## 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.

- ☐ 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.

☑ Additional comments / Commentaires supplémentaires: Continuous pagination.

CANADIAN

# PHARMACEUTICAL JOURNAL

VOL. IX, No. 12. TORONTO, JULY, 1876. WHOLE No. XCVII

## OFFICIAL DOSAGE.*

BY ROBERT FARQUHARSON, M.D.,

*Lecturer on Materia Medica at St. Mary's Hospital Medical School, etc.*

It is now more than two years since our late lamented colleague, Dr. Anstie, referred, in the pages of the *Practitioner*, to the very uncertain and misleading directions of our official dosage. The text on which his remarks were founded was a case which made a good deal of sensation at the time, and provoked much varied controversy as to the best mode of obviating the disasters which might at any time arise from a similar combination of circumstances.

A physician in Ramsgate, being in attendance on a severe attack of delirium tremens, prescribed half an ounce of tincture of digitalis to be repeated if necessary in four hours, but the chemist observing that the quantity was eight times larger than the maximum dose allowed by the British Pharmacopœia, refused to make up the medicine as ordered.

The patient died, and, in the inquiry which followed, the medical man expressed his belief that digitalis used according to his instructions might have arrested the disease and saved the sufferer's life. And although the chemist had so far a good line of defence by appealing to the standard book of official references in his particular department, he was severely censured by the coroner on the reasonable ground that it was his clear duty to have communicated with the prescriber and ascertained whether the apparently excessive dose was actually ordered with deliberate intent. Now, although public opinion at that time turned strongly against the man who, by his excess of caution, contributed to so unfortunate a

*Read before the Medical Society of London. Reprinted from the Practitioner, in the Pharm. Jour. and Trans., May 13.

result; and although it was very properly suggested that an unusual dose of any poisonous substance should always be explained by some well understood mark or symbol, it is impossible not to feel that in this, as in most cases, there is something to be said on both sides. We must remember that great responsibilities devolve on those who are empowered by law to dispense medicines, that the issues of life and death may depend on the slightest slip or mistake, that they may be at any time held liable for serious consequences. On the other hand, we are all of us liable to error, and in our younger days many of us have, no doubt, inadvertently put on paper some hurried combination of drugs in dangerous quantity, which, if made up as written, might have caused an inconvenient or even fatal result. It is clear, therefore, that the deliberate reading over and consideration of our prescriptions by skilful and highly practised dispensers, may be of essential service in correcting mistakes which carelessness or ignorance not unfrequently brings about. And although the British Pharmacopœia was not originally intended in any way to regulate dosage, although information on this score was only added to its second edition "in compliance with a generally expressed wish," and although these directions are not authoritatively enforced by the Council, and "the practitioner may rely on his own judgment and responsibility in graduating the doses of any therapeutic agents which he may wish to administer to his patients," the very fact of the doses being appended at all gives them an official sanction which it is clear was not originally intended. But these directions, such as they are, constitute all which the druggist has to rely upon for information or support under doubtful and exceptional circumstances. Supposing he is called upon to give over into inexperienced hands a bottle of medicine, which his *vade mecum* tells him is far too strong, and supposing at the same time that he is unable to communicate with the prescribing medical man, he is undoubtedly placed in a position of some perplexity. Grant also, however, that the doctor whose prescription is either rejected *in toto*, or mutilated in some way, and the patient whose interests may be gravely imperilled by such a line of action, are possibly sufferers both in reputation and in health, and the evidence begins to point pretty plainly to the necessity for some alteration in our present system. I do not suppose I can be singular in my experience in having had prescriptions referred back to me for supposed correction, because I have ordered doses which are well known to be necessary for the proper development of the action of a special drug. Thus, on one occasion when I ordered succus conii in ʒi. doses for acute chorea in a girl of ten, the dispensary prescriber considered it his duty only to give a drachm, and on my next visit pointed out with some concern what he naturally believed to be a mistake. Here no harm was done, for the patient afterwards getting her proper dose was rapidly cured, and the dispenser hailed with satisfaction this addition

to his knowledge; but the recollections of my hearers will doubtless bring before them many instances of confusion and delay caused by the fact of our having no properly constituted official guide for prescribing.

I will only mention one more instance out of others which I have met with in practice, and that was when, on taking the hospital duty of a friend, I prescribed 20 minims of belladonna for a child three years old. I shall never forget the consternation with which the pharmaceutical official presumed that I had dashed off at least 10 minims too many in the bustle and hurry of out-patient work, and his surprise when I told him that it was my common custom to prescribe much larger doses with benefit.

Now, although we have seen that the Medical Council did not primarily intend the British Pharmacopœia to be a rigid standard of dosage, and although they also expressly state that the quantities are "intended to represent average doses in ordinary cases for adults," we have also seen that the public have stamped a thoroughly official character on the book, and it has come to this, that the maximum and minimum quantities there enjoined are now all but universally held to represent the limits within which drugs may be safely or even legally prescribed. Let us, therefore, see in how far the teaching thus laid down is in accordance with modern therapeutics.

To begin then with conium, to which reference has already been made, we will find that the authorized dose of the succus is represented as varying from *m*x. to ʒi. Now the largest of these quantities is probably without any influence on the human frame, and it is hardly necessary for me to remind you that the experiments of John Harley have shown that we must give from one to four or six ounces before we can expect to derive real benefit from the drug, eight ounces even having been reached without ill effect.

Belladonna, again, is allowed in extract only up to half a grain, which is too small, and to *m*xx. of the tincture, which is far within the mark, as I have given from a drachm to ʒijss. to patients suffering from incontinence of urine with marked advantage.

There is also a curious timidity shown in the directions about quinine, 10 grains of which is held to be the maximum dose. Now, I suppose no fact in medicine is better established than the necessity for administering 20 or 30 grains, or even more, in bad cases of intermittent fever, and the valuable anti-pyretic properties of the drug only come into play when the dose reached is three or four times in excess of that allowed by the Pharmacopœia.

Then in the case of aconite two mistakes occur, the minimum quantity of *m*v. is too large, for we have all seen the remarkable power of drop doses frequently repeated in checking various inflammatory conditions, and the maximum is also too large, 15 minims being far from a safe prescription in the case of most adults who

have over-passed middle life. We have already seen that tincture of digitalis is restricted to ʒss., and we know that the successful treatment of delirium tremens by means of ʒss. doses is now one of the commonplaces of medicine; and Dr. Anstie draws special attention to the insufficient quantity ʒi. of tincture of hyoscyamus allowed, telling us that ʒss. is often required in asylum practice.

It must be within the experience of all to have prescribed pot. bromide in larger doses than 30 grains, and the absurdity of restricting iodide of potassium to 10 grains is almost too patent to require further remark. We all know that some of the most brilliant successes of medicine and surgery have been secured by the administration of 20, 30, 40, and even 60 grains

Coming next to ipecacuanha, we find that, although its properties as an expectorant and emetic are recognized, no mention is made of its specific anti dysenteric powers; and a dispenser would therefore probably consider it his duty to cut down a prescription in which doses of from ʒss. to ʒj. of the powdered root were ordered to be taken every two hours.

The tonic dose of sulphate of zinc is put down at from one to two grains, although it is well known that more than double this quantity is often well borne in chorea; and 30 minims is considered the maximum quantity of tincture of ferri perch., although in erysipelas and acute rheumatism ʒj. is often administered with benefit. The minimum doses of liquor of morphia, hydrate of strychnia and tincture of nux vomica, are all placed too high at *mx.* gr. 1-30, and *mx.* respectively; and the researches of Ringer have shown that we derive little benefit from the use of tincture of lobelia in asthma, unless we carry the dose beyond that laid down by authority at *m*30. Now, although these are undoubtedly the principal instances in which the Pharmacopœia is hopelessly at variance with the modern development of therapeutical science, there are many other examples which I will not weary you by detailing.

Enough, I hope, has been said to convince you of the necessity for some alteration in the rules laid down for our guidance in the matter of dosage. The experienced medical man of course orders his drugs according to the dictates of his own personally acquired knowledge, and often arrives at practical conclusions, for which we might look in vain in our text-books; but the beginner feels himself hampered by authority, and the dispenser has his hands tied. On his counter lies the Pharmacopœia for constant reference, and, although not originally endowed with absolutely official powers, it has had that character forced upon it, and must abide the consequences. In any court of justice, in any professional controversy, its decision may at any time be invoked; and we have a right, therefore, to expect that we shall not be misled when its influence is thus brought to bear upon us. Not only should the scale of doses be at once raised, but pains might be taken to indicate the largest quantites

which may be, or have been, given with impunity. And the important question of minimum doses, on the principle which is so rapidly gaining ground, of the advantages to be derived from keeping the system saturated with a drug, prescribing it—that is, in minute quantities—at such short intervals that its influence on nervous or vascular function shall not be temporarily arrested by elimination, might also receive attention. In short, without converting the Pharmacopœia into a treatise on therapeutics, the attention of those who have so ably superintended its construction might be called to the propriety and even necessity for some alterations in the rules which it lays down for the prescribing of drugs. To this it may of course be objected that therapeutics is not in a sufficiently settled state, nor is medical opinion on the subject sufficiently unanimous, to justify any authoritative utterance on these points, and in particular the question of frequent divided doses has not yet been fully worked out. This objection was foreseen by Anstie, and it remains with you to decide whether something might not be done by us to carry out his suggestions, and thus most effectually prove our reverence for one who was ever foremost in advocating the cause of truth and progress. Let me quote the concluding words of his paper: "No greater service could be performed by the colleges or great medical societies than the formation of a committee of competent men for the special investigation of this question of dosage, for it is a subject which is only in its infancy, and the best knowledge which exists about it is undoubtedly confined to a very small section of the medical profession." Now, although it may be true that the *best* knowledge of dosage has not yet become the common property of the profession, there is no doubt that enough is known to justify a pretty complete official classification; and as the expense of frequent reprints of the British Pharmacopœia would be considerable, I venture to suggest the occasional publication of a posological table in the form of addendum, which might give effect to recent investigation, and supply the not unnatural wish which generally prevails for trustworthy and authoritative information on the subject of maximum and minimum doses.

Before leaving the subject of the British Pharmacopœia, I may lay before you another anomaly connected with dosage, which has been more especially exposed by Mr. J. A. Cope, of Derby, in the *Pharmaceutical Journal* for April 17th, 1875. He there points out how inconsistently the doses of various drugs vary according to their preparations. Thus, the quantity of tincture of ergot sanctioned by official authority is equal to 13½ grains of the powder, whereas that of the powder or liquid extract corresponds to 3 grains. Thirty minims of tincture of digitalis equals three grains or the dried leaves, whereas the ordinary dose of the infusion is only equivalent in value to 1½ grain.

Aloes varies in its different preparations from 3 grains to 8

grains; of tincture of belladonna, *m*30 equals gr. j. of leaf, whereas gr. j. of the extract corresponds to 3j. of the tincture; whilst nux vomica supplies a still more glaring example, seeing that *m*20 of the tincture corresponds to 2 grains of the powdered seeds, whereas of the extract 2 grains equals 3ss. It is difficult to see that these curious discrepancies have been made with any deliberate intention, and the inference is therefore fair that they have merely crept in from some carelessness or want of method on the part of the constructors of our national Pharmacopœia. Whilst fully acknowledging the great benefits which have resulted from the pharmaceutical fusion of Scotland and Ireland, and the establishment of one national standard in the United Kingdom, it appears to me to be the duty of every one to make such suggestions for the improvement of future editions as may seem founded on reason; and it has been a great gratification to me to bring a subject before you which specially engaged Anstie's attention, and to the due furtherance of which he was about to summon all the resources of his energetic intellect when his career was unhappily brought to a close.

[NOTE BY THE EDITOR.—We are obliged to curtail this paper by omitting the concluding portion referring to the looseness of homœopathic pharmacy, more particularly in the uncertain strength of the preparations. A brief summary of the leading points will be found in our editorial columns.]

---

## NEW RESEARCHES ON GALLIUM.*

BY M. LI COCQ DE BOISBAUDRAN.

TRANSLATED BY "MONAD."

I have just reduced to the metallic state about ten centigrammes (1) of gallium, which I believe to be very pure. As I had explained it, the first sample of gallium owed its hardness to the presence of a small quantity of foreign metals. Pure gallium melts about 29°.5; also, it liquifies as soon as taken in the hand: it maintains itself very easily in a state of *surfusion*, which explains how a globule can remain liquid during weeks with the temperature occasionally falling to zero. The gallium obtained by electrolysis from an ammoniacal solution is identical with that from a potassic solution. Once solidified the metal is hard and resisting, even to a few degrees below its

*Comptes Rendus, May.

(1) The pure product extracted from 431 kilogrammes of various minerals. I possess besides impure products which I estimate to contain yet 2 or 3 decigrammes of gallium.

point of fusion; nevertheless it may be cut, and it possesses a certain malleability. Melted gallium adheres easily to glass, on which it forms a beautiful mirror, whiter than that produced by mercury. Heated to bright redness in presence of air, it oxidizes very superficially and does not volatilize: it is not sensibly attacked in the cold by nitric acid, but with heat, solution takes place with disengagement of reddish vapors. The density of the metal, determined approximately from a sample weighing 64 milligrammes, is 4·7 at 15 degrees, and relatively to water at 15 degrees. The mean of the densities of aluminum and of indium is 4·8 at zero. Thus the density confirms the theoretic calculations, while the extreme fusibility is a fact completely unexpected. For other properties of gallium I refer to my sealed note of the 6th of March, and my preceding communications.

If the academy permits, I will describe at an early day some new reactions of the compounds of gallium, and will indicate a process for extracting the metal from its minerals.

The note referred to contained the following:—

The specimen of metallic gallium that I had the honour of laying before the Academy by the favor of Mr. Wurtz, had been obtained by electrolysis from an ammoniacal solution of gallium sulphate; the metal thus prepared was *solid* and hard; its solution in hydrochloric acid gave brilliantly the rays of gallium, and *very much more feebly* those of zinc; this metal was certainly gallium, containing, according to the indications of the spectrum, small quantities of zinc, and insignificant traces of other metals.

The solubility of gallium oxide in ammonia not being very great, I sought another solvent which would form more concentrated solutions suitable for electrolysis. Caustic potash dissolves a large quantity of the gallium oxide; this solution undergoes electrolysis easily, but the metal produced is *liquid* and not solid, as was that which was produced from the ammoniacal solution.

Here are some observations I have made on about 1 milligramme of the liquid gallium.

1. A *very small* globule exposed to the air for more than three weeks has not lost its fluidity, nor its metallic lustre. 2. The metal disposes itself on the platina of the negative electrode as a greyish white heavy layer, formed of numerous small globules: it is dissolved in the cold by dilute hydrochloric acid, with brisk evolution of hydrogen. 3. The hydrochloric solution of the metal gives a beautiful spectrum of gallium, and a feeble one of the zinc rays; these are less marked than with the solid gallium extracted from the ammoniacal solution. 4. The residue saved from the evaporation of the hydrochloric solution of the liquid metal is not colored by potassium iodide, nor by ammonia, nor by ammonium hydrosulphate. The dry residue from the evaporation was nevertheless sufficient to be clearly visible. There was no mercury present. 5.

Some liquid gallium deposited by electrolysis on a small plate of platinum was heated to redness, or nearly redness; it adhered, and without doubt alloyed itself with the platinum, and resisted the action of the hydrochloric acid, but it was attacked by dilute nitro-hydrochloric acid, at the same time with a little of the platinum: the solution gave the rays of gallium. A light whitish pellicle, insoluble in nitro-hydrochloric acid, separated from the surface of the platinum: it was probably gallium oxide rendered insoluble by calcination.

At the time of these experiments I had still a quantity of the solid gallium presented to the Academy, and which had been returned me, and I profited by it to assure myself again of its hardness, and of the nature of its spectrum, which I found as formerly to consist principally of brilliant rays of gallium, with feeble rays of zinc and insignificant traces of other metals. We can scarcely attribute the fluidity of gallium, obtained by electrolysis of a potassic solution, to the presence of a small quantity of potassium that one might suppose to have been reduced by the voltaic current, because the alkaline metal would have been oxidized either by the washings or by contact with the moist air. I think, then, that pure gallium is really liquid: if I have first obtained it in the solid state, it was probably because of its being alloyed with small quantities of other metals, of zinc in particular. It is proper to observe that the solid gallium is a little less pure than the liquid. The solidity of gallium appears then to be determined by the relative quantities, though inconsiderable, of foreign metals. We may suppose that, at the time of the electrolysis of the ammoniacal solution, the gallium was not deposited in a pure state, but as a combination or an alloy of that metal with the elements of ammonia.

I hope the time will soon come when, possessing several centigrammes of pure gallium, I may examine at leisure its physical properties which promise to be interesting.

---

## THE PHARMACEUTICAL VALUE OF SUGAR OF MILK.*

BY WALTER E. BIBBY, PH.G.

At the Pharmaceutical Meeting, held in the College hall on the 21st of March, Mr. J. C. Biddle recommended the incorporation of sugar of milk with powdered squill, in order to prevent caking. This led me to believe that this substance could be used to attain the same effect in a large number of the gum resins that are often required in the state of powder, and which cannot be reduced unless

*Read at a meeting of the Phila. College of Pharmacy, and published in the Am. Jour. Pharm. for June.

previously heated, which process is very liable to endanger or completely subvert the therapeutical value; or, if powdered by any other means, it fails to reach the wants of the pharmacist, by reason that the state of powder is merely temporary. Belonging to this class of substances are ammoniac, assafœtida, galbanum, guaiac, myrrh and a large number of others.

Now, to preserve these substances in the state of fine powder, and in a condition that they may be dispensed on the prescriptions of physicians in a thoroughly pharmaceutical manner, I would recommend that sugar of milk be added and triturated in the proportion of either three parts of the gum resin to one of sugar of milk, or of two of the former to one of the latter,—the powder to be preserved in well stoppered bottles.

For guaiac resin and squill, I use 90 parts to 10 of sugar of milk. It may be well to state, the cooler the weather the less time is required for trituration. To preserve camphor in a form of powder, I find sugar of milk answers better than any other substance that has been recommended. Below is given the quantity of sugar of milk required:

| | |
|---|---|
| Take of camphor..... | 90 grains. |
| alcohol ..... | 30 drops. |
| sugar of milk..... | 10 grains. |

Rub the camphor first with the alcohol, until reduced to a fine powder, then with the sugar of milk.

The sample on the table was powdered in this manner, about two months ago.

At the suggestion of Prof. John M. Maisch, I was induced to try sugar of milk in preparing mercurial pill and mercury with chalk, which two preparations are very seldom manufactured by the apothecary, for the reason, of the great difficulty encountered in extinguishing the mercury. In preparing the blue pill, I find, to my entire satisfaction, by substituting sugar of milk for powdered liquorice root, and with a slight modification of the officinal process, this difficulty can be readily overcome. I recommend the following process for

*Pilula Hydrargyri:* Take of mercury,
confection of rose,
sugar of milk..... $\overline{aa}$ ℥i

Rub the mercury with the confection of rose and sugar of milk, until metallic globules are no longer visible.

Blue mass, prepared in this manner, has about the same pilular consistence as when prepared by the formula of the "U. S. Pharmacopœia." The blue pill is often wanted in the state of powder; this has led to quite a number of suggestions. Some have recommended rubbing together mercury with honey, until globules of mercury cease to be visible, and then incorporating other ingredients,

the whole to be set aside in a warm place to dry, and then reduced to powder. Others recommend rubbing the mercury with syrup and sugar, and dry by the aid of heat. I may here state that both of these processes are exceedingly objectionable, as when heat is employed or when left in contact with the air, the mercury becomes oxidized, and renders the preparation entirely too active. Also when honey or sugar are employed, the preparation is liable to attract moisture from the atmosphere, which causes it to cake together and become hard.

To remedy this, and at the same time produce a perfect division of the mercury, I would suggest the following method for making

*Pulvis Pil: Hydrargyri.*—Take of mercury..... ℥i
sugar of milk.. ℥ii

Triturate the mixture thoroughly until the powder will pass through a fine sieve, or fine bolting cloth.

Prepared in this manner, powdered blue mass is a light grayish powder, and incapable of attracting moisture; and so thoroughly is the minute state of division, that globules of mercury cannot be seen with the aid of a lens. This preparation is also well suited for conversion into the pilular form.

Mercury with chalk, made according to the formula in the "U. S. Pharmacopœia," does not come up to the wants of the physician, on account of the imperfect division of the mercury; and, owing to this fact, it has fallen considerable into disuse. After trying various means, none answered so well and was as convenient as sugar of milk. I prepare it in the following manner:

*Hydrargyrum cum Cretâ:* Take of Mercury..... ℥iii
Prepared chalk.. ℥iv
Sugar of milk ... ℥i

Rub the mercury, prepared chalk and sugar of milk into an impalpable powder, and pass it through a fine sieve.

The above formula, although not containing the same amount of prepared chalk, contains the metallic mercury in the same proportion (3 in 8) as called for in the "U. S. Pharmacopœia," and I think is more efficacious as a remedy, as the mercury is more thoroughly divided.

In the above, I state the result of my manipulations with sugar of milk and those substances that are required to be in a very minute state of division; and I feel confident that those who will employ this substance in the manner and for the purpose I have described, cannot fail to acknowledge that sugar of milk is preferable to all other substances. Being perfectly harmless, of a hard, gritty nature, and chemically a perfect definite material, I feel certain that it will supercede the old practice of employing heat in powdering the gum resins. Moreover, in dispensing emulsions, sugar of milk materially assists in the formation of a perfect emulsion, by reason

of the minute state of division of the gum resin, induced by the trituration of sugar of milk with the drug.

---

## MORTAR PRACTICE : A FEW NOTES ON CONTUSION.*

BY H. T. CUMMINGS, M.D.

The United States Pharmacopœia gives great prominence to the subject of drug powdering, defining in all its formulas the fineness of the power required in carrying out the processes and reaching the results aimed at. And this is especially noticeable in the various receipts for tinctures, syrups, and fluid extracts. The range of fineness comprised in these formulas extends from drugs comminuted sufficiently to pass through a sieve of twenty meshes to the linear inch, which is the coarsest powder, and is designated as "*coarse*," to that fine enough to pass a sieve of eighty meshes to the linear inch, which is designated as "*very fine*." An admirable idea, this, for now one knows how to arrive at fine, moderately fine, coarse, moderately coarse, etc., and these terms have no longer a vague signification, but can be brought to the test to the rule and compasses.

Considerable difference of opinion exists among eminent practical pharmaceutists as to the fineness of powders requisite to secure the best results. While Dr. Squibb, of Brooklyn, insists that the finer the powder the more perfect is its exhaustion by appropriate menstrua, as in the case of buchu and cinchona, Mr. Campbell, of Philadelphia, deems the labour of obtaining these fine powders for percolation as thrown away, and regards a powder which will pass a sieve of forty meshes to the inch as sufficiently fine for all practical purposes. But whichever is right, it is clear that no Procrustean rule can be made to cover all cases, the structure and constitution of drugs requiring some difference in treatment for every individual in the materia medica; and, moreover, that where any considerable expenditure of muscle and nerve-power is required, we shall find comparatively few willing to incur it, as all men naturally shrink from taking their share of the divine prescription, "In the sweat of thy face shalt thou eat bread," regarding it rather as a curse to be shunned than as a blessing in disguise. Nevertheless, in all pharmacies, well regulated or otherwise, more or less of this work has to be done, and the writer believes that in detailing to some extent the results of his experience and observation in this connection, he may benefit some apothecary or his *èlèves*.

The apparatus employed in drug powdering on the small scale

* From the 'Proceedings of the American Pharmaceutical Association,' vol. xxiii.

includes the mortar and pestle, the mortar-block and its supports, and the sieves. Of hand-mills I say nothing, for, although very useful for coarse grinding, my experience with some mills in the production of fine powder has not been of a nature to encourage me to make further investments or trials in that direction. An hour's labour in turning the flywheel is far more exhausting to the system generally than four hours' labour with a ten-pound pestle. I speak knowingly, for I speak from experience.

The mortar, then, when employed for the contusion of refractory substances, is almost universally made of iron. There are two forms of this utensil in the market. The bell-shaped mortar has a soild base resting throughout upon the block. The goblet shape has a foot which leaves a portion of the bottom of the mortar unsupported, and apparently ill-calculated to resist a powerful blow from the pestle; yet one of this shape which I have in use has seen pretty hard service and gives no signs as yet of failing.

The discussion of the relation between the form of a mortar and pestle, and the yield of powder from the drug under comminution, would be an interesting question, but comparative experiments have yet to be instituted to determine the best one. Rather more easily settled is that of its capacity. This should be as great, and the weight of the pestle should be as much as the operator can well manage without undue fatigue or exhaustion. No doubt one would be tired at the end of a two hours' hammering if his pestle did not weigh over a pound, but there is no question that he would be better suited, even at the expense of a little more fatigue, to have something to show as the result of his labour. The writer has used a mortar holding seven quarts, and an eight-pound pestle; and on one occasion a two hours' pounding gave five and a half pounds of buchu powdered fine enough to pass a sieve of forty-one meshes to the linear inch. And I am led to believe that a mortar of the capacity of eight to twelve pints, and a pestle of seven or eight pounds weight, will be the most convenient and effective means of producing powders where the quantities required fall within a pound avoirdupois.

An interesting question has suggested itself to me as to the life of a mortar, that is, the number of blows from the pestle it will endure before taking on the crystalline structure, the formation of a crack which gradually extends around the mortar just above the base, until finally the upper part forming the wall of the mortar is separated from the bottom. This has happened to three mortars which have been in my possession. As to two of them, I had no means of knowing how long they had been in use, or the kind of usage they received; but the third, which was larger than either of the other two, holding about a gallon, was carefully treated, and subjected only to its legitimate use. From a careful count of the blows of the pestle upon the charges in several operations, I am inclined to the

belief that it received two hundred and fifty thousand blows before breaking.

Another circumstance attending this fracture attracted my attention, and that was the great lightness of the base after the top had been removed, and the superior ease of emptying the mortar, which suggested the query whether it would not be a good scheme to make mortars with the top removable by simply lifting it off. An objection to this might be urged that in a mortar so constructed the top might be thrown off by the jar of the pestle; but in practice it has been found that a pretty violent blow, or a succession of rapid and hard blows, is required to displace the top when simply laid upon the base, especially if supported by the hand. Moreover, if the joint between the upper part of the mortar and its base should be made with a good rebate, or "rabbit," as mechanics pronounce it, it seems to me that there would be little or no trouble from fair blows delivered at the bottom.

An adjunct to the mortar, which is by no means of trifling importance, is a flexible cover of conical shape, variously termed hood cap, or apron. This is far superior to the sheet-iron or wooden covers, with a perforation in the centre admitting of but limited play for the pestle, which are occasionally seen. It is best made of flexible leather, or strong, closely woven duck, though I have used, with good results, one made of stout, ordinary sheeting, which lasted well for more than a year. The form of the hood, as stated above, is conical, and should have a binding, some inch or two in width, sewed to the base, and if a strap and buckle are attached to fasten it tightly around the rim of the mortar, so much the better. At the upper part of the cone a similar binding should be placed, with an aperture sufficiently large to permit the passage of the upper end of the pestle, and is grasped by the hand which is lowest during the act of striking. Thus made, it is as much superior to a towel wrapped round the mortar and pestle, or similar expedient, as anything made for a definite purpose is superior to any makeshift. The uses of this addition are obvious enough, as the confining of dust, or of particles of the substance under the pestle from being projected from the mortar. Its height should be sufficient to allow the operator to raise the pestle as high as ever will be done in ordinary work, and to afford him full scope therein.

The hood, as above described, may be, and perhaps can be better cut out by the pharmacist himself than by an outsider who is unquainted with the required conditions of the case. A good rule for this is as follows: Measure the circumference of your mortar around the rim. Determine the highest lift you are likely to make of your pestle in ordinary. With this latter quantity as a radius, you draw a semicircle. Draw a line from the centre of your semicircle to its commencement point, and from that point measure off a distance upon the circumference equal to the circumference of your

mortar. In the arc thus obtained take three or more points equidistant from each other and from the extremities, and draw radii from the centre, which will divide the sector of the circles into four or more equal parts, and you have a pattern which will exactly fit your mortar. It is best to measure a little more than the circumference of the mortar, in order to allow for seams in sewing the gores thus obtained together. This pattern might be cut out in one piece and when the mortar is sufficiently small to admit of it, I know of no objection to its being so done, except one on the score of economy of material. Let us suppose, for instance, that the circumference of our mortar is thirty-four (34) inches, and that in ordinary work with the pestle the highest point to which it will be lifted in any stroke is sixteen (16) inches. We take this sixteen inches as a radius, and draw a semicircle. Upon this semicircle we measure off the thirty-four inches, and two (2) inches additional to allow for seam, and it will be found that less than half the circle is required to fulfil the conditions, and secure a perfect fit This is divided into four equal parts, making a pattern, which measures nine inches at the base and has a height of sixteen inches.

The mortar-block next claims our attention. The main requisites in this part of the apparatus are size and steadiness. The material does not appear to be of so much consequence, for while hard wood is almost always sought, I have had one made from a piece cut from the end of a pine stick which was employed for a ship's mast. This block is eighteen (18) inches in diameter, and thirty (30) inches high. It has served an excellent purpose, and I do not think it could have been any better had it been of oak or maple. The mortar-block should be of full size to receive the base of any mortar likely to be used upon it, and a good addition is an iron hoop around the top which shall rise above the surface, say half an inch. The hoop should be well secured to the top by being shrunk on, as well as by nails or screws. This will prevent the mortar from working over the edge of the block under the action of the pestle. Most mortar-blocks that I have seen have been left in the rough, but within the last twenty years I have had three made, and all of them have been turned to shapes something like those figured in Mohr and Redwood, and Proctor's Pharmacy, and they have been rather an ornamental part of the furniture of the "back shop."

The situation of this part of the apparatus in not at all a matter of indifference. It should have a good strong light upon it by day or night. Its position is likely to be permanent if used according to the directions of the Pharmacopœia, that is in furnishing powders for percolation, and nothing is more discouraging than working in a dusky, ill-lighted corner, where it is impossible to see what one is doing; where one works at random, knowing nothing whether he makes a hit or miss, unless he scores upon his fingers, when the work may be thrown aside in disgust with that kind of counting. A

good light is quite as necessary in the simple operation of pounding as in any other pharmaceutical manipulation whatever.

Having secured a good light for your mortar, the next thing is to see that its foundation rests upon the earth, and that it is not supported by the floor of the shop. There are two disadvantages in the latter form of support, of which the first and most obvious is the jarring and derangement of the goods and furniture of the shop, and even considerable breakage and other damage may be caused by it; the second is the loss of power, or rather of effect, by the yielding of the floor to every blow. If the pharmacist possesses a well-lighted cellar with a cemented floor, he cannot have a better place for his mortar-block. If he has not this convenienee, let him lay a broad flat stone in the earth at the bottom of his cellar, as level as possible, then upon this set a stick of timber at least six inches square, and long enough to come fully up to the surface of the floor of his shop and upon this set his mortar-block. A pin or bolt about a foot long set for half its length in the supporting timber, and half in the axis of the block, will serve to keep the latter in place while powdering is going on. And thus arranged all is steady, no trouble to goods or furniture, and every thwack of the pestle tells upon the drug under comminution with full effect.

*(To be continued.)*

---

## ON TOOTHACHE.*

Dr. Duckworth recently recommended, in the *Practitioner*, the application of a solution of bicarbonate of soda to relieve the pain of toothache. Suggested by this, Mr. J. Smith Turner, dental surgeon to the Middlesex Hospital, writes an article of considerable interest and utility.

He holds that while the employment of bicarbonate of soda will not unfrequently be attended with great benefit, to suppose its application will invariably produce the desired result may lead to unreasonable disappointment. The term toothache is applied indiscriminately to all pain situate in and around the teeth, but the disturbance may arise from different causes. The pain in the case alluded to by Dr. Duckworth evidently arose from the covering of the tooth-pulp being insufficient to protect it from the action of the saliva, or from the exposure of the dentine to the secretions of the mouth through the loss of its natural covering, the enamel. Hence the subsidence of pain on the use of the antacid. The same application is of great use where the enamel structure is feeble, and where numerous defective spots are present, as is frequently seen in young phthisical patients; also in children where there is a general defective condition in the first teeth, proceeding, it may be, from neglect

*From the Chemist and Druggist.

or from defective development, or from some disease of the mucous membrane; and in pregnant women, in whom the teeth are frequently found decaying round the base of the crowns in a line with the margin of the gum. That the toothache from which such subjects suffer is due to a vitiated condition of the fluids of the mouth may be inferred from the sudden access of pain so frequent after eating or during sleep, and which is often ascribed to increase of temperature, or to the increase of circulation in these parts owing to the recumbent position, but which is speedily relieved by the use of a tepid solution of soda bicarbonate. Mr. Turner then continues: Some of the conditions inducing toothache are equally patent or equally obscure to the general practitioner and to the specialist. Ulceration of the membranes of the mouth, for example, would be at once observed, while irritation of the dental nerve, in the absence of a visible cause, could only be diagnosed after careful and extended observation, and perhaps some unsuccessful efforts in treatment. There are, however, conditions, and suffering and consequent constitutional disturbance, which the general practioner should be able to ameliorate until such time as special skill be available. A decayed tooth may give pain although the tooth-pulp be not exposed. The alkaline lotion will not give relief, and if the saliva be tested it may be found normal. The cause of the pain must therefore be sought in the tooth itself. The decayed dentine is an irritant; this ought to be removed at least partially if not entirely. To do this without exposing or wounding the tooth-pulp is a delicate operation, and a man not in daily practice could not be expected to accomplish it completely; still, enough may be done to serve the immediate purpose. A small mouth-glass and a few excavators, such as are to be had at any dental depot, are all that are required in the way of instruments. There cutting edges should be round or spoon-shaped—if they have any sharp angles they are much more likely to wound the tooth-pulp. The cavity should be syringed with tepid water, and that may be sufficient; but there is generally a quantity of soft dentine which should be removed if possible. The cavity should be dried out with cotton wool or some other absorbant, and a small pellet of wool moistened with carbolic acid and glycerine should be placed in it, and over this a piece of wool partially moistened with mastic (white hard varnish answers admirably) should be packed. The packing may be accomplished with a blunt probe, and the pressure should be light and not in the direction of the pulp cavity. This will serve till a permanent plug can be introduced, but should not be trusted beyond two or three days, especially in cavities between the teeth.

If the cavity be on the masticating surface of a tooth the wool should be free from pressure on the occlusion of the antagonising teeth. If it be an interstitial cavity, the gum beyond the margin of the cavity should be disturbed as little as

possible, unless it has grown into it, when the wool should be packed with a view of pushing the gum out. If the margin of the gum be left projecting into the cavity its secretion will become abnormal, owing to the irritation caused by the wool; the cavity will be inundated with the secreted fluid, which will have no way of escape, and the discomfort of the patient thereby aggravated rather than relieved. If possible the wool should not be allowed to depend upon support from the adjacent tooth for retaining its position, as the pressure is likely to separate the teeth, when the plug will leave the walls of the cavity, and so matters will return to their original condition. The wool used for this purpose should be deprived of its greasy character; hence the pink wool, which has been cleansed before dyeing, is best for use.

Toothache may arise from an exposed tooth-pulp, and in such a case the same course of syringing and cleansing should be pursued as already laid down, and some application used which will subdue the irritation of the pulp, applied as in the former instance, and covered over with wool and mastic. Creasote is an old and deservedly a favorite remedy for such a condition of things, but it should be pure wood creasote, as that which is made from coal-tar is very likely to act as an irritant. The following mixtures are recommended for use in place of creasote, and if complication be a merit they have that advantage:

R Acidi carbolici solutionis saturatæ
Chloral hydratis sol. sat.
Tinct. camph. co.
Ext. aconit. fluid, aa 1 ounce.
Ol, menth. pp. ½ ounce.

R Chloral hydrat., 1 drachm.
Aqua fl. ½ ounce. Misce et adde.
Tinct. aconiti (Fleming), 15 drops.
Chloroformi.
Ætheris.
Spt. vin. rect., aa 20 drops.

R Liq. opii. sedativ.
Ol. caryophyll., aa 2 ounces.
Camphor, 1½ drachm.

This last I have found very useful.

Pain may arise from the inflammation of the periosteum, and may be situated in an otherwise healthy tooth which has been jarred or wrenched: such cases are not uncommon in the game season from shot or bone splinters getting between the teeth during mastication. Or it may come from a tooth carrying a large mass of metal stopping having been subjected to unusual conditions, such as exposure of the side of the face next which it may be situated in riding against wind or rain. A low state of health, constipation,

exhaustion after violent exercise or prolonged occupation, rheumatism, scrofula, or syphilis may all produce this inflammation. The gum surrounding the affected tooth is tender to the touch, and becomes elongated and loose. The degrees of inflammation are various, and in its early stages may be cut short by wiping the gum dry, and frequently applying tincture of iodine of double strength all over the inflamed part. A piece of cotton wool soaked in water as hot as can be borne, and laid between the gum and the cheek, makes an excellent poultice, and if accompanied by a slight aperient, is almost sure to give relief in a chronic case. The constitutional treatment required must be obvious to medical men, who have much more command over their patients in the administration of general remedies than the dentist; but I may mention that there is no medicine more likely to cut short in its early stages an acute case of periostitus connected with the teeth than five grains of of pil. saponis co. Two leeches applied to the gum over the affected tooth have repute for doing good, but in some cases prove very disappointing. If there be marked swelling of the gum towards the apex of the affected tooth, lancing is the best thing that can be done, but to be effectual it must be done thoroughly. The instrument should be strong as well as sharp, and capable of cutting through the alveolar plate between the gum and the tooth. Before lancing, Mr. Tomes recommends that the gum should be painted with equal parts of tincture of iodine of double strength and Fleming's tincture of aconite.

Teeth may become tender around the neck from recession of the gums, or from an artifical case of teeth being attached to them. The exposed parts of the tooth should be cauterised with nitrate of silver, and if a metal plate have to be worn again immediately a layer of tissue paper ought to be placed between the cauterised surface and the metal. As the filtrate of silver should be allowed to remain on the tooth a few minutes in order to prove effectual, the cheek and tongue and saliva should be kept away from it as much as possible by holding some ordinary cotton wool round the tooth. When the wool is withdrawn a strong solution of salt should be used immediately, to convert any free nitrate into an inert chloride. Unfortunately the nitrate of silver cannot well be used on the necks of front teeth, where a ring of sensitive decay is often found, but it is a valuable remedy where appearance is not in question.

The after pain of an extraction may be modified by washing away the blood-clot and lightly plugging the alveolar cavity with wool saturated with

R Acidi carbolici glacialis,
Liq. potasse, aa 1 drachm,
Aquæ dest., 1 ounce,

as recommended by Mr. Tomes in his "System of Dental Surgery."

# Editorial.

## THE LAW RESPECTING THE SALE OF WINES AND LIQUORS BY DRUGGISTS.

With reference to a promise made in our last number we submit the following legal opinion, which, we believe, will be found very acceptable as supplying definite and reliable information on a subject which is rather obscure but still of considerable importance to our readers:

"TORONTO, June 15, 1876.

"I am of opinion that Chemists and Druggists, duly registered as "such under the Pharmacy Act of 1871, have a right, without taking out "a shop license, to sell liquor for strictly medicinal purposes, in packages "of not more than twelve ounces at any one time, except under certifi- "cate from a registered medical practitioner; and that where a sale is "made under such certificate, the right to sell is not confined to packages "of not more than twelve ounces at any one time. This was the state of "the law prior to the passing of the Act of last session; and I am of opin- "ion that the Act of last session does not vary the matter.

"Signed, O. MOWAT."

In addition to the above we have also had handed to us a communication from one of the License Commissioners, representing a district near Toronto. In this letter the law is stated as above, and the writer goes on to say: "In order to make myself certain about the matter, I asked the Hon. A. Crooks, as well as the Private Secretary in the Treasury Department, and found that the Act of 1874, section 27, remains unchanged; but this law will not cover any druggist who may sell liquor after the 15th of this month (June), and who has failed to pay his registration fees: therefore, it will be well for those druggists who deal in wines and brandy to pay over at once the claims of the Society, as the Inspectors have orders to take proceedings against all such."

These communications place the matter of the sale of liquors in so clear a light that explanation or comment would be superfluous.

## SOURCE OF MEDICINAL RHUBARB.

Until lately our knowledge of the botanical origin of rhubarb might have been summed up in the words of the British Pharmacopœia: "Rhei Radix, the dried root deprived of the bark, from one

or more undetermined species of Rheum." The difficulties in the way of obtaining reliable information have been very great. The Chinese have guarded their monopoly with characteristic jealousy; attempts to obtain plants or seeds have generally been unsuccessful, and those persons who have thought themselves fortunate in procuring either, have, in the end, found out that they have been deceived. The difficulties of penetrating into the interior of the country have been almost insurmountable, and it is asserted that, until the present, the rhubarb plant was never seen in its native place by strangers, save Marco Polo, the Jesuit explorers, and perhaps one or two others.

This very unsatisfactory state of things has been brought to a close by a Russian officer, Lieutenant-Colonel Prejevalsky, who, in a recently published work, entitled "Mongolia," gives the results of an exploration made through the more northerly part of China. Among many other interesting and valuable facts brought to light by this persevering traveller are details concerning the origin, cultivation, collection, and commerce of rhubarb.

The character of the account does not admit of doubt being thrown on the writer's intelligence or ability to form correct conclusions, and from the statements made we may take it for granted that medicinal rhubarb is chiefly derived from *Rheum Palmatum*, and that this is in all probability the parent plant of the genus. It appears to grow to considerable size, having a flower stalk seven to ten feet in height, with a thickness of one and a half inches near the ground. The leaves of old plants are ten or more in number and are of about twenty-six inches in length, covered with fine reddish hairs one-fifth of an inch long. The section of leaf stalk is oval and about the thickness of a finger. The flower stalk sends forth a few small leaves at the joints, and the flowers, which are white, are set on a second stalk branching from the main stem at two-thirds of its height from the ground. The flowering time is the end of June or beginning of July, and the seeds ripen about two months afterwards. The root is cylindrical with a number of slender offsets in number and size depending on the age of the plant. When full grown the main root is about one foot long and the same in thickness.

The plant grows at an elevation of 10,000 feet above the level of the sea, and thrives best in a rich loose black loam, with plenty

of moisture. It is propagated by seed sown in autumn or early spring. The principal place of cultivation is the province of Kan-su, distant by ordinary course of travel about 1,400 miles from Shanghai. A good deal is transported down the Hoang-ho to Pe-kin and other parts. Formerly much was sent to Kiakhta, or the Siberian frontier, furnishing the once well known and highly-esteemed Russian rhubarb.

The root is prepared by cutting off the side shoots and paring off the outer rind. It is then cut into pieces and suspended on thread to dry in the shade. It is considered best for medicinal purposes when dug in spring or autumn, and is most highly esteemed when containing the greatest quantity of oxalate of lime, judged by the grittiness when chewed.

The value of the root at the place of production in Kan-su is about two to three cents per pound, and in the town of Si-ning, the chief market, about twelve and a half cents.

## LEGAL DECISION REGARDING THE REGISTRATION OF DRUGGISTS.

A decision of pharmaceutical interest was recently given in a case, Morin *vs.* the Pharmaceutical Association of the Province of Quebec, in which the plaintiff claimed registration as a chemist and druggist under the Quebec Pharmacy Act, 38 Vict., cap. 27. The defendants maintained that the evidence submitted to them was insufficient to qualify plaintiff, and the Court "hearing the evidence, and looking at the spirit of the Act, decided that the defendants had acted as they ought to have done, and that the plaintiff had not held the position which entitled him to the benefit of the Act," and therefore dismissed the action, with costs. We understand that a similar action will in all probability be brought against our Ontario Association, and this case may serve very opportunely as a precedent.

NOTES TO CORRESPONDENTS.—*Inquirer*—To disguise the taste of tincture of perchloride of iron add about half an ounce of glycerin to an ordinary eight ounce mixture. You may also try the addition of syrups or chloroform, but the glycerin will be found to answer best. Citric acid is also used in order to deprive tincture of iron of its inky taste, but it is probable that the therapeutical action of the preparation is modified thereby.

# Editorial Summary.

UNCERTAIN AND DANGEROUS STRENGTH OF HOMŒOPATHIC TINCTURES.—A portion of a lengthy paper on officinal dosage, by Dr. Farquharson of St. Mary's Hospital Medical School, London, will be found in another part of this number, but, for want of space we have been compelled to omit the concluding part which has reference to homœopathic preparations, and which we briefly summarize. It is very justly asserted by the writer that the Pharmacy Act should be made to include homœopathic chemists who, though avowedly dealing in the preparations peculiar to the system, are really vending the most active and poisonous compounds in the most concentrated form. Many instances are cited to support this statement: amongst others the solution of camphor, the dose of which ranges from two minims to a teaspoonful. Five cases are given in which dangerous symptoms, consisting of epileptiform convulsions, violent pain in the head and spine, nausea, stupor, etc., were produced by moderate doses of this preparation. In one case the poisonous action was evident for the greater part of a year, and, in all, recovery was slow. Analysis of this compound showed it to contain one ounce of camphor to one and a quarter ounces of spirit, being stronger than the B.P. preparation in the proportion of 7½ to 1. It will readily be admitted that such a concentrated solution is not safe in the hands of inexperienced persons. In order to obtain an idea of the strength of the so-called mother tinctures, the tinct. aconiti—a preparation in general domestic use—was experimented upon, and it was found that fifteen minims, injected under the skin of a full-grown rabbit, was sufficient to produce death in a few minutes. From comparison of results this mother tincture was judged to be of similar strength with our aconite liniment. The tincture of belladonna was found to be a powerful preparation, producing, in the dose of ten minims, dryness of the throat and disturbed sleep —results which do not follow until much larger doses of the official tincture have been taken. The homœopathic solutions of metallic salt were also examined and the compound labelled "Arsenicum Alb. Poison. Dose for an adult, one to five drops," was found to contain one grain of arsenious acid to 102 minims of water; considerably stronger than the corresponding official preparation. "Mercurius Cor.," with a stated dose as above, contained four grains to the fluid ounce, about four times the strength of the P.B. solution. These instances are sufficient to show that the homœopathic solutions are a most powerful and dangerous class of remedies, and that their sale should be regulated by law, as other poisons. The dangers anticipated are fourfold: (1) The free purchasing of these poi-

sons with homicidal or suicidal intent; (2) The rash confidence engendered in the minds of old-fashioned homœopathists regarding the weakness of their drugs and the liability to confuse kindred preparations: a mistake of this kind with tinct. aconiti could never be repeated with the same person; (3) The danger of mistaking the stronger homœopathic remedies for those of corresponding name of the allopathic system; (4) The possibility of the stronger tinctures being mistaken for and used instead of some of the dilutions, and recommended right and left in the usual free and easy way by amateurs.

---

THE SO-CALLED SHOWER OF FLESH IN KENTUCKY.—An article on this subject, by L. Brandeis, in the *Sanitarian*, goes to prove conclusively that the flesh-like substance which fell in Kentucky, and about which so much sensational trash has been written, is merely a form of plant known as *Nostoc*, and so named by Paracelsus some three hundred years ago. This plant belongs to the *Confervæ*, and consists of translucent, gelatinous bodies joined together by thread-like tubes or seed-bearers. It propagates by self-division as well as by spores or seeds. When these spores work their way out of their gelatinous envelope they may be carried great distances by the wind. Wherever they fall and find a moist congenial soil they spread very rapidly, covering in a few hours, many miles of ground. Icebergs in mid-ocean have been found covered with it, and in New Zealand it is often seen in large masses of quaking jelly. It may also often be seen on this continent, in damp woods and meadows, as we can ourselves testify. The Chinese use it as food, and it is asserted that the *N. carneum*, to which the Kentucky variety belonged, has a flavor approaching frog or spring chicken legs, and is greedily devoured by most domestic animals.

---

PHOSPHORUS PILLS.—Messrs Allan & Hanburys contribute to the *Pharm. Jour. & Trans.* a formula for the preparation of these pills. The mass is said to be of good consistence, easily manipulated, readily mixible with other remedies, and, what is more important, readily soluble. The officinal pill has failed to obtain the approval of either prescribers or dispensers, and the *Pil. phosphori cum sapone*—for so it is proposed to name the new preparation—comes in quite opportunely. The directions are as follows: Phosphorus, two grains; carbon. bisulphid, ten minims, or a sufficient quantity. Dissolve and incorporate with pulv. saponis dur., pulv. guaiaci resin, of each, thirty-five grains; glycerin, twelve drops; and pulv. rad. glycyrrh, twelve grains, or a sufficient quantity. The mass should weigh one hundred grains and may be divided as required.

SALE OF MILK BY DRUGGISTS.—An entirely novel feature has been introduced by some members of the retail drug trade of New York. We refer to the vending of milk and cream for the use of invalids and infants. The milk is warranted pure and fresh, and is procured from animals which are known to be free from disease. Since it is possible that milk may be the means of conveying fevers, and other diseases of a similar type, it is proper that every care should be taken to secure it of the best quality, more especially for the use of children and sick persons; and we think the pharmacist is not in the least overstepping the limits of his calling in trying to provide an article which can be relied upon as pure.

---

NEW SCIENTIFIC SOCIETY.—An association was recently formed in New York under the name of the American Chemical Society. Its objects are indicated by its designation, and already a considerable membership is reported. The officers elect are: J. W. Draper, President; J. L. Smith, F. A. Gentle, E. W. Hilgurd, J. W. Mallet, C. F. Chandler, and H. Morton, Vice Presidents; G. V. Barker, Cor. Sec.; J. Walz, Rec. Sec.; W. M. Habershaw, Treasurer; P. Cassamajor, Librarian; E. Sherer, W. H. Nichols, and F. Hoffman, Curators.

---

ANTAGONISM OF JABORANDI AND BELLADONNA.—From experiments made by Dr. Sydney Ringer, of London, there appears to be ground for belief that pilocarpine—the active principle of jaborandi and atropia—are directly antagonistic in some of their properties. It was found that on a patient under the influence of the latter it was impossible to produce free perspiration or salivation by hypodermic injection of repeated quantities of pilocarpine. Atropia was also found to check diaphoresis produced by pilocarpine. It was not, however, found that any marked benefit was derived from the administration of pilocarpine in belladonna poisoning.

---

ANALYSIS OF SP. ETHERIS NITROSI.—An examination by Mr. G. W. Kennedy *(Am. Jour. Pharm.)* of seven samples of this preparation, made in the United States, gave the following percentages of nitrous ether: 4·6; 4·5; 4·2; 4·1; 4·0; 3·9; 3·5; 3·2; 3·1. The first sample was made by Dr. Squibb; the second by the writer. The color varied from pale yellow to the slightest shade. In all cases litmus paper was turned red, and only the two first samples would stand the test of sulphate of iron and sulphuric acid. The specific gravity ranged from ·835 to ·910.

ADULTERATION OF BEESWAX WITH RESIN.—According to a a writer in the *Industrie Blatter*, this mixture may be best detected by taking the specific gravity of the wax. It should range from ·960 to ·963. A ready way of determining this point is to put a piece of the wax into some officinal *liquor ammoniæ*, which usually has a specific gravity a trifle under ·960. If adulterated, the wax will sink; if pure, it will float or remain suspended.

---

COMPOSITION OF AGARIC—*Polyporus Officinal.*—Mr. G. Fleury *(Jour. Chem. Society)* gives the following as results of analysis: Resin and agaric acid extracted by ether, 60·584; resin soluble in alcohol, with magnesic sulphate, 7·282; resinous body with lime and magnesia, extracted by water, 2 514; nitrogenous substance with salts, 1·900; oxalate, malate, and phosphate of calcium, iron, etc., 1·058; nitrogenous substance soluble in potash, 7·776; fungin, 8·686; water, 9·200. Total, 100 parts.

---

DEXTRINE MUCILAGE.—According to the American *Journal of Microscopy* the mucilage used on U.S. postage stamps is made by dissolving, by means of a water bath, two parts of dextrine in five parts of water and one of acetic acid. When the mixture is cold, one part of alcohol is added.

---

NEW MOWN HAY PERFUME.—A correspondent of the *Pharm. Jour. & Trans.* sends the following formula: Extract of tonquin, two pints; extracts of geranium, orange flower, rose, rose triple, and jasmine: of each one pint.

---

CATARRH SNUFF.—Dr. D. Ferrier (*Lancet*), observed marked benefit to arise from the following powder: Muriate of morphia, two grains; powdered acacia, two drachms; subnitrate of bismuth, seven drachms. One quarter or one half to be taken as snuff during the twenty-four hours.

---

OAK STAIN.—A correspondent of the *Pharm. Jour. & Trans.* says that a good oak stain may be made by boiling together for six or eight minutes the following ingredients: Vandyke brown, 2½ oz.; ammon. carb., 1 oz.; potas. bichrom., ½ oz.; water, 1 quart.

## PHARMACEUTICAL ASSOCIATION OF THE PROVINCE OF QUEBEC.

The annual meeting of this Association was held on Tuesday, June 13, in Laval University, at Quebec. After the reading of the minutes of the last meeting, the President, Mr. H. R. Gray, delivered a very interesting address, after which he called upon the Secretary, Mr. E. Muir, to read the annual report, and Mr. Kerry to present the financial statement. Mr. Mercer moved the adoption of the report, congratulating the members on the satisfactory position the Association had now attained. The motion was ably seconded by Mr. E. Giroux, and supported by Mr. R. McLeod, of Quebec. Votes of thanks were presented to the retiring officers, and also to the Rector of Laval University for his kindness and courtesy in granting the Association the use of the rooms of the University for their annual meeting. The President having nominated Messrs. F. E. Gauvreau and E. Muir, scrutineers, they reported the following gentlemen duly elected as members of the Council for 1876-7, namely: Messrs. J. Kerry, E. Muir, N. Mercer, J. Goulden, H. Lyman, E. Giroux, A. Manson, J. Hawkes. These, with the following who remain in office, namely, Messrs. R. H. Gray, J. D. L. Ambrose, R. McLeod, and T. J. Tuck, will compose the Council for the ensuing year.

At a meeting of the new Council, held on Tuesday afternoon, the following gentlemen were elected officers of the Association: H. R. Gray, President; Edmund Giroux (of Quebec), First Vice-President; Alexander Manson, Second Vice-President; John Kerry, Treasurer; and E. Muir, Registrar and Secretary. The Board of Examiners elected are as follows: Messrs. H. R. Gray, N. Mercer, J. D. L. Ambrose, R. McLeod (Quebec), H. F. Jackson, A. Manson.

# Varieties.

BEECH WAX—By F. A. Fluckiger.—On the bark of beech trees there occurs a greyish film, formed by insects, fatty to the touch, and consisting, as shown by the microscope, of fine threads, which are easily broken up. The substance composing it is scarcely acted on by water. It gives up to boiling carbon bisulphide about one-third of its weight of a wax crystallizing in white laminæ, melting at 81°—82°, and having the composition of cerotic acid, $C_{27}H_{54}O_2$. The wax, however, when dissolved in alcohol, does not redden litmus, as does cerotic acid, nor is it attacked by prolonged boiling with aqueous or alcoholic potash.—*Jour. Chem. Soc. (Lond.), from Arch. Pharm.* (3), vii, 8.

| DRUGS, MEDICINES, &c. | $ c. | | $ c. |
|---|---|---|---|
| Acid, Acetic, fort | 0 13 | @ | 0 14 |
| Benzoic, pure | 0 22 | | 0 27 |
| Citric | 1 co | | 1 05 |
| Muriatic | 0 03½ | | 0 05 |
| Nitric | 0 10 | | 0 13 |
| Oxalic | 0 16 | | 0 20 |
| Sulphuric | 0 03 | | 0 05 |
| Tartaric, pulv | 0 49 | | 0 50 |
| Ammon, carb. casks | 0 18 | | 0 20 |
| " jars | 0 18 | | 0 20 |
| Liquor, 880 | 0 20 | | 0 22 |
| 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 50 | | 0 55 |
| Alcohol, 95 per ct.....Cash | 2 19 | | 0 00 |
| Arrowroot, Jamaica | 0 18 | | 0 22 |
| Bermuda | 0 50 | | 0 65 |
| Alum | 0 02¾ | | 0 03½ |
| Balsam, Canada | 0 33 | | 0 38 |
| Copaiba | 0 90 | | 0 95 |
| Peru | 2 90 | | 3 20 |
| Tolu | 2 90 | | 3 25 |
| Bark, Bayberry, pulv | 0 18 | | 0 20 |
| 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 18 |
| Berries, Cubebs, ground | 0 20 | | 0 25 |
| Juniper | 0 06 | | 0 10 |
| Beans, Tonquin | 0 62 | | 1 10 |
| Vanilla | 18 00 | | 24 00 |
| Bismuth, Alb | 2 25 | | 2 50 |
| Carb. | 2 40 | | 2 65 |
| Camphor, Crude | 0 33 | | 0 35 |
| Refined | 0 35 | | 0 40 |
| Cantharides | 1 85 | | 1 90 |
| Powdered | 2 00 | | 2 10 |
| Charcoal, Animal | 0 04 | | 0 06 |
| Wood, powdered | 0 10 | | 0 15 |
| Chiretta | 0 23 | | 0 30 |
| Chloroform | 0 90 | | 1 55 |
| Cochineal, S. G | 0 55 | | 0 70 |
| Black | 0 75 | | 0 90 |
| Colocynth, pulv | 0 60 | | 0 65 |
| Collodion | 0 70 | | 0 80 |
| Elaterium | 3 20 | | 4 00 |
| Ergot | 1 50 | | 1 75 |
| Extract Belladonna | 1 80 | | 1 90 |
| Colocynth, Co | 1 25 | | 1 75 |
| Gentian | 0 50 | | 0 60 |
| Hemlock, Ang | 0 co | | 0 95 |
| Henbane, " | 3 00 | | 3 20 |
| Jalap | 5 00 | | 5 50 |
| Mandrake | 1 75 | | 2 00 |
| Nux Vomic | 0 40 | | 0 50 |
| Opium | 1 40 | | |
| 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 25 | | 0 30 |
| 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 40 | | 0 45 |
| Gamboge | 1 00 | | 1 20 |
| Guaiacum | 0 35 | | 1 00 |
| Myrrh | 0 50 | | 0 80 |

| DRUGS, MEDICINES, &c.—*Contd.* | $ c. | $ c. |
|---|---|---|
| Sang Dracon | 0 60 | |
| Scammony, powdered | 5 50 | 6 00 |
| " Virg. " | 14 50 | — |
| Shellac, Orange | 0 57 | 0 60 |
| Gum, Shellac, liver | 0 40 | 0 45 |
| 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 16 | 0 17 |
| Lower Canada | 0 14 | 0 16 |
| Iron, Carb. Precip | 0 16 | 0 20 |
| " Sacchar | 0 40 | 0 55 |
| Citrate Ammon | 1 10 | 1 20 |
| " & Quinine, oz | 0 40 | 0 85 |
| " & Strychine | 0 17 | 0 20 |
| Sulphate, pure | 0 08 | 0 10 |
| Iodine, good | 3 20 | 3 50 |
| Resublimed | 3 90 | 4 20 |
| 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 14 | 0 16 |
| Leptandrin.....oz. | 0 60 | — |
| Liq. Bismuth | 0 50 | 0 60 |
| Lye, Concentrated | 1 30 | 1 50 |
| 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 19 | 0 20 |
| Calcined | 0 65 | 0 75 |
| Citrate.....gran. | 0 60 | 0 75 |
| Mercury | 1 05 | 1 15 |
| Bichlor | 1 25 | 1 40 |
| Chloride | 1 40 | 1 50 |
| C. Chalk | 0 55 | 0 60 |
| Nit. Oxyd | 1 60 | 1 75 |
| Morphia Acet | 2 75 | 2 90 |
| Mur. | 2 75 | 2 90 |
| Sulph | 2 90 | 3 10 |
| Musk, pure grain.....oz | 25 20 | ..... |
| Canton | 10 60 | 1 20 |
| Oil, Almonds, sweet | 0 45 | 0 47 |
| " bitter | 14 00 | 15 00 |
| Aniseed | 3 25 | 3 50 |
| Bergamot, super | 5 50 | 5 00 |
| Caraway | 3 20 | 3 50 |
| Cassia | 2 00 | 2 25 |
| Castor, E. I | 0 10½ | 0 12 |
| Crystal | 0 22 | 0 25 |
| Italian | 0 26 | 0 28 |
| Citronella | 1 05 | 1 15 |
| Cloves, Ang | 3 75 | 3 80 |
| Cod Liver | 1 50 | 1 60 |
| Croton | 1 40 | 1 50 |
| 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 90 | 4 00 |
| ord | 0 00 | 0 00 |
| Orange | 3 00 | 3 25 |
| Origanum | 0 65 | 0 75 |
| Peppermint Ang | 15 00 | 16 00 |
| " Amer. | 4 00 | 5 00 |
| Rose, Virgin | 8 50 | 8 75 |
| " good | 7 00 | 7 75 |
| Sassafras | 0 75 | 0 90 |
| Wintergreen | 4 40 | 4 60 |
| Wormwood, pure | 4 00 | 6 00 |
| Ointment, blue | 1 05 | 1 15 |
| Opium, Turkey | 6 40 | 6 65 |
| pulv | 8 50 | 8 75 |

| DRUGS, MEDICINES, &c.—*Cont'd* | $ c. | $ c |
|---|---|---|
| Orange Peel, opt. | 0 35 | 0 36 |
| " good | 0 15 | 0 20 |
| Pill, Blue, Mass. | 1 10 | 1 20 |
| Potash, Bi-chrom | 0 16 | 0 18 |
| Bi-tart | 0 32 | 0 35 |
| Carbonate | 0 14 | 0 20 |
| Chlorate | 0 30 | 0 35 |
| Nitrate | 8 00 | 9 00 |
| Potassium, Bromide | 75 | 0 80 |
| Cyanide | 0 60 | 0 70 |
| Iodide | 2 90 | 3 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 | 1 10 | 1 20 |
| Podophyllin | 0 50 | 0 60 |
| Quinine, Pelletier's | — | 2 45 |
| Howard's | 2 20 | — |
| " 100 oz. case. | 2 17 | — |
| " 25 oz. tin.. | 2 15 | — |
| 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 10 | 2 25 |
| " E. I. | 1 00 | 1 10 |
| " " pulv | 1 10 | 1 20 |
| " " 2nd | 0 60 | 0 70 |
| " French | 0 75 | — |
| Sarsap., Hond | 0 60 | 0 65 |
| " Jam | 0 95 | 1 00 |
| Squills | 0 10 | 0 15½ |
| Senega | 1 00 | 1 10 |
| Spigelia | 0 25 | 0 30 |
| Sal., Epsom | 2 00 | 2 50 |
| Rochelle | 0 30 | 0 32 |
| Soda | 0 01¾ | 0 02½ |
| Seed, Anise | 0 13 | 0 16 |
| Canary | 0 15 | 0 16 |
| Cardamon | 2 00 | 2 10 |
| Fenugreek, g'd | 0 08 | 0 09 |
| Hemp | 0 06½ | — |
| Mustard, white | 0 14 | 0 16 |
| Saffron, American | 0 65 | 0 75 |
| Spanish | 10 00 | 11 00 |
| Santonine | 13 00 | 13 50 |
| Sago | 0 08 | 0 09 |
| Silver, Nitrate...Cash | 14 50 | 16 00 |
| Soap, Castile, mottled | 0 11 | 0 14 |
| Soda, Ash | 0 03¾ | 0 05 |
| Bicarb. Newcastle | 4 00 | 4 25 |
| " Howard's | 0 14 | 0 16 |
| Caustic. | 0 03¾ | 0 04 |
| 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 07 | 0 08 |
| 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 75 | 0 80 |
| Extract | 0 26 | 0 30 |

| DYESTUFFS—*Continued.* | | |
|---|---|---|
| Japonica | 0 07 | 0 08 |
| Lacdye, powdered | 0 33 | 0 38 |
| Logwood | 0 02½ | 0 03 |
| Logwood, Camp | 0 02¾ | 0 03 |
| Extract | 0 12 | 0 13 |
| " 1 lb. bxs.... | 0 15 | — |
| " ½ lb. " .... | 0 16 | — |
| Madder, best Dutch | 0 10½ | 0 11 |
| 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 50 | 0 55 |
| Cayenne | 0 20 | 0 25 |
| Ginger, E. I. | 0 18 | 0 20 |
| Jam | 0 26 | 0 30 |
| Mace | 1 40 | 1 60 |
| Mustard, com | 0 20 | 0 25 |
| Nutmegs | 1 15 | 1 25 |
| Pepper, Black | 0 18 | 0 20 |
| White | 0 26 | 0 28 |
| PAINTS, DRY. | | |
| Black, Lamp, com | 0 09 @ | 0 10 |
| " 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 10 | 1 20 |
| American | 0 25 | 0 35 |
| Whiting | 0 1 | 0 1¼ |
| White Lead, dry, gen | 0 08¼ | 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 10 | 0 12 |
| Putty | 0 03¾ | 0 04½ |
| Yellow Ochre | 0 08 | 0 12 |
| White Lead, gen. 25 lb. tins | 2 45 | — |
| " No. 1 | 2 20 | — |
| " No. 2 | 1 95 | — |
| " No. 3 | 1 70 | — |
| " com | 1 30 | — |
| White Zinc, Snow | 2 75 | 3 25 |
| NAVAL STORES. | | |
| Black Pitch | 3 00 @ | 3 25 |
| Rosin, Strained | 3 30 | 4 25 |
| Clear, pale | 5 75 | 7 25 |
| Spirits Turpentine | 0 47 | 0 50 |
| Tar Wood | 3 80 | 4 00 |
| OILS. | | |
| Cod | 0 65 @ | 0 70 |
| Lard, extra | 1 10 | 1 20 |
| No. 1 | 1 05 | 1 10 |
| No. 2 | 0 85 | 0 90 |
| Linseed, Raw | 0 55 | 0 58 |
| Boiled | 0 59 | 0 62 |
| Olive, Common | 1 10 | 1 15 |
| Salad | 1 80 | 2 30 |
| " Pints, cases | 4 20 | 4 40 |
| " Quarts | 3 25 | 3 50 |
| Seal Oil, Pale | 0 67½ | 0 70 |
| Straw | 0 62½ | 0 65 |
| Sesame Salad | 1 30 | 1 35 |
| Sperm, genuine | 2 45 | |
| Whale refined | | |

# LIST OF CHEMISTS

*Registered and entitled to keep open shop as* PHARMACEUTICAL CHEMISTS, *in the Province of Ontario, published in accordance with section 15 of the Pharmacy Act, 1871.*

GEO. HODGETTS, Registrar.

Toronto, 15th June, 1876.

Aberdeen, Robert, Chippawa.
Adamson, E., Oil Springs.
Appleton, R. H., Buffalo.
Ashton, S. H., Thorold.
Atkinson, W. T., Oshawa.
Aylsworth, Jas., Tamworth.
Bain, Thos. B., Tilsonburg.
Bain, Donald J., Paisley.
Baines, James, Prescott.
Bannister, Ed., Brampton.
Barclay, M. F., Wardsville.
Barker, Robert, Brighton.
Barr, John A., Hamilton.
Bauld, E. H., Beaverton.
Beeton, J. E., St. Catharines.
Bell, Joseph, Jr., Meaford.
Bennett, A. B., Brantford.
Birks, George, Prescott.
Blackader, D. R., Brantford.
Borland, E. B., Fenelon Falls.
Bond, John, Goderich.
Booth, D. B., Odessa.
Bosworth, N. A., Stratford.
Boulee, W. H., New Hamburg.
Bow, William, West Winchester.
Bowden, H. K., Prescott.
Bower, Joshua, Perth.
Bowman, W. H., Berlin.
Boyd, Geo. J., Toronto.
Bray, William, Petrolia.
Breakenridge, D. A., Morrisburg.
Brendon, F., Brantford.
Brent, Charles, Port Hope.
Brierley, Richard, Hamilton.
Britton, Charles, Lindsay.
Brodie, W. F., Forest.
Brodie, J. A., Toronto.
Bromley, E. M., Clifton.
Brown, Reuben, Gananoque.
Browne, John E., Thorold.
Burnell, Chas. R., Toronto.
Butterfield, Jno. A., Norwood.
Byrne, James, Whitby.
Caldwell, O. B., Ingersoll.
Callard, John, Sparta.
Cameron, D., Cayuga.
Carpenter, E. R., Collingwood.
Carman, Fred. B., Morrisburg.
Carr, Thomas, Thornhill.
Carroll, Francis, Clifford.
Carter, Henry, Oshawa.
Case, John, Toronto.
Casselman, C. T., Chesterville.
Casselman, C., Chesterville.
Caton, Allen, Newburg.
Cattle, George, Goderich.
Chaffey, Samuel, B., Hastings.
Chapman, John, Ridgetown.
Chapman, Sam'l, Hamilton.
Clark, James, Renfrew.
Clarke, Alfred A., Thunder Bay.
Clarke, Sibree, Dresden.
Clarke, Wm. J., Thunder Bay.
Colcleugh, James, Mount Forest.
Colcleugh, Wm., Mount Forest.
Coleman, T. W., Stayner.
Coombe, James H., Clinton.
Coombs, John S., Perth.
Coombs, Joseph, Smith's Falls.
Connor, H. E., Aurora.
Copland, Thomas, Hamilton.
Corbett, W. J., Shelbourne.
Covey, E. J., Stayner.
Crooker, W. H., Waterdown.
Cull, J. W., Mitchell.
Dacier, Chas. O., Ottawa.

Dale, John B., Wyoming.
Dale, W. H., Petrolia.
Davidson, Hugh, Walkerton.
Deadman, Geo. A., London.
Denham, George, Petrolia.
Dilworth, Joseph, Toronto.
Doan, D. W., Aurora.
Dumbrille, J., Maitland.
Dyas, John J., London.
Dyas, W. J., Strathroy.
Eastman, D. W., Smithville.
Eastwood, Alfred, Schomberg.
Eldon, Robert, Kintore.
Elford, Charles, Morpeth.
Elliot, William, Toronto.
Elliot, Robert, Toronto.
Elwell, G. T. O., Ottawa.
Everest, G. M., Arkona.
Farrell, John, Lucan.
Fares, Owen W., Port Colborne.
Fead, S. G. M., Cannington.
Fitch, J. D., Grimsby.
Fothergill, R., Newcastle.
Fraleigh, Sidney, St. Marys.
Frood, Thomas, Southampton.
Fullarton, Wm. B., Napanee.
Fulford, Geo. T., Brockville.
Frank, John, Toronto.
Gamsby, L. A., Orono.
Garlick, J. A., Millbank.
Garland, Louis, Hamilton.
Garvey, James M., Delhi.
Gissing, A. W., Princeton.
Gordon, M., Port Colborne.
Grandy, Wm. H., Coboconk.
Graham, Jas. Y., Galt.
Green, Josiah J., Toronto.
Green, W. A., Walkerton.
Greaves, Joseph, Collingwood.
Gregory, Edmund, Lindsay.
Griffis, Wm. C., Colborne.
Gundry, Lewis J., Aylmer.
Helson, Robert, Wellington Square.
Hanover, W., Almonte.
Harding, Alfred O., Prescott.
Harding, T. J. B., Brockville.
Harper, Henry, Cookstown.
Harvard, Alfred, Toronto.
Hemsworth, M. T., Shipley.
Hewett, T. A., Toronto.
Hewett, William, Vittoria.
Hey, Thomas, Ailsa Craig.
Hickson, Edward, Seaforth.
Hilborn, W. R., Hawksville.
Hodgetts, George, Toronto.
Hodgson, R. H., Brampton.
Holden, J. F., Alton.
Holden, Sinclair, Markham.
Holden, W. J., Alvinston.
Hooper, Chas. E., Toronto.
Hooper, Edward, Toronto.
Hopkins, John F., Dundas.
Hurdon, F., Midland.
Hortin, W. D., Windsor.
Howard, S. W., Hagersville.
Howarth, Chas. W., Toronto.
Howarth, John, Toronto.
Hunter, William, Toronto.
Jackes, Baldwin, "
Jackes, Price, "
Jackson, George, Egmondville.
Jackson, T. G., Wingham.
Jefferis, B. G., Toronto.
Jones, C. R., Montreal.
Jordan, F., Goderich.
Johnston, W., Smith's Falls.
Johnston, W. S., Peterboro.
Kane, Mary Ann, Amherstburg.
Kellman, James, Newmarket.
Kiernan, Thomas, Durham.
Kilborn, Horace, Newboro.
King, J. G., Kingston.
Kneeshaw, Robert, Ingersoll.
Knowles, H. A., Toronto.
Laishley, Henry, Elgin.
Lamb, Jas. P., Farmersville.
Law, Robert E., Richmondhill.
Le Maitre, Eugene, Toronto.
Lea, James W., Port Rowan.
Lee, J. R., Toronto.
Livingstone, Wm. W., Simcoe.
Livingstone, John, Jr., Listowel.
Lloyd, W. A., Ottawa.
Love, Neil C., Toronto.
Lutz, Wm. H., Galt.
Lyman, Benjamin, Toronto.
Lyman, Henry, Montreal.
Lyman, Henry B., Toronto.
Macartney, W. J., Thorold.
Margach, J. L., Duffins Creek.
Massie, J., Smiths Falls.
Matheson, Angus, Toronto.
Mathieson, Jos. H., St. Marys.
Matthews, Ed., Waterford.
Mason, Charles S., Brantford.
Mellville, Thos. R., Prescott.
Miller, Hugh, Toronto.
Miller, Kenneth, Toronto.

Mills, J. C., Jarvis.
Mills, James, Jarvis.
Mills, James, Jr., St. Catharines.
Mitchell, B. A., London.
Mitchell, Charles A., Toronto.
Mitchell, Cornelius, St. Thomas.
Mitchell, Wm. J., Toronto.
Monkman, George, Barrie.
Morton, Thomas, Picton.
Morrow, Geo. E., Acton.
Mundy, Mark, Hamilton,
Mussen, Henry, Allanburg.
McBride, J., Port Dover.
McCallum, F. H., New Hamburg.
McCammon, S., Gananoque.
McDonell, D., Vankleek Hill.
McGarvin, Jas. E., St. Marys.
McIntyre, G. H., Guelph.
McKinnon, L., St. Williams.
McKenzie, R., Lucknow.
McLaren, Alexander, Sarnia.
McLaren, A. L., Port Elgin.
McLaren, W. P., Watford.
McLean, John, St. Marys.
McMichael, C. Y., Hamilton.
Nasmyth, J. H., Stratford.
Nelles, R. A., Duart.
Nevills, John E., Ailsa Craig.
Niblet, W. C., Dundas.
Nispel, Courad, Preston.
Ockenden, Joseph K., Manilla.
Oliphant, D., Collingwood.
Ormond, Charles, Peterboro.
Owen, Richard, Toronto.
Parker, E. H., Kingston.
Parker, Henry, Durham.
Patterson, M., Almonte.
Patterson, Jas., Wiarton.
Pearce, Chas. W., Oakville.
Philips, Robert, Fergus.
Phillips, Edwin, Selkirk.
Phillips, D. B., Brantford.
Phillips, Robert, Blyth.
Poyntz, T. G., Orangeville.
Priest, F. H., Bath.
Puddicombe, R. W., London.
Reynolds, Ed., Brockville.
Riggins, C. E., Beamsville.
Richardson, M., Flesherton.
Roberts, John, Ottawa.
Roberts, John S., Seaforth.
Roberts, Charles H., Paris.
Robinson, W. M., Wroxeter.
Rock, Thomas, Hamilton.
Rooke, Thomas S., Toronto.
Rose, D. E., Tamworth.
Ruston, Thomas, Georgetown.
Rutherford, Andrew, Hamilton.
Sanders, W. B., Stayner.
Sanford, W. H., Tottenham.
Scadding, Charles, Windsor.
Scoon, John, Parkhill.
Scott, Alfred M., Woodstock.
Scott, G. L., Paris.
Scott, Thomas, Woodstock.
Seatter, John, Hawtrey.
Serviss, Gordon, Iroquois.
Shepherd, Thos. T., Ottawa.
Sherris, Harry, Toronto.
Shuff, J. G., London.
Simpson, C. H., Newmarket.
Slaven, J. W., Orillia.
Smith, G. B., Toronto.
Smith, John F., Dunnville.
Smith, S. H., Toronto.
Snell, Samuel J., Woodbridge.
Snyder, S., Waterloo.
Sowerby, John, Ashburn.
Springer, M., Strathroy.
Stark, W. G., Hamilton.
Stephens, A., Mitchell.
Stevenson, Thos., Orangeville.
Steward, W. R., Toronto.
Stewart, Robert, Norwood.
Stickney, L. P., Uxbridge.
Stork, Edwin T., Brampton.
Stork, James, Bolton.
Stott, C., Bowmanville.
Statt, D., Bowmanville.
Stratford, Jos. E. H., Brantford.
Sutton, T. C., Windsor.
Switzer, W. H., Dresden.
Taylor, William, Harriston.
Tapscott, S., Brantford.
Thexton, George, Exeter.
Tibbetts, W. F., Port Dover.
Tremayne, T. G., Sutton.
Trickey, A. T., Lynn.
Tully, J. D., Peterboro.
Urquhart, Jas. F., Chesley.
Vandusen, C., Rochester, N.Y.
Vanfelson, C. A., jr., Chatsworth.
Wade, James, Port Stanley.
Wade, Mary Ann, Port Stanley.
Wade, Robert, Angus.
Wait, John T., Arnprior.
Walford, Jas. H., Renfrew.
Walker, Jno. A., Caledonia.

Wallace, Thos. F., Woodbridge.
Wallace, N. Clark, Woodbridge.
Walsh, Wm., Peterboro.
Watson, Henry, Milton.
Watts, Wm. R., Clinton.
Watts, Fred. W., Clinton.
Watters, Henry, Ottawa.
Waugh, G. J., Stratford.
Werner, Aug., Elmira.
Whitfield, A. M., Holbrook.
White, James, Woodstock.
Wideman, John L., St. Jacobs.
Wightman, Robert, Owen Sound.
Wildern, Isaac, Vienna.
Williams, James, Brockville.
Williamson, W., Stayner.
Wilson, Chas. G., Cobourg.
Wilson, M. W., Madoc.
Wilson, R., Cobourg.
Windlow, John, Bethany.
Wood, John, Erin.
Wood, R. A., Toronto.
Wood, Robert, Erin.
Wood, Richard S., Oakville.
Wright, John P., Kincardine.
Wyatt, Alfred, Cannington.
Wyllie, William, Ayr.
York, G. W., Waterford.
York, J. E., Otterville.
Zielinskie, Jacob, Kleinburg.
Zoellner, Charles, Tavistock.
Zoellner, Paul, Tavistock.
Zoellner, H. A., Waterloo.