.

STUDENTS' DEPARTMENT

As we have not yet received from Mr. Yeomans the ratings on Materia Medica and Botany—probably as the parcel containing the answers has miscarried—we have been compelled to go to press without them, and shall have to defer the publication of the result until next issue. The prizes will, however, be sent as soon as we can get the necessary information to enable us to make a decision.

Editorial Summary.

THE ALKALOID AND ACTIVE PRINCIPLE OF JABORANDI.—Mr. A. W. Gerrard, Teacher of Pharmacy at University College Hospital, London, publishes, in the *Pharmaceutical Journal & Transactions*, a paper containing the details and results of experiments, made at the instigation of Dr. S. Ringer, with a view of determining the nature of the principle to which jaborandi owes its activity. The author observes that the bark of the stem of the plant was found upon administration to give results equal to the leaf. This part was chosen for experiment from the fact of its con-

taining but a small proportion of chlorophyll, which in the leaf is of course very abundant and very difficult of separation. A substance giving the reactions of an alkaloid was isolated, and to this the name of *pilocarpine* has been given. Its characteristics are not fully described, but the author promises further investigations. The alkaloid was administered in the dose of half a grain, and the full effects of jaborandi were realized, so that there can be no doubt but this substance is the active principle. Associated with it are an acrid resin, tannic acid, volatile oil, and chlorophyll. The acrid resin is soluble in ether, and possesses properties which indicate it to be the substance to which the benumbing sensation and pungent taste of an alcoholic tincture of jaborandi is to be attributed. It does not possess any marked medicinal properties. For the preparation of pilocarpine the following process is suggested: Prepare, with 50 per cent. alcohol, a soft extract of the leaf or bark. Digest this with water, filter, and wash. Evaporate the filtrate to a soft extract, cautiously add ammonia, in slight excess; shake well with chloroform; separate the chloroform solution and allow it to evaporate: the residue is the alkaloid with probably a small quantity of impurity.

ANTISEPTIC ACTION OF SALICYLIC ACID.—On this subject a paper was read by Dr. Richard Godeffroy before the Austrian Pharmaceutical Society, (published in the *Zeitschr. Œst. Apoth. Ver.*, and in abstract in the *Pharm. Jour. and Trans.*) After a short history of the acid, the author reviews the literature of the subject and glances at the labors of other investigators, passes on to describe some experiments made by himself in order to determine antiseptic and antifermentative power. The experiments as to antiseptic action were principally made upon syrups: 50 grams of syrup of mulberry and 40 grams of water were mixed and exposed in an open vessel to a temperature of 18° to 22° C.; in eight days the mixture was decidedly sour, but a similar mixture to which 0.024 grams of salicylic acid had been added remained sweet for twenty-four days, and some containing 0.04 gram acid had not turned sour, though over six weeks had elapsed. Experiments with other syrups gave similar results. In order to compare the strength of the antifermentative property of salicylic acid with that of carbolic acid, Dr. Godeffroy also made the following further experiments:—One gram of fresh yeast from a brewhouse was mixed with 13 grams of flour and 10 grams of water into a paste. In five minutes the dough began to swell and in ten minutes had finished rising. This took place more rapidly still in a drying closet at 20° to 30° C. Other portions of dough were now made in a similar manner, to which varying quantities of salicylic acid and carbolic acid were added with the following results:—

To 13 grams of flour, 10 grams of water and 1 gram of yeast was added :—	gram.	Results.
Salicylic Acid.....	0·113	Did not swell at all, even after standing for some time at an elevated temperature.
" "	0·056	Did not swell.
" "	0·028	Swelled after 14 hours.
" "	0·014	Swelled after 1 hour.
Carbolic Acid.....	0.2	Did not swell.
" "	0·15	Swelled after 12 hours.
" "	0·1	Swelled after 1 hour.
" "	0·05	Swelled after 5 minutes.

From these experiments the author deduces that 1 gram of salicylic acid is capable of hindering the fermentative action of—

18 grams of yeast	. . .	Entirely.
36 " "	. . .	Fourteen hours.
72 " "	. . .	One hour.

On the other hand, that one grain of carbolic acid is capable of hindering the fermentative action of—

5 grams of yeast	. . .	Entirely.
7 " "	. . .	Twelve hours.
10 " "	. . .	One hour.

From this it would appear that salicylic acid is more than three times as powerful in its antifermentative action as carbolic acid.

Liquor Sennæ.—Mr. Percy Wells (*Pharm. Jour. & Trans.*) speaks very highly of the convenience and efficiency of the following preparation. The formula has been in use for a period of twenty-seven years, and the preparation afforded has never failed as an active but non-griping purgative. Thirteen ounces of water, three ounces of rectified spirit, and thirty minims of liquor potassæ are mixed and poured upon six ounces of small, sifted, Alexandrian senna. The vessel, or jar, containing the mixture, is covered and the contents stirred once or twice daily, for seven days; submitted to strong pressure, and the liquor strained through fine muslin or calico. In about a week a slight deposit forms, which may be separated, when the liquor will remain permanently clear. One part of this, mixed with three parts of water, forms a preparation similar to the officinal infusion of senna.

New Insecticide.—Some time ago Mr. Dumas announced the fact that the so-called alkaline sulphocarbonates—compounds of

metallic sulphides with sulphide of carbon—were effective insecticides; and it is now proposed to use the sulphocarbonate of sodium against the phylloxera which have been found so destructive to French vineyards. The remedy is said to be very efficacious, and in no way injurious to the growth of the vines. We would suggest a trial of these compounds against the potato beetle, from which we have suffered and are likely to suffer in Canada.

QUEBEC PHARMACEUTICAL ASSOCIATION.

The annual meeting of this Association was held on Tuesday in the Association rooms, Lagauchetiere street. In the absence of the President, Mr. H. Lyman, who was unwell, Mr. H. R. Gray occupied the chair.

The report of the Council for the past year was read by the Secretary, Mr. E. Muir. It gave a brief *resume* of the work of the Council and complimented the Association upon having now acquired a legal status, having at the last session of the Quebec Legislature obtained compulsory powers of examination and licensing. As far as was known to the Council, most of those doing business as chemists and druggists had complied with the law and were now registered as licentiates of Pharmacy. It is now unlawful for any person to keep open any drug store for dispensing medicines and the sale of poisons unless he be registered under the Act.

After the adoption of the report,

Mr. Kerry moved, seconded by Dr. St. Jacques, of St. Hyacinthe, that a special vote of thanks be tendered to Mr. Mercer for his services in Quebec in procuring the passage of the Quebec Pharmacy Act of 1874.

Mr. Mercer thanked the Association for the cordial manner they had received the resolution and said that he wished it to be understood that in all he may have done he had the able support of all the members of the Council.

Dr. LeBlanc drew attention to the fact of small grocery stores and general country stores selling dangerous drugs, and hoped the Association would in this matter look after the interest of the licentiates. The Chairman promised to bring the subject before the new Council at an early meeting.

After a vote of thanks to the retiring officers, and also to the Registrar, Mr. Muir, and the Treasurer, Mr. Goulden, the meeting proceeded to the election of Council, when Messrs. Lyman, Manson, Gray, McLeod, Tuck, Ambrose, Goulden and Giroux were elected members. These gentlemen with the following compose the Council of the Association for the year; namely Messrs. Mercer, King, Harper and Muir.

The conversazione was held in the evening in the rooms of the Natural History Society. The museum was thrown open for promenade, and several members of the Microscopical Society attended, among whom we noticed Dr. McEachran and Dr. Edwards, who exhibited some very beautiful specimens under their microscopes.

At 9 o'clock the chair was taken by Mr. H. R. Gray, Vice-President, who expressed his regret at the absence of Mr. Lyman, who had prepared an address for the occasion, and sent it down for him to read.

ADDRESS OF THE PRESIDENT.

To the Members of the Pharmaceutical Association of the Province of Quebec.

Gentlemen,—It affords me singular pleasure to meet you upon this most auspicious occasion, the first meeting under our amended charter of 1874, by which we have attained to a recognized legal status, as a governing body, having all the necessary powers to control and regulate the practise of Pharmacy, in its two most important branches, the dispensing of medicine and the sale of poisons

This happy result is due in a great measure to the intelligence, energy and perseverance of your Ex-President, Nathan Mercer Esq., a Fellow of the Chemical Society of London and a member of the Pharmaceutical Society of Great Britain, and you will be gratified with the fact that your council have placed on record in their report of proceedings for the past year, their high appreciation of Mr. Mercer's valuable services. In this connection I should not fail to say that Dr. Brigham, member of the Provincial Parliament for the County of Missisquoi, rendered us very valuable assistance. To that gentleman, and others who might have honorable mention, the thanks of this Association are due.

Some years since, I believe in 1865, we established a society for our mutual protection and improvement under the name of the "*Chemists Association of Montreal.*" This first Association I am proud to say was the seed of that more vigorous plant, whose progress and growth we are now assembled to celebrate. I need not remind you gentlemen, that many previous attempts had been made to regulate the trade and profession, (for it is both commercial and professional) of the Apothecary and Druggist.

This somewhat onerous duty was, by the Legislature, entrusted to the Medical faculty, but it must be confessed with results far from satisfactory. This was not attributable, however, to any want of ability or interest on their part, but to the fact that the law was constantly evaded, and the faculty had sufficient occupation in the practise of their own arduous profession, without seeking further employment within the peculiar domain of Pharmacy.

At length it became obvious to all parties that those are better

qualified to regulate the practise of Pharmacy, who are themselves Pharmacists, and have *practical* knowledge of the subjects involved. It is therefore matter for congratulation that the former anomalous state of things has passed away, and I doubt not the change is as satisfactory to the medical faculty as to ourselves. I am happy to be able to say that in our intercourse with our medical friends, touching the organization of our new Association, we have been met in a most frank and friendly spirit.

It may be, gentlemen, that our amended charter, although much in advance of the Act of 1870, will be found defective on some points. Should such prove to be the fact, I have little doubt that we shall be able to obtain all needful amendments in order to a more perfect organization.

It may be observed *generally*, that the art of the apothecary is of most ancient date, we read of it in Holy Writ, and by the ancients it was highly esteemed and greatly valued. The alchemist or chemist was looked upon with profound veneration and awe. Chemical science was shrouded in mystery, its arena as it was called, was guarded with scrupulous jealousy from the public gaze, and its language was expressed in a cabalistic symbolism, which was well calculated to impress the vulgar and the uninitiated. To the popular mind, the chemist was one who meddled with all the secrets of nature and laid them under contributions to do his behests.

The philosopher's stone, for the transmition of the baser metals, and the Elixir Vitæ for the perpetuation of life, were always, like perpetual motion, on the point of discovery, and few doubted that their attainment was but a question of time.

The discoveries of the modern laboratory, however, have dispelled these illusions and brought Chemistry down, or shall I not say up to the ordinary plane of human life, and made it a ministering angel to the daily wants and necessities of Society.

The elucidation of this theme would require volumes and far transcends the limits of a brief address, suffice it to say that the labours of a Faraday, a Priestley, a Davy, a Lavoisier, a Liebig and a host of others, have conferred blessings upon the race, the value of which it is impossible to compute

In glancing over the discoveries made in Chemical research for the last 40 years, the period during which I have been in active business in this city, I cannot easily imagine that the succeeding decades can possibly witness similar or as great achievements:—but he would be a bold man who should nevertheless affirm that all discoveries have been made, and that the science of Chemistry has now attained its full maturity of growth.

In bringing these remarks to a *conclusion*, let me observe, the *past* with all its mistakes is beyond our reach and may not be recalled; the *future* we may not see; the *present* is ours alone.

And now it becomes us to inquire with respect to our Associa-

tion *What shall we do with it?* It is obvious that much may be done, if all its members shall rally around it and sustain its interests with *vigour.*

In fine, the destiny, so to speak, of this Association is entirely in your own hands, by patient toil to be made effective and honourable, or by neglect to be permitted to lapse into a merely nominal existence, a by-word and a derision to our neighbours.

If then we would make the *Pharmaceutical Association of the Province of Quebec* take honourable rank with its sister institutions in Ontario, the United States and elsewhere, we must make up our minds to give time, thought and energy to its work.

It is true we may not acquire fame for it, but we may reasonably expect to achieve an honourable and useful position, by patient and persevering labour, and we may assure ourselves of the fact that just as certainly as day follows night and summer follows winter, so surely will success ample and gratifying crown our honest endeavours to place our institution, *cæteris paribus* on an eminence not inferior to that of any other country in the world.

Mr. Mercer then moved a vote of thanks to Mr. Lyman for his able address, and expressed his regret at the cause of his absence. He congratulated the Association on the success of the soiree, especially on the attendance of so many ladies, whose presence always rendered every cheerful scene still more cheerful, and to the enjoyment of every pleasure added a double charm.

The vote was seconded by Mr. McLeod, of Quebec.

The Chairman then called upon His Worship, the Mayor, Dr. Higginston, who in in a very genial speech delicately touched on the relations which ought to exist between medicine and pharmacy, and offered his warmest congratulations for the increasing success of the Association.

He was followed in French by Dr. Bibaud, and then by Dr. F. W. Campbell and Dr. Edwards.

The refreshments were supplied by Mr. Joyce, and were much appreciated.

A Novelty in Ornamental Silvering.—In Munich various objects of art have lately been displayed, which are remarkable for their brilliant silver hue. It appears that they are mere plaster models covered with a thin coat of mica powder, which perfectly replaces the ordinary metallic substances. The mica plates are first cleaned and bleached by fire, boiled in hydrochloric acid, and washed and dried. The material is then finely powdered, sifted, and mingled with collodion, which serves as a vehicle for applying the compound with a paint-brush. The objects thus prepared can be washed in water, and are not liable to be injured by sulphuretted gases or dust. The collodion adheres perfectly to glass, porcelain, wood, metal or papier mache. The mica can be easily tinted in different colors, thus adding to the beauty of the ornamentation.—*Boston Journal of Chemistry.*

DRUGS, MEDICINES, &c.	$ c.	$ c.
Acid, Acetic, fort	0 13 @	0 14
Benzoic, pure	0 22	0 27
Citric	1 35	1 50
Muriatic	0 03½	0 05
Nitric	0 10	0 13
Oxalic	0 22	0 23
Sulphuric	0 03	0 05
Tartaric, pulv	0 50	0 50
Ammon, carb. casks	0 22	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 40	0 42
Sulphuric	0 50	0 50
Antim. Crude, pulv	0 15	0 17
Tart "	0 55	0 65
Alcohol, 95 per ct.....Cash	1 97	2 07
Arrowroot, Jamaica	0 18	0 22
Bermuda	0 50	0 65
Alum	0 02¾	0 03½
Balsam, Canada	0 33	0 38
Copaiba	1 10	1 15
Peru	3 40	3 75
Tolu	2 50	2 60
Bark, Bayberry, pulv	0 20	0 22
Canella	0 17	0 20
Peruvian, yel. pulv	0 35	0 50
" red "	1 60	1 70
Slippery Elm, g. b	0 18	0 20
" flour, packets	0 28	0 32
Sassafras	0 15	0 8
Berries, Cubebs, ground	0 20	0 25
Juniper	0 06	0 10
Beans, Tonquin	0 62	1 10
Vanilla	20 00	21 00
Bismuth, Alb	2 50	2 75
Carb.	2 65	2 90
Camphor, Crude	0 33	0 40
Refined	0 43	0 47
Cantharides	2 20	2 30
Powdered	2 30	2 40
Charcoal, Animal	0 04	0 06
Wood, powdered	0 10	0 15
Chiretta	0 23	0 30
Chloroform	1 10	1 55
Cochineal, S. G	0 65	0 70
Black	0 85	0 90
Colocynth, pulv	0 60	0 65
Collodion	0 70	0 80
Elaterium oz	3 20	4 00
Ergot	0 70	0 75
Extract Belladonna	1 50	1 60
Colocynth, Co	1 25	1 75
Gentian	0 50	0 60
Hemlock, Ang	0 00	0 95
Henbane, "	1 70	1 80
Jalap	5 00	5 50
Mandrake	1 75	2 00
Nux Vomic oz	0 40	0 50
Opium oz	1 60	
Rhubarb	5 00	5 50
Sarsap. Hon. Co	1 00	1 20
" Jam. Co	3 50	4 00
Taraxacum, Ang	0 70	0 80
Flowers, Arnica	0 17	0 25
Chamomile	0 28	0 32
Gum, Aloes, Barb. extra	0 70	0 80
" " good	0 40	0 50
" Cape	0 16	0 20
" " powdered	0 20	0 30
Socot	0 50	1 35
" " pulv	1 00	0 00
Arabic, White	0 38	0 60
" powdered	0 60	0 75
" sorts	0 19	0 24
" " powdered	0 42	0 50
" com. Gedda	0 13	0 16
Assafœtida	0 40	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 00	1 20
Guaiacum	0 45	1 00
Myrrh	0 50	0 85

DRUGS, MEDICINES, &c.—*Contd.*	$ c.	$ c.
Sang Dracon	0 60	
Scammony, powdered	5 50	6 00
" Virg. "	14 50	—
Shellac, Orange	0 80	0 85
Gum, Shellac, liver	0 60	0 70
Storax	0 40	0 45
Tragacanth, flake	1 10	1 75
" common	0 53	0 65
Galls	0 22	0 30
Gelatine, Cox's 6d	1 15	1 20
Glycerine, common	0 18	0 23
Vienna	0 25	0 28
Prices	0 60	0 75
Honey, Canada, best	0 15	0 16
Lower Canada	0 14	0 16
Iron, Carb. Precip	0 20	0 25
" Sacchar	0 40	0 55
Citrate Ammon	1 40	1 50
" & Quinine, oz	0 52	0 55
" & Strychine	0 20	0 25
Sulphate, pure	0 08	0 10
Iodine, good	4 30	5 00
Resublimed	5 30	6 00
Jalapin	1 25	1 50
Kreosote	2 40	2 50
Leaves, Buchu	0 22	0 32
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 05	0 06
Sulphate	0 08	0 12½
Lead, Acetate	0 15	0 16½
Leptandrin oz.	0 60	—
Liq. Bismuth	0 50	0 60
Lye, Concentrated	1 50	1 60
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 00	0 75
Mercury	1 00	1 60
Bichlor	1 80	2 00
Chloride	2 10	2 15
C. Chalk	0 00	1 00
Nit. Oxyd	2 10	2 25
Morphia Acet	4 15	4 25
Mur.	4 15	4 25
Sulph	4 30	4 40
Musk, pure grain oz.	25 00	—
Canton	0 60	1 20
Oil, Almonds, sweet	0 38	0 43
" bitter	14 00	15 00
Aniseed	4 00	4 25
Bergamot, super	7 75	8 00
Caraway	3 20	3 50
Cassia	2 00	2 25
Castor, E. I	0 13½	0 15
Crystal	0 22	0 25
Italian	0 26	0 28
Citronella	1 05	1 15
Cloves, Ang	3 50	3 75
Cod Liver	1 45	1 50
Croton	1 75	2 00
Juniper Wood	0 80	1 00
Berries	2 75	3 00
Lavand, Ang oz.	0 00	1 00
Exotic	1 25	1 50
Lemon, super	3 80	4 00
ord	3 20	3 40
Orange	3 00	3 25
Origanum	0 65	0 75
Peppermint Ang	15 00	16 00
" Amer.	5 50	7 00
Rose, Virgin	8 50	8 75
" good	7 00	7 25
Sassafras	0 75	1 90
Wintergreen	5 25	5 50
Wormwood, pure	4 00	6 00
Ointment, blue	1 40	1 50
Opium, Turkey	8 00	8 25
pulv	11 00	12 00

DRUGS, MEDICINES, &c.—*Cont'd*	$ c.	$ c
Orange Peel, opt.	0 30	0 36
" good	0 12½	0 20
Pill, Blue, Mass.	1 40	1 50
Potash, Bi.chrom	0 18	0 20
Bi-tart	0 33	0 35
Carbonate	0 14	0 20
Chlorate	0 35	0 40
Nitrate	8 00	9 00
Potass um, Bromide	65	0 75
Cyanide	0 60	0 70
Iodide	3 80	4 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
Phosphorous	1 10	1 20
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	2 25	—
" 100 oz. case.	2 22	—
" 25 oz. tin..	2 20	—
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	90	1 15
" 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 00	2 25
" E. I	0 75	0 90
" " pulv	1 60	1 10
" " 2nd	0 60	0 70
" French	0 75	—
Sarsap., Hond	0 53	0 60
" Jam	0 88	0 90
Squills	0 10	0 15½
Senega	1 10	1 10
Spigelia	0 25	0 30
Sal., Epsom	2 25	3 00
Rochelle	0 30	0 32
Soda	0 02½	0 03
Seed, Anise	0 13	0 16
Canary	0 17	0 17
Cardamon	2 00	2 10
Fenugreek, g'd	0 08	0 09
Hemp	0 06½	—
Mustard, white	0 14	0 16
Saffron, American	0 75	0 85
Spanish	12 00	13 00
Santonine	7 25	7 50
Sago	0 08	0 09
Silver, Nitrate.....Cash	14 85	16 50
Soap, Castile, mottled	0 11	0 14
Soda, Ash	0 03¾	0 05
Bicarb. Newcastle	5 75	6 25
" Howard's	0 14	0 16
Caustic.	0 05½	0 05¾
Spirits Ammon., arom	0 35	0 35
Strychnine, Crystals	2 00	2 20
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 70	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
Aniline, Magenta, cryst	2 65	2 80
" liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitrol, pure	0 09	0 10
Camwood	0 06	0 09
Copperas, Green	0 01½	0 02
Cudbear	0 16	0 25
Fustic, Cuban	0 03	0 04
Indigo, Bengal	2 40	2 50
Madras.	0 85	0 90
Extract	0 26	0 30

DYESTUFFS—*Continued.*		
Japonica	0 07	0 08
Lacdye, powdered	0 33	0 38
Logwood	0 01⅞	0 03
Logwood, Camp	0 01⅞	0 03
Extract	0 12½	0 13
" 1 lb. bxs	0 15	—
" ½ lb. "	0 14	—
Madder, best Dutch	0 11	0 12
2nd quality	0 10	0 11
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 26	0 28
Cloves	0 55	0 60
Cayenne	0 22	0 28
Ginger, E. I	0 19	0 20
Jam	0 30	0 30
Mace	1 40	1 60
Mustard, com	0 20	0 25
Nutmegs	1 15	1 25
Pepper, Black	0 20	0 21
White	0 31	0 32
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 07¼	0 08
Venetian	0 02½	0 03½
Sienna, B. & G	0 07	0 08
Umber	0 07	0 10
Vermillion, English	1 75	1 80
American	0 25	0 35
Whiting	0 1	0 1½
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 03¾	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25 lb. tins	2 35	—
" No. 1	2 10	—
" No, 2	1 85	—
" No. 3	1 60	—
" com	1 30	—
White Zinc, Snow	2 75	3 25
NAVAL STORES.		
Black Pitch	3 90 @	4 25
Rosin, Strained	3 80	4 25
Clear, pale	5 75	7 25
Spirits Turpentine	0 47	0 50
Tar Wood	3 90	4 25
OILS.		
Cod	0 63 @	0 70
Lard, extra	1 10	1 20
No. 1	105	1 10
No. 2	0 90	0 95
Linseed, Raw	0 61	0 66
Boiled	0 65	0 68
Olive, Common	1 05	1 10
Salad	1 80	2 30
" Pints, cases	4 20	4 40
" Quarts	3 25	3 50
Seal Oil, Pale	0 70	0 75
Straw	0 68	0 70
Sesame Salad	1 30	1 35
Sperm, genuine	2 65	
Whale refined	0 70	0 75