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ORIGINAL AND SELECTED PAPERS.

NOTES ON A FEW OF THE MINERALS OCCURRING NEAR HAMILTON, ONT.

BY J. W. SPENCER.

MINERAL WATER.

About nine months ago, Mr. Williams, M. P. for Hamilton, was boring for mineral water on the premises of the Royal Hotel. At a depth of 1,001 feet, a water of the specific gravity of 1.0884 was obtained, and gave, by analysis, the following composition :

Sodium chloride	6.3711
Magnesium chloride.....	1.2723
Potassium "	A trace.
Calcium "	5.2723
sulphate.....	.1167
Carbonic acid.....	Trace.
Ferrous carbonate.....	"
Silica.....	"
Iodine and bromine.....	"
Water.....	86.9674

Although the traces of iodine and bromine are large, it takes a large amount of the water to yield a small amount of these constituents ; but it is chiefly to the presence of these bodies that the medicinal values of the mineral water are owing. As yet this artesian well is not turned to account.

GALENA.

On the mountain, south of Beansville, galena occurs in several outcrops, but as yet it has not been obtained in sufficient quantities for mining purposes. It runs through seams of limestone rocks, and in many places is associated intimately with crystals of dolomite. The galena is nearly pure, containing 86.5 per cent of lead, and 13.5 of sulphur. In some places the ore is crusted with lead carbonate, the sulphur of the galena having probably exchanged bases with some of the carbonic acid of the limestone, or dolomite.

The analysis of the associated dolomite is :

Magnesium Carbonate.....	33.77
Calcium carbonate.....	40.00
Ferric Oxide.....	5.00
Silica.....	11.67
Water.....	6.66

MAGNESIUM SULPHATE.

In a ravine, near Dundas, beneath a cliff of dolomite, lies a bed of the following composition :

Magnesium sulphate, crystallized.....	61.450
Calcium carbonate.....	19.532
" silicate.....	2.741
Ferrous carbonate.....	12.850
Silica.....	3.427

This is formed by the action of air and water on neighboring iron pyrites, which yields a soluble ferrous sulphate, and again a solution of this acts upon the dolomite (a carbonate of calcium and magnesium) exchanging its sulphuric acid for a part of the carbonic acid of the rock, and so forms a soluble magnesium sulphate, and leaves the insoluble calcium carbonate and ferrous carbonate.

PHARMACEUTIC NOTES.*

BY C. LEWIS DIEHL.

Blue Pill, is one of the simple preparations of our Pharmacopoeia that is seldom prepared by the apothecary ; in fact its preparation is the exception and its purchase appears to be the rule. There are numerous reasons why it is not generally prepared by dispensers, first and foremost among which may be mentioned the labor attending the extinguishment of mercury. Quite a number of processes for facilitating this have been from time to time recommended, but none seemed to me so simple as one recommended some time ago by a writer in one of our pharmaceutical journals, which consists in agitating the mercury with a small proportion of tincture of tolu, and then incorporating it with the proper ingredients. Another reason appears to be that blue-mass, when made strictly according to the Pharmacopoeia, soon becomes hard and unmanageable. Manufacturers, taking advantage of this, aim to produce a blue-mass which, corresponding in mercurial strength to the official article, will retain its plastic condition, and thus they create a demand for their particular manufacture.

While engaged in the manufacture of blue-mass on a considerable scale, I soon found it necessary to change the ingredients in order to obtain a more plastic mass, and succeeded very well, but with one objection, namely—that the mass was likely to become somewhat tough, and consequently more or less difficult to roll out. In other respects the mass left nothing to be desired. By experiments lately made, I believe to have overcome this difficulty, but I cannot say as yet that my experiments with the tincture of tolu warrant the assertion that it affords a rapid and convenient medium for extinguishing mercury, without the application of more manual labor than is likely to be bestowed upon the subject.

When one ounce of mercury is briskly agitated with a fluid drachm of tincture of tolu, contained in a two ounce vial, it soon becomes divided into globules, and in perhaps one or two minutes these globules will be scarcely visible as such to the naked eye. Occasional brisk agitation for 20 or 30 minutes however, is necessary to so far extinguish the mercury as to render globules invisible through a lens of moderate power. After the mercury is so far extinguished it would appear an easy matter to mix it with syrup, honey or any other desirable fluid that, in the manufacture of blue-mass on a large scale, is employed as an extinguishing

medium; but this I have found not to be the case, for when the mixture is stirred into the remaining ingredients for blue-mass, globules of mercury abundantly form, and delay the completion of the process considerably. This is probably owing to the action of the syrup or honey, etc., upon the tolu coatings of the minutely divided mercury, by which a portion of mercurial surface becomes exposed, and unites with another in a similar condition.

However, something is gained by the use of tincture of tolu, for I have prepared blue-mass in less than an hour—twenty to thirty minutes of which being consumed in briskly rubbing the mixture to entirely remove globular mercury.

If it were practicable to keep blue-mass in the form of 3-grain pills, as provided by the formula of our Pharmacopoeia, there would be no necessity for a change in its ingredients. This not being the case, the formula should be so altered as to insure a mass that will keep its soft consistence for a reasonable period. It may be contended that the ingredients entering its composition are necessary to its remedial properties, for some authorities maintain that blue-mass owes its virtues to the metal in an oxidized condition, and the question may then arise, "*Do the ingredients of the official blue-mass specifically tend to promote this oxidation?*" It is reasonable to suppose that such is not the case, for otherwise much of the blue-mass of commerce, in every other respect properly prepared, would be found ineffective. I venture to doubt that either powdered liquorice root or the components of confection of rose are essential to the effectiveness of blue-mass, and propose for its preparation the following formula :

Take of Mercury,
Finely powdered Marsh-mallow
root, each one Troy ounce;
Syrup,
Glycerine, each 240 grains ;
Tincture of Tolu, 30 minims.

Introduce the mercury into a two-ounce vial containing the tincture of tolu, and agitate briskly, at short intervals, for thirty minutes, or until the mercury shall have become entirely extinguished ; then weigh the syrup and glycerine into a vial, agitate briskly, and immediately incorporate with the powdered marsh-mallow, rubbing the mass until any globules of mercury formed shall have entirely disappeared.

Blue-mass is formed in this manner with less labor, in a shorter time, and of a better consistence, than by any other process known to me. While the mass is decidedly firm, it will remain plastic for a long time, and can be rolled into pills that will keep their shape perfectly. After the addition of the liquid mixture to the powdered marsh-mallow, the mass retains a very soft consistence for a considerable time, requiring less laborious mixing than when confection of rose is used.

Regarding the use of tincture of tolu in the formation of blue-mass, no decided opinion is offered, as I am still engaged with experiments, and hope in the next issue of *The Pharmacist* to present some more satisfactory results.

Quinia Pills are dispensed by me prefer-

* From the Pharmacist.

ably, by forming the mass with the aid of glycerine, and rolling the pills into sifted arrow-root. A beautiful white pill is formed, which, by fastidious persons, is preferred to pills rolled in liquorice powder or lycopodium. Some authors object to the use of glycerine, on account of technical difficulties, but I have always found it the most convenient excipient for general pill-making, having seldom to resort to any other. Then its tendency to prevent the pills from becoming hard will fully compensate any additional labor that may now and then attend its use.

Several of our physicians prescribe sulph. quinia with tartaric acid, according to a formula published some years ago. Quinia pills so formed may possess some advantage over the simple quinine pills, being probably more easily dissolved and assimilated. The following is the formula:

Take of Sulphate of quinia, 30 grs.
Tartaric acid, 4 grs.
Water, 1 drop.

Mix, and make pills of the required quantity. The single drop of water is sufficient to form 30 grs. of quinia into a plastic mass, which must, however, be rolled into pills rapidly, else it becomes hard, and more water is required.

These pills, like the preceding, should preferably be rolled in sifted arrow-root: in fact all pills composed of colorless substances should be rolled in this powder, as it, apart from other considerations necessitates the utmost cleanliness.

Carbolic Acid in pills is occasionally prescribed. I have never met with any particular formula, and suggest the following as convenient and satisfactory:

Take of Carbolic Acid 1 part.
Powdered Elm Bark, 3 parts.
Gum Arabic, 1 part.
Tragacanth paste, a sufficiency.

Mix, and make pills with the required quantity, which may be coated with tolu or silver leaf.

Muriate of Ammonia, when required in form of pills, demands very careful handling, on account of its ready solubility. By adding about ten per cent. of powdered gum arabic, and sufficient tragacanth paste to simply moisten, pills are readily formed by the aid of glycerine.

Ammonio-ferric Alum is sometimes required in the form of pills. A handsome pill is produced by adding about one-eighth part of powd. gum arabic, and making the mass with glycerine, being careful to avoid an excess.

CAN PRACTICAL PHARMACY BE TAUGHT EFFECTIVELY BY LECTURES?

BY WILLIAM PROCTER.

The time has arrived when a definite answer to this question is of serious importance to the Pharmaceutical Institutions of the United States. Slowly the public mind is being educated to the necessity of the pharmaceutical Diploma. One State after another is passing laws compelling qualification, placing impediments in the path of incompetence, and preparing the way for the final triumph of the pharmacist. The sparsity of Schools of Pharmacy offers a great obstacle to the universal extension of college education of apothecaries, and

renders it doubly important that those who make the sacrifice to come long distances to attend lectures, and graduate, should be enabled to return freighted not only with stores of standard knowledge of the books, and the most expert practice of the shop, but with the latest ideas of the Journals not yet crystallized by pharmacopœial adoption. In this wise the graduate should become a true missionary in propagating the valuable and the elegant in pharmacy in his practice, by attracting the attention of physicians and the public to the contrast which his dispensing makes with pre-existing imperfection in the neighborhood where he may establish.

All will agree that no amount of tuition by lectures will be equivalent to that which the earnest student receives in the dispensing shop and practical laboratory, under the personal instruction of a well-qualified pharmacist, who takes an interest in his pupil; yet such opportunities are rare.

But the question to be met is in regard to the efficiency of oral teaching, where the teacher addresses himself to a roomful of hearers, impressing his ideas by such illustrations as will best convey his meaning to the thirsty young minds who come as to a fountain of knowledge to fill their vessels for future use. The depth of the impressions made on the minds of a score of students by the vocal announcement that *steam is a carrier of heat*, based on the property possessed by water of rendering a large quantity of caloric latent in the act assuming the elastic state, which it relinquishes again on condensation as sensible heat, will vary with their natural capacity and previous training; but if the lecturer at the same time exhibits a flask of water in active ebullition, over a lamp, connected by an elastic tube with a flask of alcohol on the other side of the room, so as to impinge on its exterior surface below and set it to boiling, he gives ocular demonstration of what he has said. In this way all the senses recognize size, form, color, odor, and even touch, may be called in to aid the voice in teaching.

It is essential that the preliminary lectures on manipulation should be thoroughly demonstrative and well furnished with apparatus, diagrams, models and every instrument pertaining to the shop and laboratory. The next best thing to doing it himself is for the student to see the professor perform an operation, and when important operations can be performed before the class without too serious a loss of time, they should be done. But when it is not possible, by showing the manner of using the apparatus, pointing out any difficulties that are apt to arise and how they may be avoided.

Some have questioned the propriety of giving preliminary lectures on manipulation, believing that apparatus and manipulation should be explained *pari passu* with the preparations requiring them; but this is certainly a mistake as regards the leading elementary processes, such as comminution, filtration, the generation and applications of heat, the modes of solution, evaporation, distillation and sublimation, etc. If the teacher has been fortunate in conveying his meaning these preliminary lectures will have laid the groundwork for his subsequent teaching, so that he can use the verbs percolate, digest, distil, filter, sublime, neutralize, fuse, etc., without fear of being misunderstood.

Teachers differ in their views of classification and arrangement in Pharmacy, as well as in regard to its importance. Some prefer

the artificial grouping in classes of similar preparations, as extracts, tinctures, pills, distilled waters, etc., while others prefer systematic arrangement, based on a botanical alliance of plants yielding drugs, all the simple preparations of each drug being together. The most simple plan is that of the Pharmacopœia. The most rational, and that which appeals most forcibly to the reflective mind, is that of groups based on the similarity of active principles, the preparations of each drug being together. Thus, the starches, the gums, the saccharine drugs, the acids, the alkaloids, the neutral principles, the fixed oils, the volatile oils, the astringents, etc.

We hold that the lecturer on Pharmacy should exhibit a fair specimen of each drug the preparations of which he is speaking about, and in important cases deteriorated samples, not to trench on *Materia Medica*, but to serve as a practical test in his remarks upon preparations. He should have the powder of the drug and each of its official preparations, when these are at all important. When the drug is much employed in infusion or decoction, these preparations should be at hand, as the infusion of digitalis or the decoction of cinchona, so as to point out their peculiarities. Before speaking of the preparations of a drug, its proximate constitution should always be stated, and when several principles have been isolated for medical use, the mode of preparing these should be first dwelt upon. This acquaints the student with the nature of the principles entering the preparations discussed, and the precautions necessary to insure their solution or to avoid their injury.

Where preparations are likely to deteriorate by age, it is well to have samples for illustration, a point easy to accomplish after several years of experience, and in relation to tinctures, extracts, syrups and the volatile and fixed oils, a valuable museum will soon accumulate, illustrating some curious points in relation to the action of light, oxygen, eremacausis, together with the influence of insects and cryptogamic vegetation.

It remains to say a few words in regard to the manner of treating the subject experimentally, so as to carry out the ideas above stated. In chemical preparations requiring distillation or involving the condensation of gases, like the ethers, chloroform, oil of wine, water and spirit of ammonia, the dehydration and rectification of alcohol, the preparation of the oil of cloves, copaiba, cubeba and the distilled waters and spirits all may be shown without difficulty and with safety by suitable preliminary preparation and the help of an assistant in a few cases. The Pharmacopœia processes for hydrocyanic, valerianic and benzoic acids may be performed by starting the processes before the lectures, without materially wasting the professor's hour.

It is quite possible, by mixing powdered galls with ether and moisture beforehand to express the liquid tannin, and dessicate it on tin plates before the class in a very few minutes, so as to produce good commercial tannin. There is no difficulty in making collodion cotton, washing and drying it by aid of alcohol, and dissolving it in ether while describing the process and substance.

The rapid preparation of hydrated sesquioxide of iron, fit for an antidote, should be shown to encourage the student to do it dexterously. The processes for many metal-

Continued on page 34.

THE PHARMACY ACT OF 1871.

(Assented to 15th February, 1871.)

Preamble.

WHEREAS it is expedient for the safety of the public that persons engaged in the sale of dangerous, poisonous and medicinal substances, should be acquainted with their nature and uses; Therefore Her Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

Restriction on sale of poisons, etc., and on the assumption of certain titles.

1. From and after the first day of July, in the year of our Lord one thousand eight hundred and seventy-one, it shall be unlawful for any person to sell or keep open shop for retailing, dispensing, or compounding poisons, or to sell or attempt to sell any of the articles mentioned in Schedule "A" of this Act, or to assume or use the title "Chemist and Druggist," or "Chemist," or "Druggist," or "Pharmacist or Apothecary" or "Dispensing Chemist or Druggist," in any part of the Province of Ontario, unless such person shall be registered under this Act, nor unless such person has taken out a certificate under the provisions of section twenty-one of this Act, for the time during which he is selling, or keeping open shop for retailing, dispensing or compounding poisons, or assuming or using such title.

Certain articles to be deemed poisonous.

2. The several articles named or described in Schedule "A," shall be deemed to be poisons within the meaning of this Act, and the Council of the Ontario College of Pharmacy hereinafter mentioned, may, from time to time by resolution declare, that any article in such resolution named ought to be deemed poison within the meaning of this Act, and thereupon the said Society shall submit the same for the approval of the Lieutenant-Governor in Council, and if such approval shall be given, then such resolution and approval shall be advertised in the *Ontario Gazette*, and on the expiration of one month from such advertisement, the article named in such resolution shall be deemed to be a poison within the meaning of this Act, and the same shall be subject to the provisions of this Act or such of them as may be directed by the Lieutenant-Governor in Council.

Certain poisons to be sold only in a certain manner.

3. It shall be unlawful to sell any poison named in the first part of Schedule "A," either by wholesale or retail, unless the box, bottle, vessel, wrapper, or cover in which such poison is contained be distinctly labelled with the name of the article and the word "Poison," and if sold by retail, then also with the name and address of the proprietor of the establishment in which such poison is sold; and it shall be unlawful to sell any poison mentioned in the first part of Schedule "A," to any person unknown to the seller unless introduced by some person known to the seller; and on every sale of any such article the person actually selling the same shall, before delivery, make an entry in a book to be kept for that purpose, in the form set forth in Schedule "B," to this Act, stating the date of the sale, the name and address of the purchaser, the name and quantity of the article sold, the purpose for which it is stated by the purchaser to be required, and the name of the person, if any, who introduced him, to which entry the signature of the purchaser shall be affixed.

The Ontario College of Pharmacy, formation of.

4. For the purpose of more effectually carrying out the objects of this Act, it shall be lawful for the persons at the time of the passing of this Act engaged as principals or assistants in the business of an Apothecary, or Chemist and Druggist, and those persons who shall have carried on business as an Apothecary, or Chemist or Druggist, for a period of three years before the passing of this Act, in the Province of Ontario, to form themselves into a society to be called "The Ontario College of Pharmacy," and every per-

son so engaged in business on his own account, and every person who, at the time of the passing of this Act, has served an apprenticeship of three years, and has acted as Druggist's assistant for one year, shall, upon a payment of a fee of four dollars to the Treasurer of the said Society, be entitled to be enrolled as a member of the said Society, and every person so engaged as a clerk, assistant or apprentice, on payment of a fee of two dollars, shall be entitled to be enrolled as an associate of the said College.

5. Any associate may, upon passing such an examination as may be prescribed by the Council, be admitted and enrolled as a member of the said Council. Admission of members admitted and enrolled as a member of the said Council.

6. William Elliot, Hugh Miller, George Hodgetts, and W. H. Dunsbaugh of the city of Toronto; John W. Bickle, John Winer and A. Hamilton, of the city of Hamilton; B. A. Mitchell and William Saunders, of the city of London; E. H. Parker, of the city of Kingston; John Brown and John Roberts of the city of Ottawa; S. J. Parker, of the town of Owen Sound; James Mills, of the town of St. Catharines; J. Hawkes of the town of Cornwall; F. Brendon of the town of Brantford; F. Jordan, of the town of Goderich; C. Stork of the town of Brampton; C. Brent, of the town of Port Hope; E. Gregory, of the town of Lindsay; A. W. Kempt, of the town of Peterborough; and Henry John Rose, of the city of Toronto; Thomas Matchett, of Omemeo, in the County of Victoria, and James Clements Holden, of the town of Belleville; and such other persons as may become members or associates of the said College under the provisions of this Act, shall be and are hereby constituted a body politic and corporate under the name of "The Ontario College of Pharmacy." The Ontario College of Pharmacy incorporated.

7. Until other persons be elected, as hereinafter provided, the persons first hereinbefore named shall be the Council or Board of Directors of the said Society, and shall act as a Board to grant certificates of competency to conduct the business of a Chemist and Druggist, and to be registered under this Act; and the said Henry John Rose shall be Provisional Registrar of said Society. The first meeting of said Council shall be held on the first Wednesday in July, one thousand eight hundred and seventy-one, at the City of Toronto, at such time and place as the Provisional Registrar and any two of the above-named persons may fix, and of which notice shall be given for at least four weeks prior thereto in the *Ontario Gazette*. Provisional Directors, &c.

8. The said Pharmaceutical Council to be elected as hereinafter mentioned, shall consist of thirteen members, who shall hold office for two years. Any member of said Council may at any time resign by letter directed to the Registrar of said College; and in the event of any vacancy occurring, the remaining members of the Council shall fill up such vacancy from the members of the College. Council, of whom composed.

9. The first election shall take place on the first Wednesday in October, in the year of our Lord one thousand eight hundred and seventy-one, at such place as shall be fixed by resolution of the said Provisional Council; and the Registrar to be appointed by the said Council shall act as Returning Officer at the said election, and the persons entitled to vote at such first election shall be all persons who are at the time of the passing of this Act engaged as Chemists and Druggists on their own account or in partnership with any other person in the Province of Ontario. Resignation of members and vacancy how filled.

10. Every subsequent election shall be held on the first Wednesday in July in every second year, and the persons qualified to vote at such election shall be such persons as are members of the said Society. The first election of the council, how to be held.

11. The said Council shall, at their first meeting, elect from themselves a President and Vice-President, Subsequent elections, how to be held. President and officers, how elected.

and shall appoint a Registrar and such other officers as the said Council may consider necessary.

Sittings of the Council.

12. The said Council shall hold at least two sittings in every year, on the first Wednesday in February and first Wednesday in August, for the purpose of granting certificates of competency, at such places as they may by resolution appoint, of which due notice shall be given for at least one month in the *Ontario Gazette*, and at least two papers in the City of Toronto.

Candidates for examination to pay fees and give notice.

13. Every person desirous of being examined touching his qualifications to act as a Chemist and Druggist, shall, at least two weeks before the sittings of the said Council, pay into the hands of the Registrar the required fees, not exceeding four dollars, together with a notice of his intention to present himself for such examination.

Entry on the roll

14. Any person having passed such examination to the satisfaction of the majority of the examiners, shall be entered upon the roll of Registered Chemists and Druggists, and shall become a member of the College; such examinations may be conducted by the members of the Council, or by persons appointed by them.

Who may examine.

Registers to be kept of persons registered or entitled to be registered.

15. It shall be the duty of the Registrar to make and keep a correct Register, in accordance with the provisions of this Act, as shown in Schedule "C," of all persons who shall be entitled to be registered under this Act, and to enter opposite the names of all registered persons who shall have died, a statement of such fact, and from time to time to make the necessary alterations in the addresses of persons registered under this Act, and shall cause to be printed and published on or before the fifteenth day of June of each year, an alphabetical list of the members who were on the first day of June of that year entitled to keep open shop as Pharmaceutical Chemists.

Who may not be entered on the register.

16. No names shall be entered in the Register except of persons authorized by this Act to be registered, nor unless the Registrar be satisfied by proper evidence that the person claiming is entitled to be registered; and any appeal from the decision of the Registrar may be decided by the Council of the said College, and any entry which shall be proved to the satisfaction of such Council to have been fraudulently or incorrectly made, may be erased from or amended in the said Register by order of such Council.

Appeal from decision of the Registrar.

Certain persons may be entered on Register.

17. All persons who at the time of the passing of this Act were in business as Chemists and Druggists, or Chemists, Druggists or Apothecaries, upon their own account in partnership with any other person, or who have served an apprenticeship of three years and have acted as a Druggists' assistant for one year, shall be entitled to be registered under this Act, upon production to the Registrar of such evidence of their having been so engaged as the Council of the said College may require, and upon payment of a registration fee of four dollars; but in case any person has paid the fee of four dollars mentioned in the fourth section, the same shall be credited to him as his registration fee; and there shall be payable to the Registrar of the said College, for the uses of the College, on the first day of May of each year, by every person registered and carrying on business as a Pharmaceutical Chemist, the sum of four dollars.

on certain evidence

Power to hold real estate, build, &c.

18. The Ontario College of Pharmacy shall have power to acquire and hold real estate, not exceeding at any time in annual value five thousand dollars, and the same, or any part thereof, may alienate, exchange, mortgage, lease or otherwise charge or dispose of, as occasion may require, and may erect buildings for the purpose of accommodating Lecturers on Chemistry or Pharmacy, or for a Library, Pharmaceutical Museum, or specimen room for the use of the members and associates of said College; and all fees payable under this

Fees.

Act shall belong to the said College for the purpose of this Act.

19. The Council of the said Society shall, subject to the supervision and disallowance thereof by the Lieutenant-Governor in Council, have authority to prescribe the subjects upon which candidates for certificates of competency shall be examined, to establish a scale of fees, not to exceed four dollars, to be paid by associates of the the said College and other persons applying for examination; and to make by-laws, rules and orders for the regulation of their own meetings and proceedings and those of the College; and for the admission of druggists' assistants and apprentices as associates of the said Society; and for the remuneration and appointment of examiners and officers of the said College; and for the payment of the actual expenses of the members of the said Council in attending its sittings, or in attending upon the business of the said Society; and in respect to any other matters which may be requisite for the carrying out of this Act.

Powers of the Council as to subjects of examination, &c.

20. Any person registered under this Act, and no other, shall be entitled to be called a "Pharmaceutical Chemist;" and no other person except a Pharmaceutical Chemist as aforesaid, or his employee or employees, shall be authorized to compound prescriptions of legally authorized medical practitioners; but no person shall be entitled to any of the privileges of a Pharmaceutical Chemist; or member of the said Society, who is in default in respect to any fees payable by him by virtue of this Act.

Who alone may be styled Pharmaceutical Chemists and dispense.

21. Upon any person being registered under this Act, he shall be entitled to receive a certificate in the form in Schedule "D," or the like effect, under the corporate seal of the said Society, and signed by the Registrar, and shall be entitled to receive a similar certificate annually upon payment of the said fee of four dollars.

Certificate to be granted on registry.

22. Every Pharmaceutical Chemist carrying on business on his own account, shall display his certificate in a conspicuous position in his place of business.

Certificate to be publicly displayed.

23. No person shall willfully or knowingly sell, any article under the pretence that it is a particular drug or medicine which it is not in fact, and any person so doing (beside any other penalties to which he may be liable) shall be subject to the penalties prescribed by the twenty-fifth section of this Act.

Penalties on wrongful sales.

24. All compounds named in the British Pharmacopoeia shall be prepared according to the formula directed in the latest edition published "by authority," unless the College of Physicians and Surgeons of this Province shall select another standard, or unless the label distinctly shows that the compound is prepared according to another formula.

How compounds to be prepared.

25. Any person transgressing any of the provisions of this Act, or selling any poison in violation thereof, shall for the first offence, incur a penalty not exceeding twenty dollars and costs of prosecution, and for each offence committed subsequent to such conviction, a penalty not exceeding fifty dollars and costs of prosecution, to be recovered in a summary manner before any two Justices of the Peace or Police Magistrate on the oath of one or more credible witnesses, one moiety to belong to the prosecutor and the other to Her Majesty for the public uses of this Province; Provided always, that there may be an appeal under the Summary Convictions Act of Upper Canada.

Penalties for infringement of the Act.

26. In any prosecution under this Act it shall be incumbent upon the defendant to prove that he is entitled to sell or keep open shop for compounding medicines or retailing poisons, and to assume the title of Chemist and Druggist or other title mentioned in section one of this Act; and the production of a certificate purporting to be under the hand of the Re-

Proof on prosecution.

gistrar and under the seal of the said Society, showing that he is so entitled, shall be *prima facie* evidence that he is so entitled.

Price of articles sold contrary to this Act not to be recovered. **27.** No person selling articles in violation of the provisions of this Act shall recover any charges in respect thereof in any Court of Law or Equity.

Cases to which the Act does not apply. **28.** Nothing in this Act contained shall extend to or interfere with the privileges conferred upon Physicians and Surgeons by any of the Acts relating to the Practice of Medicine and Surgery in this Province, and they may be registered as Pharmaceutical Chemists without undergoing the examination; nor shall it prevent any person whatsoever from selling goods of any kind to any person legally authorized to carry on the business of an Apothecary, Chemist; or Druggist or the profession of a Doctor of Medicine, Physician, or Surgeon, nor Veterinary Surgeons, or to prevent the members of such profession supplying to their patients such medicine as they may require, nor with the business of wholesale dealers in poisons or other articles in the ordinary course of wholesale dealing; and upon the decease of any person legally authorized and actually carrying on the business of Chemist and Druggist at the time of his death, it shall be lawful for the executor, administrator or trustee of the estate of such person to continue such business, if, and so long only as such business shall be *bona fide* conducted by a Pharmaceutical Chemist registered under this Act; Provided always, that nothing in this Act shall prevent any member of the College of Physicians and Surgeons of Ontario from engaging in and carrying on business of an Apothecary, Chemist or Druggist without registration under the provision of this Act.

Erasing of name of member on conviction of offences. **29.** Upon a resolution of the Council of the said Society being passed declaring that any person in consequence of his conviction for any offence or offences against this Act is in the opinion of the Council, unfit to be on the register under this Act, the Lieutenant-Governor in Council may direct that the name of such person shall be erased from such register, and it shall be the duty of the Registrar to erase the same accordingly.

Con. Stat., cap. 98, repealed. **30.** Chapter ninety-eight of the Consolidated Statutes of Canada is hereby repealed, so far as the Province of Ontario is concerned.

Short title of Act. **31.** This Act may be cited as "the Pharmacy Act of 1871."

SCHEDULE "A."

PART I.

- Acid, Hydrocyanic (Prussic).
- Aconite and compounds thereof.
- Antimony, Tartrate of.
- Arsenic, and the compounds thereof.
- Atropine.
- Conia, and the compounds thereof.
- Corrosive Sublimate.
- Digitaline.
- Ergot.
- Hemp, Indian.
- Morphia and its Salts and Solutions.
- Oil Cedar.
- Strychnine, and Nux Vomica. }
- Savine, and preparations of.
- Veratria.

PART II.

- Acid Oxalic.
- Belladonna, and the compounds thereof.

- Beans Calabar.
- Cantharides.
- Chloral Hydrat.
- Chloroform and Ethor.
- Conium, and the preparations thereof.
- Croton Oil and Seeds.
- Cyanide of Potassium.
- Euphorbium.
- Elaterium.
- Goulard Extract.
- Hyosciamus and preparations.
- Hellebore.
- Iodine.
- Opium, with its preparations, including Laudanum, &c., but not Parloric.
- Pink Root.
- Podophyllin.
- Potassium, Iodide of.
- Potassium, Bromide of.
- St. Ignatius Beans.
- Santonine.
- Scammony.
- Stramonium and preparations.
- Valerian.
- Verdigris.
- Zinc, Sulphate of.

SCHEDULE "B."

DATE.	Name of Purchaser.	Name and quantity of Poison sold.	Purpose for which it is required.	Signature of purchaser.	Address of Purchaser.	Names of Person introducing Purchaser.

SCHEDULE "C."

NAME.	RESIDENCE.	QUALIFICATION.	REMARKS.
A. B.	Kingston.	In Business prior to Pharmacy Act	Dead.
C. D.	Hamilton.	Examined and Certified, 13th July, 1871.	Erased by Order of Lt. Gov., Dated 14th Oct., 1879.
E. F.	London.	Served apprenticeship and assistant.	

SCHEDULE "D."

I hereby certify, that C. D., having first passed the examination prescribed by the Pharmaceutical Council (or having been in business, or was qualified assistant prior to the Pharmacy Act of 1871, as the case may be), was on the _____ day of _____ duly registered as a Pharmaceutical Chemist, and is authorized to carry on the business of Chemist and Druggist in the Province of Ontario, from the _____ day of _____ A.D. 18 _____ to the _____ day of _____ A.D. 18 _____

A.D. 18

(Signed)

E. F.,
Registrar of the
Pharmaceutical Society.

[Corporate Seal.]

EDITORIAL.

Correspondence and general communications, of a character suited to the objects of this JOURNAL, are invited, and will always be welcome. The writer's name should accompany his communication, but not necessarily for publication.

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

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

"EDITOR CANADIAN PHARMACEUTICAL JOURNAL,
TORONTO."

ANSWER TO ENQUIRIES REGARDING THE PHARMACY ACT.

As we have received a number of enquiries in regard to certain clauses of the Pharmacy Act, we purpose offering a few explanations on those points on which doubt appears to exist, or which might not be at first readily understood. While thus expressing our opinion, we advise our readers to give the Act—which will be found entire in another part of the JOURNAL—a careful perusal. If this is done we think there will be no difficulty in arriving at the true meaning of any of its passages.

The first point which suggests itself is that in reference to the sale of poisons. According to the first section of the Act, it is not until the first day of July next that the new regulations can be enforced, while, by the thirtieth section, the old law was done away with at the time the Act received the sanction of the Lieutenant-Governor—Feb. 15th. At the present time, and up to the first of July, there is, therefore, no legal restriction on the sale of poisons, and the druggist is at liberty to exercise his own discretion in regard to the disposal of such articles. The matter is doubtless in safe hands, but we should advise that a memorandum be made of all such sales, to which the attestation of the purchaser be affixed. This will prevent any difficulty in case of accident or misuse, and will, at least protect the druggist from that censure to which he would justly be subjected in case of trouble arising from such cause. We may say that the Society will have the Poison Books, specified in the Act, ready as soon as possible, and when these are procurable, we advise that they be at once employed.

Some misunderstanding has arisen in regard to the fourth section. From the fact of the first meeting of the Council taking place in July, it has been questioned whether that body has, at present, an official existence. We believe that the appointment of the Council holds from the date of the passing of the Act; and not only this, but that at that period the old Society was merged into the newly incorporated College. It is ob-

vious that the Registrar, who is one of the Council, must have the greater part of his work accomplished before the July meeting, and, as there is no special provision in regard to the matter, we may reasonably infer that, as the Registrar forms part of the Council, and at once enters upon his duties, the whole body must not be considered inactive.

It has been thought that it would be unjust to those persons who at present belong to the Pharmaceutical Society, or College of Pharmacy, and who have paid their fees for the current year, to require the fees payable under the Act on the first of May next, and it has been decided that all such shall be credited with their subscriptions from the latter date. Members in good standing will therefore be accounted as belonging to the College, and, as such, will be entitled to registration, and will receive, on the first day of May next, a certificate to that effect.

In regard to members who have not paid their fees to date, it has been resolved that the law regarding such shall be enforced, and the names of defaulters be dropped, if by next meeting the necessary remittances do not come to hand. In next JOURNAL will be published a complete list of members in good standing, and all others will consider themselves as having no further connection with the College.

All other persons will require to send to the Registrar sufficient evidence that they were actually in business, as chemists and druggists, on the fifteenth of February last. This, with a fee of four dollars, will entitle them to registration as members of the College, and as qualified Pharmaceutical Chemists. Or if they do not desire to become members of the College, but merely to be qualified to sell poisons, they may be registered without involving membership, and can obtain a certificate to that effect. The fee is, however, the same.

We believe the Registrar has been authorized as to what he may consider sufficient evidence that persons applying for registration are *bona fide* druggists. The fact that the names of such persons may be found, in connection with their business or profession, in the last provincial directory of John Lovell, and a certificate from a legally authorized medical practitioner, will be accounted sufficient.

Persons who have conducted business on their own account for three years, at any period previous to the passing of the Act, and can show evidence to that effect, are also entitled to registration as members of the College, provided their application be made, and fees paid, before the first of July next.

Assistants who have served an apprenticeship of three years, and acted in the capacity of assistant for one year previous to Feb. 15th, may also become members of the Col-

lege, provided the conditions specified in the last paragraph be complied with; but registration must be effected before the period named, as the claim of qualification cannot be accepted at any future period, and examination will have to be passed before commencing business.

Apprentices will be admitted associates of the College by sending a fee of two dollars, accompanied by a certificate from their employer that they are so employed. In regard to the term "apprentice," which is used in the fourth section as expressing one of the conditions of membership, we may say that the college is inclined to interpret the term in its most liberal sense, as implying one engaged in learning his business, whether regularly indentured or not. This would be the only just course, for in this country the legal forms in regard to apprenticeship are very rarely conformed to.

The latest date at which registration can be effected is June 31, but it will be remembered that fees become payable on May 1st. It will, therefore, be expedient for parties to send in their names and testimonials, accompanied by the proper fees, to the Registrar at once, so that everything may be accomplished without confusion. But, as we have previously stated, certificates will not be granted before May 1st, although fees received before that time will be credited from that period.

We think we have alluded to all the questions at present at issue, but shall be happy to answer any further inquiries.

MEMBERS IN ARREAR.

The attention of members who are in default of fees payable to the College, is called to the recent decision of the Society, that if such arrears be not paid before the next meeting, which will take place on the first Friday in April, the name of such persons shall be dropped from the roll. The next number of the JOURNAL will contain a certified list of all members in good standing who are entitled to registration under the new Act.

TO OUR STUDENTS.

We have been much pleased with the care bestowed upon the answers sent to the questions propounded in the JOURNAL, and feel assured that those who have continued these exercises must have derived no small amount of benefit thereby. The object of the questions is not so much to ascertain the capabilities of students, as to provoke inquiry and research; and in this respect they are capable of accomplishing much. We have reduced the number of questions from ten to five, as it has been said that the time required to answer all, deterred some from answering who would otherwise do so. In

the matter of awarding marks, we have also made some alteration, so that henceforth a correct answer will be indicated by five marks, instead of ten, while those answers which, from the care bestowed upon them, or completeness of detail, appear of greater value than others, will be awarded extra marks.

By referring to the minutes of last meeting, it will be seen that the Society allowed one dollar and a half, monthly, to be expended in purchasing books to be presented to the student having the greatest number of marks. It was also proposed that a semi-annual prize of ten dollars, in books, be offered for the best answer during six months. This was not carried, on account of the jurisdiction of the officers of the Society not extending over a period of six months from the present time. But we have no doubt that the new Council, who will come into power in July next, will approve of the proposal, and make the necessary grant.

In another part of the JOURNAL will be found a list of those works from which the successful candidate may select the book he desires, and which we will mail to him on learning his choice.

EDITORIAL SUMMARY.

Iron Vessels for Containing Sulphuric Acid.

A recent patent has been obtained in England for the application of iron vessels for the conveyance of oil of vitriol. This plan will be likely to come into immediate use, as the well known risk of breakage of glass carboys will be avoided, and for conveying the acid in large quantities, as for manufactory purposes, the cost of the vessel will be undoubtedly less. All mineral acids, like sulphuric or nitric acid, attack iron readily, but only in the presence of water. Fuming nitric and concentrated sulphuric acid are without perceptible action on it, for which reason it can be substituted as a cheaper and safer material than glass for transportation. Three conditions are necessary to be complied with: the acid must be so strong as to have a specific gravity of 1.65; the access of air must be prohibited, and the acid must not contain impurities that dissolve iron.

Beneficial Action of Tobacco Smoke.

We must confess to feeling a certain satisfaction in reading anything favorable to the weed. It is a drop of balm to the troubled conscience, and its value is the more enhanced from the rarity of its occurrence. We have shuddered when Dr. Vogel informed us that tobacco smoke was strongly charged with hydrocyanic acid; and, in common with half a world of fellow-mortals, who

were enduring the agony of slow poison, we have rejoiced over the triumphant and well substantiated assertion of MM. Poggiale and Martius, that the worthy doctor's statements were based on smoke, and that the products of the combustion of tobacco were as innocent of the cyanide of hydrogen as the atmosphere at the summit of Mount Blanc. We have now to learn the smoker's true mission, and in turning to the report of the lectures on Fermentation, recently delivered before the Society of Arts, London, by Dr. Williamson, we find tobacco smoke figuring as an antiseptic of the first order. Indeed, in point of efficiency, the smoker may be ranked with carbolic acid, or Dr. Gangee's chloralum. "It has been shown" says Professor Williamson, "by the experiments of Professor Tyndall, that in the lower vessels of the lungs there are considerable deposits of the dust which floats about in the air; and we are, of course, exposed in that manner to the action of a number of the seeds of these ferments, and, and for aught we know, of diseases, because many malignant diseases are attributed to processes of decomposition analogous to those which we have been considering, and they may be—and, as some persons think, are—carried by germs in the air, in the same way as those I have been mentioning. Now, any powerful substance which would kill these germs must, of course, exert a beneficial action, and when persons are exposed to the smoke of tobacco, there is no doubt that some of it enters the lungs with the air which is vitiated, and that some of the smoke must be deposited in the lower passages of the lungs with these little mischievous germs, and must certainly somewhat astonish them.

Dinner of the Pharmaceutical Association of the Province of Quebec.

An obliging correspondent sends us the following account of a dinner given by the friends of Pharmaceutical Education, in celebration of the incorporation of the above association. We judge that our eastern friends must be enjoying a more than usual share of prosperity, in regard to their efforts in the direction of pharmaceutical organization, as, above all things, a dinner may be held as one of the surest indications of success. Our Society here has not yet arrived at this pitch of jubilation, although, at the last meeting, we must confess to having heard a remote allusion, made by an over-bold member, in regard to oysters and champagne. If our festive friend meant a supper, we say decidedly, no, we must not be outdone by our eastern friends; let us have a dinner by all means, and champagne if needs be, but an oyster supper—never!

The dinner, writes our correspondent, was held at the "Queen's," St. James St., Mont-

real, on the 21st of last month. Owing to domestic affliction it was impossible for Mr. Kerry, the President, to take the Chair, which was ably filled in his place by Mr. Mercer, Messrs. Crathorn and Harto acting as croupiers. The dinner was a capital specimen of "Isaac's" cookery, and after it had been discussed with due earnestness, the President rose and mentioned with regret the absence of the President. He also mentioned the receipt of several letters of apology from invited guests, among which was one from Sir G. E. Cartier.

The President then in a few appropriate remarks, proposed the Queen; the Royal Family; the Army and Navy and Volunteers, coupling with the latter the names of Dr. Girdwood and Captain Stanley.

Both of these gentlemen returned thanks for the honour thus done them, speaking highly of the value of the Volunteer force, and its necessity for the protection of the Country. Trafalgar and Waterloo, said Captain Stanley, should the occasion ever recur will not be merely things of the past; but things of the present.

The Chairman then proposed the health of our civil servants—the members of the Dominion Local Legislature, remarking upon the extensive character of our country from the Atlantic to the Pacific. Its prosperity depended upon the honesty, ability and energy of the men who represented the country in Parliament. He coupled this toast with that of Mr. Carter, M.P.P., who had shown, he said, great ability in carrying the Pharmaceutical Bill.

Mr. Carter returned thanks, among other remarks, and concluded by alluding to the necessity of giving to the Society the power of regulating the sale of poisons.

The President then proposed the Pharmaceutical Association of the Province of Quebec. He said that Lower Canada, even in advance of Great Britain, had endeavoured to obtain a highly educated class of Chemists. Unfortunately, the effort was made in a false direction, and instead of providing a separate education for Chemists, it made the Chemists a branch of the medical faculty. The curriculum was not suited to the times. He, however, expressed an opinion that before long the ambition of the young men engaged in the profession would place the status of the profession as high as that of any other body in the country. He ended by wishing the success of prescribers and dispensers, but above all of that happiest class, the consumers of drugs.

Dr. B. Edwards returned thanks.

Mr. Crathorn proposed the toast of the Medical Profession, for which Drs. Craig and Godfrey, Drake and Campbell, responded.

Mr. Harto proposed the sister associations in Great Britain and on this continent; responded to by Mr. Ambrose, of the Pharmaceutical Association of Great Britain; and a capital Scotch song having been sung by Mr. Manson, Mr. Harto proposed "Our Guests," coupled with the names of Drs. Jenkins and S. Hunt.

Both gentlemen returned thanks, Dr. Jenkins saying that though a clergyman, he was not sufficiently spiritual to be indifferent to being poisoned by ill-instructed doctors and chemists. He therefore desired a high education for medical men and chemists, such as he believed this society would promote.

He held that in the millenium medical science would make very great advance. Dr. Hunt also spoke with considerable force of the improvements in the science of medicine which had been made in modern times, saying that chemistry, as a science, owed much to the old Arabian pharmacutists, but was now being repaid by the discoveries of the modern pharmacutists.

Dr. B. Edwards sang a song adapted to the occasion, containing amusing allusions to the various theories of modern chemists.

Mr. Gray proposed the Press, to which Mr. Penny, of the *Herald*, Mr. Thom, of the *Witness*, and Mr. Stephens, of the *News*, replied.

There were several other volunteer toasts, and the evening passed off in the most pleasant manner.

Death of Dr. Sheridan Muspratt.

We learn with regret of the death of this eminent chemist and author, an event which occurred at Liverpool, on the fourth of February last. We copy the following details from the *Chemist and Druggist*.

James Sheridan Muspratt, M.D., F.R.S.E., M.R.I.A., etc., chemist, born in Dublin, March 8, 1821, was, on account of his father's removal to Liverpool, educated by the Rev. Mr. Hind, and afterwards by Dr. Cowan. At this early period he evinced a taste for chemistry, and, having travelled through France and part of Germany, he entered the Andersonian University of Glasgow, where he studied in the laboratory of Professor Graham, whom he followed to London. Before he was seventeen, he was intrusted with the chemical department at the works of Peel Thompson, in Manchester, and published a paper upon "Chloride of Lime," which attracted considerable attention. Proceeding to the United States, he entered into a trading partnership, which proved unsuccessful; and after visiting the various States, he, in 1843, repaired to Giessen, and studied under the great Liebig. Having remained two years in Giessen, he resolved to test his strength, and published a paper upon the sulphites, which appeared in Liebig and Wohler's *Annalen*, was copied into all the scientific annals, and won him his degree of Doctor of Philosophy, a title never before granted to a man so young. It was followed by a paper on the "Pretended Formation of Valerianic Acid from Indigo," read before the British Association at York. At this period, in conjunction with Prof. Hofmann, he discovered toluidine and nitraniline, two organic bases of the utmost importance; in 1845 he left Giessen, having, while there, edited Plattner's "Treatise on the Blowpipe," which reached a fourth edition, with emendations, bearing the title "Muspratt and Plattner on the Blowpipe." Dr. Muspratt, who visited various parts of Germany in order to become personally acquainted with her distinguished men, in 1847 returned to Giessen, and spent four months in its laboratory, discovering several remarkable bodies produced from the sulphocyanides of ethyle and methyle. A paper on this subject was printed in Liebig's *Annalen*, as well as in the *Chemical Society's Transactions*. In 1848 he gave a paper on the Solenites; in 1849 he published some very interesting remarks in Liebig's *Annalen*, on "The Blowpipe Reactions of Strontia and Baryta." His paper on "Carmufellic Acid, a new Acid

from Clove," was published in 1851 in the "Proceedings of the Royal Society," and in the *Philosophical Magazine*. He founded a college of chemistry in Liverpool, students from which occupy prominent posts in various parts of the globe. In 1854, a Glasgow publisher engaged Dr. Muspratt to write a Dictionary of Chemistry, which has commanded a large sale in England, America, Germany, and France. He was elected a Fellow of the Royal Societies in Edinburgh and Dublin, and a member of the Société Encouragement in France; and the oldest university in the United States conferred upon him the honorary degree of M.D., the only one held by a British subject. In 1863 he published a reply to a critique in *Blackwood*, condemnatory of the "Dramatic Writings of Sheridan Knowles," his godfather; and in 1848 married Miss Susan Cushman, a popular actress (sister of the celebrated actress Miss Charlotte Cushman), who died in 1859.

STUDENTS' DEPARTMENT.

QUESTIONS.

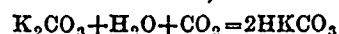
- I.—15 grains of a suspected sample of lunar caustic are precipitated by 4 grains of common salt; what is the percentage of adulteration.
- II.—What quantity of bicarbonate of soda B. P., will be required to neutralize 20 grains of tartaric acid?
- III.—How much nitric acid, B. P., will be required for the solution of two ounces of bismuth?
- IV.—What quantity of citrate of potash ought to be obtained from the quantities of the ingredients ordered in the Pharmacopœia?
- V.—What quantities of iodine and sulphur will be required to furnish one ounce of the iodide?

ANSWERS.

- I.—(*H. MacLagan*.)—When heat is applied to water at 32° F., as ice, it gradually melts, and assumes the liquid form. In undergoing this change, a great diminution of volume takes place, although the temperature remains unchanged. This diminution amounts to rather more than 1-18th of the volume of the ice, 184 volumes of ice becoming 174 volumes of water, at 32°. Continuation of the heat causes a further reduction of volume (though not with the same rapidity which attended the change of state), until the temperature rises to 39° 5'. At this point the contraction ceases, and expansion begins, and continues until the temperature reaches 212°, when, under the ordinary atmospheric pressure, it is dissipated in vapor. At 39° 5', therefore, water presents a minimum of volume and consequently a maximum of density, increase or diminution of heat producing upon it

for a short time, the same effect. At 39° 5' also, another change takes place, a circulation of the fluid commences, owing to the fact, that the upper portion being cooler, and consequently denser than the lower portion, has a tendency to sink; and its place is supplied by the warmer and lighter fluid, which in turn suffers the same change, so that a constant circulation is maintained while the temperature is above 39° 5'. Below this point, this is not the case, as reduction of temperature causes expansion instead of contraction, and consequently the upper portion, being cooler and therefore less dense than the lower portion, has no tendency to sink, but rather the reverse. At a temperature of 212°, and 30 inches (762 mm) barometric pressure, it boils and is converted into steam. In undergoing this change, it expands 1696 times its volume at 60° F., one volume of water at 60°, becoming 1,696 volumes of steam at 212°.

II.—(*Price Jackson*.)—The changes which occur when carbonate of potash is converted into bicarbonate, are as follows:



138.2 parts of carbonate require 44 parts of carbonic acid to convert it into bicarbonate; 10 parts of carbonic will, therefore, require 3.18 parts of carbonic acid.

The carbonic acid is obtained from marble thus:



As 100 pounds of marble yield 44 of carbonic acid, 7.22 parts will be required to yield 3.18 parts.

III.—(*Price Jackson*.)—One litre of oxygen at 0° C and 760 mm. weighs 1.4298 grams. Now 10 litres of oxygen at 0° and 760 mm. will become $\frac{10 \times 760 \times (273 + 20)}{760 \times 273} = 10.73$ at 20° and 760 m.m. Therefore, if 10 litres at 0° and 760 mm. weigh 14.298 grams. 10 litres at 20° and 760 mm. $\frac{14.298}{1.073} = 13.32$ grams. Now we require to know what quantity of chlorate of potash will be required to produce this quantity of oxygen. As every 122.6 parts of chlorate of potash yield 48 of oxygen, we shall need $\frac{122.6 \times 13.32}{48} = 34.02$ grams.

One Imperial gallon equals 227,274 cubic inches; therefore 5 gallons will equal 1,136,37 cubic inches. 10 litres = 610.27 cubic inches, therefore, if 610.27 cubic inches of oxygen at 20° and 760 mm. require 34.02 grams of chlorate of potassa for its preparation, how much will five Imperial gallons, or 1,136.37 cubic inches, require?

$$610.27 : 1,136.37 :: 34.02 : 77.28 \text{ grams.} \\ = 1,192.43 \text{ grains.}$$

IV.—(*Price Jackson*.)—The change which takes place in preparing iodide of lead from nitrate of lead and iodide of potassium, is as follows:



331 parts of nitrate of lead and 332.2 parts of iodide of potassium yield 461 parts of iodide of lead. Therefore, one ounce of iodide of lead will require for its preparation 0.728 of an ounce of nitrate of lead and 0.720 of iodide of potassium.

V.—(W. A. C., Orono).—I have obtained satisfactory results by conducting the process of percolation as follows:—The percolator generally in use, was originally constructed for a funnel. Composition, glazed earthenware, capacity four pints; with a neck sufficiently large to admit your fourth finger. This neck is stopped with a piece of sponge, moistened with the menstruum, and through which the liquor passes, the sponge acting as a filter. For a receiving vessel, a wide mouth bottle, graduated; capacity 80 ozs. The percolator is adapted to the vessel by means of a perforated cork. Of the tinctures officinal in the B. P., forty are ordered to be prepared by displacement; and in every case, except tinct. zingib. fort., the drug, or drugs in coarse powder, are macerated for forty-eight hours, in about $\frac{3}{4}$ of the menstruum, agitated occasionally then transferred to a percolator, and when the fluid ceases to pass, the percolation is continued with the remaining spirit, after which the contents of the percolator are pressed; the product filtered, the liquids mixed, and sufficient rectified or proof spirit added to bring the tincture to the original bulk of the menstruum employed.

This official process gives satisfactory results, and tinctures are easily prepared in this way. In conducting the process, no skill is required in packing the drugs in your percolator, indeed, no packing is to be done; but I make it a point in practice, to cork my percolator, and allow the solid ingredients to subside, forming a layer under the menstruum, before suffering the liquid to pass. This would seem to more completely exhaust the drug than if the crude semi-macerated drug with the menstruum, be carelessly introduced into the percolator, and a large amount of the liquid pass before the solid ingredients have completely subsided. But, is this process superior to that of the U. S. P., in which the drugs in coarse powder are generally moistened with spirit, and after standing for a definite length of time, are packed in a percolator, and then the greater bulk of spirit added; due precaution being exercised in powdering, packing, &c., as will insure the liquid passing slowly, but not too slow to render the process tedious. If complete exhaustion of the drug be the point in view, certainly no objection can be raised to a tincture prepared by either

process, if it be properly conducted, and the menstruum be of the required strength. I often conduct the process of percolation as follows: observing B. P. strength. The drugs (e. g. Fol. Digital, or Rad. Rhei.) are reduced to a moderately coarse powder, in an iron mortar; as the powders supplied by our wholesale houses are in too fine a state of division for successful percolation. The stems, &c., which may be mixed in connection with the leaves, having been rejected previous to weighing; and the roots selected of the best quality. In preparing compound tinctures, or where more than one drug is to be acted upon, care should be taken to intimately mix the different articles before moistening them with the spirit. Little difficulty is experienced in reducing the drug to the proper degree of fineness, but some experience is required to know just how fine the article should be powdered. The moist drug which I generally let stand from two to four days should be evenly and carefully packed in the percolator; and a knowledge of the firmness with which this should be done, can only be acquired by careful practice and experience. That in the two under consideration—the digitalis requires to be pressed quite firmly, while the other, intimately mixed with the bruised seeds, and saffron, requires but a slight amount of pressure.

After the solid ingredients to be exhausted are properly packed, I cover them with a disc of paper, before introducing the spirit, that the packed drugs may not be agitated, while pouring on the menstruum; the percolator is then covered with a glass plate to prevent evaporation, and the process allowed to proceed.

In some cases, as in preparing a saturated tincture from Rad. Podophyllum—after the alcohol ceases to pass, all alcohol remaining in the percolator may be displaced by adding water. As the water penetrates the powdered root, the root expands or swells, and can be removed from the yet firmly packed root, to which the water has not yet penetrated. The displacement of the alcohol in this case seems complete, and it is easy to discern when all the spirit has been displaced, as the pulpy substance remaining has not the slightest taste of alcohol or podophyllin. Whether this or the process as conducted by the B. P. is to be preferred, or which most thoroughly exhausts the crude drug, I am not prepared to say; I use either, as occasion may require.

When percolating with ether (e. g. Liq. Epispastic) I use a small tin air-tight percolator, and the suggestions above enumerated will hold good in this case.

[Mr. MacLagan calls our attention to an error in the answer given by W. A. C. to the fifth question given in the JOURNAL for January. The formula of quinia is given as $\text{C}_{20}\text{H}_{24}\text{N}_2\text{O}_2$; but the combining weight is wrongly stated as 378 instead of 324. This is certainly an error, but may be truthfully charged to carelessness on the part of W. A. C., as well as to ourselves, as it will be readily seen that the combining weight stated takes into account the three equivalents of water = 54, although the formula is omitted. We are glad that our students go over the answers so carefully, and shall always be glad to have errors pointed out and corrected.]

ORDER OF MERIT.

NUMBER OF MARKS AWARDED FOR ANSWERS.

	I.	II.	III.	IV.	V.	Total
1. W. A. C., Orono	6	5	5	5	9	30
2. Price Jackson, Toronto	5	7	5	5	7	29
3. H. MacLagan, Lindsay	7	5	5	5	6	28

BOOKS OFFERED AS PRIZES.

ROSCOE'S *Lessons in Elementary Chemistry.*
 WILSON'S *Inorganic Chemistry* (Macadam.)
 HOFFMANN'S *Introduction to Modern Chemistry.*
 WITTEIN'S *Practical Pharmaceutical Chemistry.*
 BEASLEY'S *Druggists' Receipt Book.*
 BEASLEY'S *Book of Prescriptions.*
 PAREIRA'S *Prescription Book.*
 GRAY'S *How Plants Grow.*
 GRAY'S *Lessons in Botany.*
 HUXLEY'S *Lessons in Elementary Physiology.*
British Pharmacopœia.
United States Pharmacopœia.

Any other scientific book, the price of which is about a dollar and a half, may be substituted for any of the above.

ONTARIO COLLEGE OF PHARMACY.

SPECIAL MEETING.

A special meeting was held on Friday evening, Feb. 17th, at the Mechanics' Institute. The chair was taken by Hugh Miller, Esq.

The Secretary stated that the meeting had been convened in accordance with a resolution passed at the last monthly meeting, and that the business of the meeting would be to see what steps would be necessary to be taken by the Society under the provisions of the new Act.

Mr. Brydon said that one of the first things to be done was to obtain a correct list of all members in good standing. A number of persons had been elected who had not even paid their first fee, while many others had omitted to send in their annual subscription, though notified that such was due. According to the Constitution of the College, those who were two months in arrears were no longer entitled to membership. He wished the Society to direct him as to the course to be pursued.

Mr. Shuttleworth said that there was but

one course open, and that was specified in the law referred to. He would therefore move, seconded by Mr. Davids :

That the law regarding members in arrears be at once enforced. Carried.

Mr. R. W. Elliot directed the attention of the meeting to the indefatigable efforts of Dr. Magill, in effecting the passing of the Pharmacy Act. He thought that the Society should show their appreciation of those services, and to that effect would propose the following resolution :—

That Wm. McGill, Esq., M.D., M.P.P., by the zeal and assiduity with which he has promoted the Pharmacy Act to a successful issue, is entitled to the best thanks of the Society, and is hereby declared a life member of the College; the certificate, in terms of this resolution, to be engrossed on vellum and presented to him.

The motion was seconded by Mr. Hodgetts, and carried unanimously.

An informal conversation was entered into regarding the diploma and seal referred to in the Act. It was agreed that if druggists were compelled to display their diplomas in their places of business, that a neat, though somewhat elaborate, design should be adopted. The matter was finally referred to a committee, consisting of Messrs. Shuttleworth, Margach and Elliot, who were directed to obtain designs for diploma and seal, so that they might be able to report at next meeting.

Mr. Elliot alluded to the fact that a Poison Book would be required, as in form set forth in the Act. He thought the Society might well take the matter up, and derive any profit which might result from its publication. The proposal was acceded to by those present, and was referred to the committee named above.

Mr. Shuttleworth asked the society to take some action in the matter of granting a small sum of money, to be expended monthly in providing books to be given as prizes to those who forwarded the best solutions of the chemical problems given in the JOURNAL. He had brought the subject up at a former meeting, but on account of the attention of the Society being then directed to legislation, the proposal had been laid over. He said that students should be encouraged, and that the answers he had received were really very creditable, and deserving of reward.

Mr. Elliot coincided with the views expressed by the former speaker, and proposed:

That the Editor be authorized to expend the sum of one dollar and a half monthly, for the purpose of providing prizes for those sending the best answers to the questions given in the JOURNAL, and that a semi-annual prize of ten dollars be also offered for the highest number of marks extending over six months.

The Chairman, in putting the motion, observed that he must say that the granting of a half-yearly prize was beyond the powers of the meeting, as in July next, when the first prize would be required, the new Council would have control of the funds. The motion was amended as required, and was carried.

MONTHLY MEETING.

The regular monthly meeting was held at the usual place on Friday evening, the 3rd instant. The Vice-President took the chair, and after routine business, the following new members were elected.

Dr. Jas. Kemp.....	Leamington.
A. T. Trickey.....	Lyn.
M. Twomey.....	Amherstburg.
J. H. Walford.....	Renfrew.
J. H. Hewson.....	Smithville.
W. A. Green.....	Walkerton.

ASSOCIATES.

Thos. B. Fawson.....	Duluth.
Chas. Mander.....	London.
Robert L. Lewis.....	Ottawa.
Geo. E. Twomey.....	Amherstburg.
Robt. Wade.....	Angus.
Geo. Matthews.....	Paris.
W. A. Jamieson.....	Ottawa.

An informal conversation was then held as to the powers of the Society now meeting monthly, some of the members holding that the Council as constituted by the Pharmacy Act, was the only authoritative body, while many thought that this authority was only vested in the new Council on the 1st July, when their first meeting is to be held. It was thought best to have legal advice on the subject, and Mr. Elliot proposed, seconded by Mr. Shuttleworth, that the following questions be submitted for Legal advice :

Has the Provisional Council, named in the Bill, power to sit and hold meetings as Provisional Council, before July, '71 ?

Does section 30 take effect from the passing of the Act ?

H. J. ROSE, Secretary.

NOTES AND QUERIES.

W. H. L.—LIQUID MAGENTA.—In a previous number of the JOURNAL you will find a form for liquid magenta, as well as other aniline colors. Your troubles have arisen from employing too little solvent. A most convenient strength is ten grains to the ounce; this is quite concentrated enough for ordinary purposes. Dissolve ten grains of the crystals in half an ounce of cold alcohol, 65 o.p.—the solution will be effected in a few minutes—then add half an ounce of water. Do not employ acid. The tint of the fabric dye, by magenta may be considerably brightened by a bath of soap suds, instead of water.

(Continued from page 26.)

lic and other chemical preparations may be partially illustrated, but as a general rule the time of the lecturer is better spent in pointing out any difficulties requiring precautions than in attempting to go further, in all cases when possible speaking from his own knowledge.

The processes for the more important alkaloids may, by exhibiting them at different stages, be well explained to a class, but it involves much time and careful preparation. It is also quite proper to give the demonstrative tests of purity, and recognition as well, though this is usually the work of the Materia Medica professor.

In regard to vegetable drugs, their relation to solvents can be easily demonstrated by percolation, and many of the more important should be the subject of practical experiments to prove that these solvents effectually remove the essential constituents. It is an excellent plan to exhibit as many as possible of the important constituents of drugs, to make the remarks more impressive. This hint especially applies to such drugs as jalap, scammony, rhubarb, cinchona, ipecac, opium, aloes, cantharis, colocynth, hyoseyamus, nux vomica, etc.

In his lectures on preparations like mixtures, pills, liniments, mucilages, suppositories, ointments, etc., the professor will have a wide scope for interesting suggestions and cautions bearing on extemporaneous pharmacy, which should never be lost sight of in every step of the course. As an instance of what we mean, let the subject be gum Arabic in its relation to pharmacy. He might say that it is a lime salt of a arabic acid (which he proves by means of oxalate of ammonia), that it is very soluble in water, and insoluble in alcohol, ether, chloroform, benzine, turpentine, and all the volatile and fixed oils, precipitable by subacetate but not by neutral acetate of lead, and in strong solution is coagulated by borax and perchloride or sulphate of iron. When an alkaline carbonate is dissolved in clear mucilage, in mixtures, it causes cloudiness and gradually precipitates the lime as carbonate, and when borax or chloride or persulphate of iron are mixed with mucilage it must be dilute to prevent coagulation by these salts. Also when the emollient qualities of mucilage are needed in union with a lead salt, the neutral acetate and not the subacetate should be employed.

Finally, it should be remembered that among the class are always individuals whose opportunities for practice are very limited, and who, by merely seeing a plaster spread, a suppository moulded, or an emulsion made, would be far more permanently benefited, than if merely told how to do these simple but important operations.

Confection of Senna.

This preparation, when properly made, is an excellent laxative—for habitual constipation superior, perhaps to any other remedy. It is not in such general use among physicians or the public as it is entitled to, and this probably arises from the fact that much of the confection of senna of the market has little or no resemblance to the official article, and is comparatively worthless. Pharmaceutically considered, the official process yields a result which is unobjectionable, save in two particulars; first, the presence of the powders of senna and coriander (and especially of the latter, which is most difficult to

prepare) imparts a degree of "grittiness" which is disagreeable to the patient, giving the impression that "dirt" is present; secondly, the consistence of the confection, when evaporated to the specified weight, varies as prepared from different specimens of drugs, and is sometimes too thin, when the mass is apt to go into fermentation. Fortunately, these defects may be easily remedied. In our opinion the purging cassia, considering that it is so difficult to obtain might well be omitted and substituted by an additional quantity of senna, particularly as there can be no advantage in multiplying the number of substances having similar therapeutical properties, in this or other preparations. We have used the modified formula given below (the coriander also being omitted and substituted by ginger), which is free from the objections we have mentioned. It is much more agreeable to take than the official confection, and is equally efficient:—

Take of Tamarinds,.....	20 parts,
Figs, bruised,.....	20 "
Prunes, sliced,.....	15 "
Fluid Extract of Senna, 10 "	
Ginger, 1 "	
Sugar,.....	30 "
Water, a sufficient quantity.	

Digest in a close vessel, by means of a water-bath, the tamarinds, figs, and prunes, in 10 parts of water, for three hours; separate the coarser portions with the hands, and press the pulpy mass by rubbing first through a coarse sieve, and then through a very fine one. Mix the residue with 4 parts of water, and, having digested the mixture for a time, treat it as before, and add the produce to the pulpy liquid first obtained, evaporate to a syrupy consistence over a water bath, add the sugar, and continue the heat for 20 minutes, or until the sugar is dissolved; then remove from the bath, add the fluid extracts of senna and ginger, and mix thoroughly.—*Chicago Pharmacist.*

Tinted Honey.

A specimen of rose-colored honey has been presented by Messrs. Fortnum and Mason to the Food Department of the South Kensington Museum. It is of great beauty and delicacy. The comb is virgin, the wax almost white, the honey limpid, pure and of the color of pale red currant jelly. The secret of its production is not revealed, except that it is the result of artificial feeding. The *Gardener's Chronicle*, after alluding to the various opinions held as to the change which honey undergoes between the time of its being taken from the nectary and that of its being deposited in the comb, remarks that honey from white clover has a greenish-white hue, that from heather a rich golden yellow, and no doubt other colors might be observed according as certain flowers are in particular abundance. It is even possible that feeding the bees upon currant or raspberry jelly or jam would answer the purpose equally well. But it is clear that this step in the refinement of honey being reached, we shall not stop here. With the help of the chemist, the beekeeper will be able to turn out, in a few weeks, to order, honey of any hue, blue, pea-green, orange, or apricot-colored, or even,—by a little ingenious manipulation of the present system of hives, which will allow of any part of the comb being shut off or made accessible to the bees at pleasure,—a parti-colored honey, arranged in artistic patterns and devices.—*Pharm. Jour., London.*

PRACTICAL FORMULÆ.

Pasto for Labels.

Dissolve one ounce of alum in a quart of warm water. When cold add as much flour as will bring it to the consistence of cream; stir in half a teaspoonful of resin, and add two or three cloves. Boil to the proper consistence. Pasto so prepared is said to keep indefinitely.

Cherry Tooth Paste.

A correspondent of the *Pharmaceutical Journal*, London, gives the following formula:

Pulv. alum, ½ oz.
“ iridis, 1½ oz.
“ crete, 1½ oz.
“ potas. bitart., 1½ oz.
“ oss. sepiæ, 1½ oz.
“ cocci, 1 oz.
Ol. caryoph., 15 drops.
“ amygd. amar., 20 drops.
Glycerini, q. s.

Mix. Allow it to stand in the mortar till the effervescence ceases, stirring occasionally.

Syrup of the Phosphates of Iron, Quinia and Strychnia.

Take of Phosphate of Soda, 480 grains;
Sulphate of Iron, 300 grains;
Sulphate of Quinia, 192 grains;
Acid Sulph., diluted, q. s.;
Water of Ammonia, q. s.;
Strychnia, 6 grains;
Acid Phosph., diluted, 16 ounces;
White Sugar, 14 ounces.

Dissolve the iron and soda salts each in four fluid ounces of warm water; mix the solutions; collect the precipitate on a paper filter, and wash with warm water; remove the filter from the funnel, and press carefully between the folds of bibulous paper until no more water is absorbed by dry paper.

Having dissolved the sulph. quinia in four ounces of water, by careful addition of sulphuric acid, add a weak solution of ammonia, stirring constantly until a slight excess is added. Collect the precipitated quinia on a paper filter, and proceed as with the iron salt. Both these precipitates will readily detach themselves from the wet filter, without loss, if the pressing is carefully done.

Dissolve the strychnia and quinia in \bar{v} viii. of the phosphoric acid, and the iron salt in the remainder of the acid; mix the solutions; filter and add the sugar.

It is preferable to dissolve the sugar in the unfiltered liquid, and then to filter the syrup. The dose of the preparation is one teaspoonful.—*Pharmacist.*

Mrs. Wheeler's Nursing Syrup.

Sacchari \bar{v} xxxv.
Liquoris calcis \bar{v} xl.
Extracti papaveris fluidi \bar{v} jr.
Olei anisi \bar{v} j.
Extracti podophylli aquati \bar{v} ss.
Spiriti rectificati \bar{v} ij.
Misce.

Mrs. Wheeler's Worm Confection.

Hydrargyri chloridi mitis \bar{v} j.
Sacchari \bar{v} x.
In pulv. subtilis. terc.

Add.

Sacchari \bar{v} xxv.
Santonini \bar{v} vi.
Misce et fiat. rhom. No. 360.

The syrup contains about two drops extractum papaveris fluidum in each teaspoonful; and the confections contain one grain santonin and one-sixth of a grain of calomel in each tablet.

The ext podophylli aquati is of the same strength as the ordinary fluid extracts, 16 troy oz. to the pint.—*American Journal Pharmacy.*

Violet Ink.

Take Aniline Violet, half an ounce, and digest it in five ounces of alcohol in a glass or an enamelled iron vessel for three hours; then add a full quart of distilled water and heat gently for several hours, or until the odor of the spirit has disappeared; then mix in two drachms of gum arabic dissolved in half a pint of water, and allow the whole to settle. Experiment will determine for you the precise quantity of coloring matter that will be required.—*Druggists' Circular.*

BUSINESS MEMORANDA.

Mr. Eastman, who formerly managed the business of Mr. J. D. Middleton, Smithville, has become a partner. The style of the firm is Middleton & Eastman.

Messrs. Robinson & Co., Oshawa, have disposed of their business to Dr. Deans.

Messrs. Lyman Brothers & Co., Toronto, have again taken up the department of garden and field seeds, in which they expect to do a large business during the present season. Their advertisement appears in another column.

TRADE REPORT.

We are pleased to chronicle that business since our last issue has been very brisk in all branches, orders having poured in from all sections of the country. Remittances have not been of this lively character, having been unusually slow.

The changes are not very numerous, or important.

Citric and Tartaric Acids are quoted very firm, and likely to advance.

Iodine has advanced very considerably, and is still moving upwards. Quinine has also advanced again, and cannot be laid down at our last quotation.

Opium has fallen considerably and tends downwards, stocks being large in place of production. Morphias will, as a matter of course, sympathize with Opium.

In dyestuffs all Aniline Dyes have advanced very much. Madder has also become very much excited, and is quoted at an advance of two cents per lb.

The demand for Paints, Oils, &c., is active; prices remaining about the same with the exception of Spirits Turpentine which is held firmly at higher rates.

