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. VIII, No. 9. TORONTO, APRIL, 1875. WHOLE No. LXXXIII

Original and Selected Papers.

UNOFFICINAL FORMULAS.

The Committee on Unofficinal Formulas, appointed by the American Pharmaceutical Association, presented, through the chairman, Mr. J. F. Hancock, the following report embracing formulas for preparations not embraced in the last edition of the *U. S. P.*, but which by their recognition by the Association may be regarded as supplementary to that compilation :—

Chlorate Mixture.

Take of Chlorate of Potassium, in fine powder, . . 60 grs.
Bicarbonate of Sodium, ... 120 grs.
Mix them.

Chlorodyne, Liquor Chloroform, Compound.

(P. Squire's Formula.)

Take of Purified Chloroform, ... 4 fluid ounces.
Stronger Ether, ... 1 fluid ounce.
Stronger Alcohol, ... 4 fluid ounces.
Molasses, ... 4 fluid ounces.
Pulverized Extract Licorice . . 2½ troy ounces.
Hydrochlorate of Morphia, . . . 8 grains.
Oil of Peppermint, ... 16 minims.
Syrup, ... 17½ fluid ounces.
Hydrocyanic Acid, 2 per cent, . . 2 fluid ounces.

Directions.—Dissolve the morphia and oil of peppermint in the alcohol; mix the chloroform and ether with this solution. Mix the licorice with the syrup and add the molasses. Shake these two mixtures well together, and lastly add the hydrocyanic acid, and again shake well.

Dose.—Five to ten minims, or ten to twenty drops. Shake the vial well before pouring out each dose.

Chloroform and Aconite Liniment.

Take of Chloroform, ... 2 fluid ounces.
Tincture of Aconite Root, . . . 2 fluid ounces.
Soap Liniment, ... 12 fluid ounces.
Mix them.

This preparation has been in use many years in Baltimore under the names of "Chloroform Liniment," "Compound Chloroform Liniment," and "Chloroform and Aconite Liniment." It differs from the formula of the U. S. Pharmacopœia of 1870, which is as follows:

Take of Purified Chloroform, ... 3 troy ounces.
Olive Oil, ... 4 troy ounces.
Mix them.

Stokes's Liniment.

Take of Oil of Turpentine, ... 3 fluid ounces.
Strong Acetic Acid, ... ½ fluid ounce.
Yelk of Egg, ... 1
Rose Water, ... 3 fluid ounces.
Oil of Lemon, ... 60 minims.
Mix.

Balsamic Diachylon Ointment (Hebra's Ointment).

Take of Pure Olive Oil, ... 15 fluid ounces.
Oxide of Lead, . 3 troy ounces and 360 grains.
Distilled Water, ... 2 pints.
Oil of Lavender . . . . . 2 fluid drachms.
Peruvian Balsam . . . . . 1 fluid ounce.

To the olive oil add half a pint of the water and mix thoroughly; then sprinkle in the oxide of lead and again stir well. Place the vessel containing the mixture in a water-bath or over a slow fire, and stir briskly until the combination is thorough. When the ointment is cold add the oil of lavender and Peruvian balsam, and mix intimately; lastly, add the remaining water.

Benzoated Oxide of Zinc Ointment.

(Kemp's Formula.)

Take of Lard and Olive Oil, each, . . . 5 troy ounces.
White Wax and Spermaceti, each, . 2½ troy ounces.
Oxide of Zinc, ... 2½ troy ounces.
Pulverized Gum Benzoin, . . . ½ troy ounce.
Mix, and make according to art.

Ointment of Red Oxide of Mercury.

(With Castor Oil substituted for Lard.)

Take of Red Oxide of Mercury, in very fine powder, 60 grains.
White Wax, ... 120 grains.
Castor Oil, ... 360 grains.

Melt together the white wax and castor oil, pour the mixture into a warm mortar, and incorporate with it the red oxide of mercury.

Compound Powder of Phosphates.

Take of Phosphate of Sodium, ... ½ troy ounce.
Phosphate of Calcium, ... ½ troy ounce.
Phosphate of Iron, ... ½ troy ounce.
Sugar, in fine powder, ... 1 troy ounce.

Expose the phosphate of sodium to heat in a porcelain dish until the water of crystallization is dissipated, taking care not to continue the heat until it is caustic to the tongue. Having the other powders perfectly dry, mix the whole thoroughly.

Dose.—From ten to twenty grains three or four times daily.

Magendie's Solution of Morphia.

Take of Sulphate of Morphia, . . . 16 grains.
Distilled Water, ... 1 fluid ounce.
Sulphurous Acid, ... 4 drops.

Make a solution.

Species St. Germain.

Take Senna Leaves, previously digested in stronger alcohol and dried . . 4 troy ounces.
Elder Flowers . . . . . 2½ troy ounces.
Fennel and Anise Seed, of each . . 10 drachms.
Cream of Tartar, ... 6 drachms.

Mix intimately, and put up in doses of five drachms each.

Directions.—Infuse the contents of one package in half a pint of boiling water; strain, and take at one dose, for adult.

Compound Syrup of Hypophosphites.

Take of Hypophosphite of Calcium, . . 256 grains.
Hypophosphite of Sodium, . . 192 grains.
Hypophosphite of Potassium, . . 128 grains.
Protosulphate of Iron, . . . 185 grains.
Hypophosphorous Acid, sp. gr. 1.036 . 9 fluid drachms.
Sugar, ... 12 troy ounces.
Water, ... a sufficient quantity.

Dissolve ninety-six grains of the hypophosphite of calcium in four fluid ounces of water, with the aid of heat, and acidulate the solution with a small portion of the hypophosphorous acid. Dissolve the protosulphate of iron in two fluid ounces of water; mix the two solutions, and allow the mixture to stand until the sulphate of

calcium, which is precipitated, has subsided, and pour the whole on a paper filter. After the clear solution has passed through the filter, wash the adhering hypophosphite of iron from the sulphate of calcium with a small quantity of water, acidulated as before, and preserve the solution. Dissolve the remainder of the hypophosphite of calcium with the hypophosphites of sodium and potassium in four fluid ounces of water, with the aid of heat, adding the remainder of the hypophosphorous acid. Mix the solutions, adding water sufficient to make the whole measure ten fluid ounces, which pour into a bottle containing the sugar, and agitate the mixture occasionally until the solution is complete.

Compound Syrup of Phosphates.

(Modification of E. Parrish's Formula, by W. S. Thompson.)

Take of Protosulphate of Iron,	600 grains.
Phosphate of Sodium,	720 grains.
Phosphate of Calcium,	360 grains.
Glacial Phosphoric Acid	780 grains.
Carbonate of Potassium,	60 grains.
Carbonate of Sodium,	40 grains.
Muriatic Acid,	a sufficient quantity.
Water of Ammonia,	a sufficient quantity.
Sugar,	35 troy ounces.
Cochineal, in fine powder,	60 grains.
Tincture of Orange-Peel,	4 fluid drachms.

Dissolve the protosulphate of iron in two fluid ounces of boiling water, and the phosphate of sodium in one fluid ounce of boiling water; mix the solutions, wash the precipitate formed, and drain it on a muslin filter.

Mix the phosphate of calcium with four fluid ounces of boiling water, and add a sufficient quantity of muriatic acid to dissolve it; then add a sufficient quantity of water of ammonia to reprecipitate the phosphate of calcium; wash the precipitate and drain it on the same filter with the phosphate of iron.

Dissolve the glacial phosphoric acid in about two fluid ounces of water, with the aid of heat; add the moist precipitates, and when they are perfectly dissolved add the carbonates of potassium and sodium. Transfer the whole to a jar or bottle, and allow the precipitate which is formed to subside. Draw off the clear solution with a siphon, and preserve it in a separate vessel. To the remainder, containing the precipitate, add a sufficient quantity of muriatic acid to dissolve it, and add it to the other portion of the solution with a sufficient quantity of water to make the whole measure twenty-four fluid ounces. Then add the sugar, cochineal, and tincture of orange-peel, and agitate occasionally until the sugar is dissolved. Lastly, strain or filter.

Aromatic Syrup of Senna.

(See Proceedings of Am. Pharm. Association, 1857.)

Take of Alexandria Senna,	4 troy ounces.
Jalap,	1½ troy ounces.
Rhubarb,	½ troy ounce.
Cinnamon,	60 grains.
Clove,	60 grains.
Nutmeg,	30 grains.
Oil of Lemon,	20 minims.
Sugar,	24 troy ounces.
Diluted Alcohol,	a sufficient quantity.

Reduce the root, leaves, and spices to a moderately fine powder, and treat with the diluted alcohol, by percolation, to exhaustion; when about one quart has passed, evaporate by means of a water-bath to eighteen fluid ounces, and filter, if necessary; then add the sugar and dissolve by water-bath; when cold, add the oil of lemon. It should measure thirty-two fluid ounces.

Tincture of Gelsemium.

Take of Gelsemium, in fine powder,	4 troy ounces.
Diluted Alcohol,	12 fluid ounces.

Macerate fourteen days and filter. This tincture may also be prepared by percolation; using a sufficient quantity of diluted alcohol to displace twelve fluid ounces of tincture.

Compound Tincture of Opium.

(Diarrhœa Mixture. Formula by Dr. E. R. Squibb.)

Take of Tincture of Opium	1 fluid ounce.
Tincture of Capsicum,	1 fluid ounce.
Spirit of Camphor,	1 fluid ounce.
Purified Chloroform,	3 fluid drachms.
Stronger Alcohol,	sufficient quantity to make the measure of 5 fluid ounces.

Each fluid drachm contains about one hundred drops, consisting of twelve drops each of the first three ingredients, and four and a half minims or eighteen drops of choroform.

Dose.—One teaspoonful in water for adults.

Tincture of Poke Root.

(See Proceedings of Am. Pharm. Association, 1857.)

Take of Poke Root, in moderately fine powder	6 troy ounces.
Cardamom, in fine powder,	120 grains.
Diluted Alcohol,	2 pints.

Macerate fourteen days, and filter through paper.

Sweet Wine of Iron.

Take of Pulverized Bitter Orange-Peel, . .	½ troy ounce.
Pulverized Calisaya Bark, . .	1 troy ounce.
Citric Acid, ...	½ troy ounce.
Citrate of Iron and Ammonium, .	2 troy ounces.
Distilled Water, ...	32 fluid ounces.
Sherry Wine, ...	64 fluid ounces.
Saturated Tincture of Fresh Sweet Orange-Peel, ...	16 fluid ounces.
Deodorized Alcohol, ...	16 fluid ounces.
Syrup of Orange-Peel, . . .	16 fluid ounces.

Mix, macerate, and filter. *Dose.*—One teaspoonful.

ADDITIONAL NOTES ON JABORANDI, AND ITS PHYSIOLOGICAL ACTION.*

BY WILLIAM MARTINDALE, F.C.S.

Having received, through Messrs. Hearon, Squire and Francis, a further supply of this remarkable drug, which has excited so much attention physiologically and therapeutically in Paris during the last twelve months, information respecting its previously doubtful botanical origin is now obtainable. In my former communication on Jaborandi,† I said I thought the statement of Professor Baillon that it was the leaf of *Pilocarpus pennatifolius* was erroneous, giving my reasons that having obtained some of the fresh leaves of *P. pennatifolius* from Kew Gardens, these differed so much in taste, odour, and more especially in physiological action from those of Jaborandi, that "Dr. Ringer and others, as well as myself, who watched the cases," in which both were used, "and examined the leaves and infusions of both, were satisfied this was not the same as the jaborandi, we had tried before." I further state that of course as these leaves of *P. pennatifolius* "were from a plant of hot-house growth, grown in its natural habitat its effects might be different." I notice lately that Professor Baillon still adheres to his statement.‡ Now that we have the whole leaf of Jaborandi to compare with herbarium specimens of *P. pennatifolius*, the undoubtedly greatly resemble each other. Still in our comparison with a specimen of *P. pennatifolius* at Kew, collected near Assumption, in Paraguay, Professor Oliver and Mr. Holmes noticed a difference in certain characters, and as jaborandi comes from Prenambuco, near to the Equator, whereas the Kew specimen was collected nearly 1000 miles

* From the Pharmaceutical Journal and Transactions.

† *Pharmaceutical Journal*, 1874, p. 365.

‡ *Journal de Pharmacie et de Chimie*, Janvier, 1875, p. 23.

further south, beyond the tropic which seems to be its general habitat, there is a great probability that they are not the same; if not the same, Jaborandi is a nearly allied, perhaps, as yet, undescribed species This I leave for Mr. Holmes, who has taken the subject in hand, and will give a full botanical description of the parts of the plant that have been received, and other botanists, to decide.

In forwarding the supply the agents in Pernambuco wrote that "it is a medical shrub known by us, but little used, notwithstanding its excellent virtues, as the medical men here prefer using foreign medicines. It is an excellent sudorific in the dose of one octave to a cup of infusion. It is a good sialogogue. The tincture is used as a friction on paralysed members."

Of the importation lately received the leaflets form about one-fourth of its weight, the remainder being stems and leafstalks, with a few roots and fruit, but unfortunately no flowers. Compared with that which I first obtained from Paris, the leaflet of this is much more pungent in taste, and, I believe, for reasons given below, much more active physiologically. When chewed the taste is piquant, and excites a glowing heat on the tongue, like that caused by pellitory root. I also find from working with it that it irritates the skin when applied externally. On the inner surface of the bark of the root, white, shining crystals are distinctly visible; but as Dr. Attfield is about to make a chemical investigation of the different parts it is premature to offer any opinion about these. Therapeutically, Dr. Ringer, is continuing his investigations at University College Hospital.

Having heard doubts expressed about the activity of the Jaborandi last received, as compared with the results obtained in the first trials I witnessed at University College Hospital, I became somewhat sceptical about its efficacy, and, therefore, expecting to get little results, tried it upon myself. To me the effect seemed simply marvellous. I made an infusion of sixty grains of the bruised leaf in five ounces of boiling water, let it stand fifteen minutes and strained it. On pouring the water upon the drug I noticed the characteristic odour almost entirely disappeared. The infusion was of a pale sherry colour, had a mawkish bitter taste, but did not excite the glowing heat upon the tongue that the leaf itself did; this I thought strange, and on tasting the dregs I found they still retained their pungent taste when chewed. It was evident to me that if its diaphoretic properties depended on the principal having this pungent taste, boiling water does not extract it. At 11·30 p.m., on retiring to rest, I swallowed as much of the dregs as I could, probably 50 out of the 60 grains used, and washed them down with the infusion. In five minutes I felt a glow, an increased circulation, an uneasiness in the head, became restless, and the secretion of saliva began to increase. At 11·45, a quarter of an hour after taking the dose, I was

perspiring freely. The salivation and perspiration continued to be profuse until my sight became blurred. At a distance of four feet I could see my wife, but could not distinguish her eyes. On this occurring I became a little anxious, as I had evidently taken an overdose. I requested that Dr. Ringer might be sent for; he came about 12·15 a.m. The impaired vision still continued, but I was glad to find that it was only at a distance—near objects I could see distinctly enough. The pupils of the eyes were slightly dilated, I was informed. The pulse when first noted was 96, and got up to 104. The temperature was not taken. The depression was never very great, but a little before Dr. Ringer came I began to shiver, more clothes were put on the bed, and some spirit and water given to me. The excessive perspiration still continued from all parts of the body. A Turkish bath, which I have frequently had, and seen others have, was nothing to it; the saliva for a time required almost constant ejection; the secretion of this from the glands in the cheeks caused a kind of collapsed feeling in them. My speech was so affected that articulation was both difficult and indistinct. Eventually, about 1 a.m., I was sick, and vomited at first a quantity of saliva which I had swallowed. Putting my finger in my mouth vomiting was further excited, until a portion of the Jaborandi returned. The effects were now subsiding: more spirit and water were given to me, my night-shirt, soaked with perspiration, was changed. I was put into a warm blanket, and about 1·40 a.m., I fell asleep and slept a quiet sleep till 6 a.m. The pulse on awakening was 88—normally with me it is 80. I got up about 7·30 a.m., and although I felt squeamish all next day I was able to attend to business as usual. When the action was at its height, on uncovering my arm, I am informed the perspiration passed off in steam from my hand and night-shirt sleeve. The saliva collected, which was distinctly alkaline, measured 16 ounces, in addition to which a quantity had flowed on to the pillow while I slept, as it was quite wet in the morning. I came to the conclusion that I should not like to pass through the ordeal again. My thanks are due to Dr. Ringer, whose presence and kindness greatly relieved my anxiety.

We have undoubtedly in Jaborandi a drug which produces a marked physiological action; how far it will prove useful therapeutically in cases of fever, diabetes, and other diseases, remains to be seen. A drachm dose of the last received is no doubt excessive, that is if the whole be swallowed. The strained infusion, from what I hear, produces but little effect.

M. Robin* gives an account of the results of his researches in M. Gubler's wards in Paris. but no mention is made of its peculiar action upon the vision, which, so far as I am aware, has not been previously noted.

10, *New Cavendish Street, January 12th*, 1875.

* *Medical Record*, Dec. 16, p. 794, from the *Bulletin General de Therapeutique*, November 30, 1874.

DETERMINING THE VALUE OF VEGETABLE AND ANIMAL OILS.*

Nowhere in the domain of chemistry do we find such a large and important series of compounds, so similar in chemical and physical properties, and so difficult of separation when mixed, as the fatty oils. Watts enumerates forty-nine vegetable oils, eleven fish oils, and five animal oils, making a total of sixty-five oils, and yet his list is defective. Although possessing such a general family resemblance, they differ enough among themselves to cause a considerable difference in price, and hence cheaper oils are used to adulterate the more valuable. To recognize any of these oils when unmixed is not particularly difficult, but to detect the presence of a few per cent. of one oil in a large quantity of some other oil is more difficult, and to determine the kind and quantity of the adulterating oil is almost an impossibility. Because of the commercial value of an accurate and reliable method of detecting adulteration in oils, much attention has been paid to this subject, but long and patient researches have, as yet, been only partially rewarded. In a communication to the Chemical Section of the Philosophical Society of Glasgow, Mr. J. J. Coleman, F.C.S., gives a detailed account of the principal methods now in use for detecting adulterations in oils, a few of which we give below.

The late Prof. Calvert constructed a table showing the result obtained by treating oils with acids and alkalies of various strengths. Twelve reagents were employed and one hundred and eighty reactions and colors produced are given, which he had observed in experimenting on fifteen different oils. Cotton-seed oil and olein from tallow are omitted, as well as fifty others of minor importance.

Heidenrich, Penot and Marchand have also proposed colour tests from the reaction of pure sulphuric acid on oils, but, like those of Calvert, they are open to doubt and uncertainty, the coloration often depending on the accidental impurities of the oil.

There is a great difference in the amount of heat produced on mixing one part of sulphuric acid with three parts of oil; the gain in temperature is 100° where rape-seed oil is used, as compared with 68°, when olive oil is experimented upon. A method based on this principle was suggested by Marmene and elaborated by Fehling; it is easy of execution and interesting in results.

The relative viscosities of the fatty oils is determined by the time required for a given quantity of each oil to flow from a pipette which is heated to 120° F. by being surrounded by a glass tube into which steam is passed. In an experiment made by Mr. Coleman, German refined rape required 8½ minutes; olive, 8¼ minutes; tallow, 7½ minutes; lard oil, 7 minutes; cotton seed, 7 minutes; sperm, 5 minutes.

* From the Journal of Applied Chemistry.

Spontaneous combustion ensues when a handful of cotton waste is imbued with oil and placed in an air bath at 130° to 200° F. Boiled linseed required 1¼ hour; raw linseed, 4 hours; lard oil, 4 hours; refined rape, about 9 hours. Mr. Gellatly found that an admixture of 20 per cent. of mineral oil retarded combustion, and 50 per cent. prevented it entirely.

There are three practical methods of judging of the drying properties of oils: 1. Nitrate of mercury, which indicates by the consistency of the mass subjected to the reaction. Resin oil, mineral oil, and the drying oils proper, refuse to solidify. 2. Comparing a sample under examination, heated in a shallow capsule to 200° F., with a light quantity of oil known to be pure. 3. Imbuing thick white blotting paper with the oil under examination, and comparing by a similar experiment with oil known to be pure, say at a temperature of 150° or 200° for some hours, or at ordinary temperatures for some days.

The specific gravity of oils has been carefully determined, and is of some consequence. To be of value the specific gravity should be carefully taken at a temperature of 60° F. The oleometer should be marked with ordinary specific gravity degrees, water being 1,000, and the space allowed on the stem, for each degree should not be less than 1-10 of an inch. As a rough rule, 1° of gravity may be subtracted for every 2½ per cent. excess of temperature above 60° F.

The presence of mineral and resin oils in a mixed oil must be the first point proved, and when it does exist, it increases the difficulty of testing, for we have no easy method of separating them without actual destruction of the fatty oils. Saponification is not efficient, for mineral oil unites with the soap produced, forming an emulsion which does not separate after standing for months. Perhaps a lime soap might be prepared, pulverized, and the hydrocarbon extracted by some volatile solvent, but the most satisfactory method would be an ultimate chemical analysis.

In practice, however, mineral oils can be easily detected by two characteristic tests: first, the fluorescent properties it imparts to all animal or vegetable oils; second, the strongly-marked aromatic burning flavor it communicates to mixtures containing it. The first-mentioned property is brought out by smearing a metallic surface, such as tin plate or steel, with the oil, and then viewing it at different angles in the open air or sunlight.

In examining a dark-colored oil, it may first be necessary to refine the sample by successive treatments with concentrated sulphuric acid and weak soda solution or lime water. As small a quantity as 2½ per cent. may be detected by the bluish color noticed on viewing the oil at certain angles and by tasting it.

The absence of resin oil must also be proved. Nitric acid is said to be a good test, as the color developed is much greater than in pure oils. Sometimes it may be detected by the smell. The

presence of 10 per cent. of resin or mineral oil in non-drying oils delays their solidification with the nitrate of mercury test.

Oils may be classified according to their commercial value. The first class embraces only sperm oil. The tests recommended by Mr. Coleman, for adulterations in this oil, are five in number:

1. Examine for mineral oil.

2. Examine into its drying properties by exposing some of the oil for some hours in a thin layer to 200° F.

3. Notice that other fish oils darken much more notably than sperm oil when shaken up with dilute sulphuric acid.

4. The most likely adulterant is African fish oil, which produces intense heat when mixed with concentrated sulphuric acid; thus, a mixture of 1 part acid and 4 parts oil develops about 112° of heat, against a development of upward of 250° with African fish oil. The specific gravity of African fish oil is said to be about 0·866, and it is a very bad lubricant. Other adulterating oils may also be detected by this test.

5. That, as the use of sperm oil is dependent upon its viscosity, an accurate test thereof, in a suspected sample, may be useful.

Class II comes next in value to sperm oil, viz., the oleins obtained by pressure from animal fats, known in the market as tallow olein, lard olein, and neatsfoot oil. Lard and tallow oils should have a specific gravity of 0.915. If the oil is heavier, it may contain fish oils, seed oils, olive oils or cocoa-nut olein. Olive oil, cocoa-nut oil or fish oils can be detected by the smell, color, taste and Calvert's tests, so that the real difficulty lies with seed oils, one of which, rape oil, is nearly of the color, and exactly of the specific gravity, of animal oleins. If a sample of animal olein be too heavy, it probably contains some partially-drying oils like cotton seed, which range from ·920 to ·930. Those seed oils which cannot be detected by variations in the specific gravity are rape, henbane-seed, horse-chestnut and plum-kernel oils. The last three may be disregarded. The processes for the detection of rape are the following:

1. Heating to 400° F. and allowing to cool to 90°. Tallow and lard oils are rendered odorless, while the peculiar penetrating smell of rape oil is developed.

2. One part, by weight, of the oil is mixed with three parts of concentrated sulphuric acid, and the heat developed is compared with the heat developed by a similar experiment made with pure oil.

3. The nitrate of mercury test is said to indicate the presence of even 10 per cent.

Finally, lard oil is distinguished from tallow olein by difference of viscosity.

Class III embraces the olive oils. The adulterations to be sought are drying oils, fish oils, mineral and resin oils. The specific gravity of olive oil is 0·917. Rape oil would make it lighter, and cotton-seed oil heavier, but a proper mixture of the two could be ad-

justed exactly to the specific gravity of olive oil. Fish oils being proved absent by Calvert's tests or by the smell, the following tests are used for seed oils :

1. The well-known nitrous acid or nitrate of mercury test.
2. The characteristics of the amides produced by liquid ammonia.
3. Fehling's test of the rise of the temperature produced by mixing with concentrated sulphuric acid.
4. The characteristics of the action of solution of carbonate of potash on the oil.

Class IV.—Rape oils are the border-land between drying and non-drying oils, and are employed both for burning and lubricating. The specific gravity varies from 0·912 to 0·916. It is quite likely to be adulterated with cotton-seed oil, which [1] increases the specific gravity (mineral and resin oils being proven absent); [2] it raises the freezing-point of rape oil, which is, when pure, perfectly liquid at 32° F. The other tests applicable are those for estimating the drying properties of the oil, or its tendency to gum, either by exposing on blotting-paper or in small capsules to 200° F.

Class V is represented by linseed oil, the drying oil proper, of specific gravity 0·937 at 60° F. Mineral and resin oils must be carefully looked for, and, in their absence, fish oils are easily detected by smell or Calvert's tests. Cotton-seed oil may be recognized [1] by decreasing the specific gravity, [2] materially raising the point of solidification, [3] decreasing the drying properties, which can be proved as above indicated.

Class VI.—Fish oils have a commercial value inferior to the other oils, because of their odor; hence they are not much liable to adulteration. They may, however, be mixed with each other, some varieties being much cheaper than others. The points to be observed are, [1] looking for mineral and resin oil, [2] examining the drying properties of the sample, [3] examining the viscosity.

Oleographs, or the figures formed by oils dropped on pure water, do not seem to have been studied by Mr. Coleman. With care and practice they may be made of considerable value in testing oils quickly and easily.

LINIMENT OF BELLADONNA.*

BY CHARLES UMNEY.

When extract of belladonna, made by the complete exhaustion of the root by cold alcohol, is dissolved in spirit of wine in such proportion that one part fluid shall contain an equivalent of one part by

* From the Pharmaceutical Journal and Transactions.

weight of the root, or, in other words, if liniment of belladonna (B.P. 1867) be made from the alcoholic extract of the root, instead of from the root direct, even though the quantities be strictly proportionate, the difference in appearance of the two preparations is so marked as to require some explanation.

Haselden (*Pharmaceutical Journal*, 1866, page 17), writing upon this liniment, stated that he had obtained by pressure, after the prescribed volume of the British Pharmacopœia had been percolated, "a considerable quantity of strong tincture, quite equal to that obtained by displacement."

In order to ascertain the extent of the exhaustion of belladonna root by maceration and slow percolation, the following experiments were made:—

The root was dried, and reduced to a "*moderately fine powder*," passing through a sieve of 40 to 50 meshes to the linear inch, for experience had taught me that a "coarse powder," as stated in the British Pharmacopœia, was not well adapted for producing belladonna liniment, for I well knew the difficulty of approaching exhaustion, even with a powder as fine as it is possible to percolate, when the final strength was to be one by weight in one by volume. (I cannot refrain from again claiming for the U. S. Pharmacopœia a superiority over our British Pharmacopœia in defining the state of division of its powders, which are designated as *very fine* when passed through a sieve *eighty* meshes or more to the linear inch, through one of *sixty* as *fine*, of *fifty* as *moderately* fine, one of twenty *coarse*, and so on.

100 grammes of this root, thoroughly moistened with spirit, tightly packed in a displacement apparatus, and allowed to digest for three days, was slowly percolated until 100 cubic centimetres was obtained.

The residue was treated with spirit, and similarly percolated until four other portions, each of 100 c.c., were produced.

The extractive these each contained was determined by evaporation and drying at 100° (C.) until the weight was constant. The results were:—

1st percolate	. . .	7·58 grammes	of extract.
2nd "	. . .	4·31 "	"
3rd "	. . .	3·08 "	"
4th "	. . .	2·25 "	"
5th "	. . .	1·54 "	"

The first percolate was charged with green colouring matter, which was less perceptible in the second, and almost absent in the other three.

The total extract obtained from the root was upwards of 18 per cent. (18·75) of which—

1st	percolate	contained . . .	40·4 per cent.
2nd	"	" . . .	22·9 "
3rd	"	" . . .	16·4 "
4th	"	" . . .	12·0 "
5th	"	" . . .	8·3 "

It would therefore appear that even under very favourable circumstances the root in the liniment of belladonna is not even half exhausted (40 per cent.) at the stage at which the B. P. directs the percolation to be stopped, and the chances are that, in the majority of cases, operating on coarsely powdered root, little more than one-third (33·3 per cent.) is extracted in the first percolate.

If this latter be true, and doubtless it oftentimes is, it would seem, noting the sum of the first and second percolates (63·3 per cent.), that it would be possible under the most favourable circumstances, operating upon very fine powder, to prepare a liniment, from half the quantity of root almost as strong in extractive at any rate as the present officinal preparation.

I am not prepared to say that each percolate will contain an amount of atropia strictly proportionate to its extractive, but still I imagine there is some alkaloid value in each and every percolate, or the Pharmacopœia would not direct, under "*Atropia*," the exhaustion of *one pound* of root with *five* pints of spirit of wine.

The different appearance of a solution of extract in spirit, and the liniment prepared according to the official directions, is then chiefly due to the imperfect and uncertain exhaustion of the root, and also in a measure to the concentration of the green colouring previously referred to, in the first percolate.

The suggestions I would make, for consideration on some future occasion, when a revision of the Pharmacopœia may be deemed necessary, are, either to substitute *ten* ounces of root in fine powder for the present twenty ounces, and produce finally by the slowest percolation *twenty* ounces fluid of liniment, or to direct a solution of *one* part of alcoholic extract in *ten* parts of spirit of wine.

Either of these would certainly be likely to give more uniform results, under all circumstances, and also lessen the loss of spirit of wine very considerably in the preparation of the liniment.

Laboratory, 40, *Aldersgate Street*, *E. C.*

TEST PAPERS.*

BY F. MOHR.

For the preparation of litmus paper the author recommends that the litmus be washed with hot alcohol and then extracted with cold water. This extract may be brushed on writing paper on one side. The paper must be washed with water to remove free alkali or acid.

Turmeric roots contain two yellow dyes, one soluble in water and unaffected by alkalis, the other soluble in alcohol. The roots should be washed in water as long as the washings are coloured, and then exhausted with alcohol.

Paper soaked in potassium sulphocyanate or ferrocyanide may be used for the detection of iron.

Paper containing starch moistened with a solution of potassium iodate in oxalic acid, and dried, is turned blue by bodies which act as reducing agents, such as sulphurous acid, hyposulphites, sulphuretted hydrogen, potassium sulphocyanate, ferrous oxide, cupric chloride, potassium iodide, and similar bodies.

For oxidizing bodies a starch paper with potassium iodide may be used. To keep such paper unchanged, a lighted sulphur match should be held in the bottle in which the paper is preserved before closing the stopper.

The author also recommends the following test-papers :—For ammonia-gas: paper soaked in mercurous oxide solution. For sulphuretted hydrogen and alkaline sulphides: acetate of lead paper; filter-paper soaked in cobalt chloride; polished visiting cards known as "Polka papier;" paper painted with bismuth white.

For metals which give black precipitates with sulphuretted hydrogen in acid solution, washed sulphide of zinc precipitated from the acetate is smeared on writing paper and dried. Any mineral acid decomposes the sulphide of zinc, setting free sulphuretted hydrogen, which immediately precipitates the metals present.

The violet assumed by litmus in the titration of solutions which do not contain carbonates is due to the carbonic acid contained in the litmus itself. If this be expelled by acidifying with dilute sulphuric acid and then boiling for some time, the litmus, after treatment with baryta water, changes from blue to red without any intermediate violet. In titrations with litmus, if the final colour is to be blue, blue litmus should be added first; if red, the red solution must be used. In this way all errors arising from the litmus itself may be avoided.

* *Journal of the Chemical Society*; from the Zeitschr, f. Anal. Chem. xii, 368—372.

ELIXIRS OF CINCHONA.*

BY HANS M. WILDER.

Being a member of the American Pharmaceutical Association, I consider it my duty to conform to its formulas (*Amer. Jour. Phar.*, vol. xlvi., p. 83), although I had my misgivings about the stability of these elixirs, having made at different times similar trials. After about nine months' experience I have given it up, being tired of filtering and refiltering the elixirs at intervals of two to three weeks, and have returned to my old formulæ, using, however, the simple elixir as corpus.

Elixir Cinchonæ.

Cinchoniæ sulphat., ... grs. xvi
Quiniæ sulphat., ... grs. viii
Dissolve in
Elixir. simpl. (Amer. Pharm Asso.) . Oi
Color with
Tinct. cudbear (1-8),
Caramel, ... *aa.* mxxx.
Mix, let stand for a week, and filter.

When first made it is beautifully clear, but soon gets turbid; by letting it stand for eight to ten days, and then first filtering, it will keep clear for quite an indefinite period.

It is stronger than that according to the American Pharmaceutical Association, which contains at the most twelve grains of the alkaloidal sulphates (one pint contains 22 fluidrachms of tinct. cinchon, U. S., which is equal to $4\frac{1}{8}$ drachms of the bark, = about five grains of the crystallizable alkaloids, = nearly 12 grains of the sulphates.) While my elixir is strong enough to produce a decided impression on the system, it is not so bitter that it becomes unpalatable.

Elixir Cinchonæ Ferratum.

Ferri pyrophosph., ... ʒii, grs. viii
Dissolve in
Aquæ. bullient, ... ℥i
Mix with
Elixir. cinchonæ, ... fʒxv
M.

Elixir Cinchonæ Comp.

Tinc. serpentariæ, ... ʒiii
Elixir. cinchonæ, to . . . . . Oi
M.

* From the American Journal of Pharmacy.

Elixir Cinchonæ Comp. Ferratum.

Ferri pyrophosph., . . . ʒii, grs. viii
Aquæ bull., ... ʒi
Elix. cinchonæ comp., . . . fʒxv
M.

Elixir Rubrum.

Elixir simplex, ... Oi
Tinc. cudbear (1 to 8), . . q.s. (about ʒi–ʒii)
M.

Philadelphia, First month 16, 1875.

NOTE BY THE EDITOR.—The arguments in favor of the formulæ for elixirs, as recommended by the Pharmaceutical Association, are:

1. That the names indicate the true composition; and,
2. That, the simple elixir being kept on hand, they may all be readily prepared extemporaneously.

ANILIN INKS.

The editor of the *American Journal of Pharmacy* translates from *Dingler's Journal* the following particulars relating to the preparation of anilin inks:

C. H. Viedt objects to the use of fuchsin and other anilin colours, which are insoluble in water, and recommends the employment of such colors only which are soluble in water. Such inks do not require the addition of gum arabic or dextrin, except for slow and heavy writers, and should be so far diluted that the writing, when dry, is free from the metallic lustre of the anilin colors. The author recommends the following proportions:

For *red ink*, dissolve 1 part of diamond-fuchsin in 150 to 200 parts of boiling water.

For *blue ink*, take 1 part of bleu de nuit (anilin blue, soluble in water) to 200 or 250 parts of boiling water.

For *violet ink*, which is very extensively employed, 1 part of the color is dissolved in about 300 parts of water. This ink is very easily affected by ordinary black copying ink, a pen containing some of the latter rendering the former at once very pale and granular.

Green anilin ink is the handsomest, but also the dearest, of all anilin inks. It is prepared by dissolving one part of so-called iodine green, which is soluble in water only, in 100 or 110 parts of boiling water. The writing is of a blue green colour; if a more yellowish-green shade is desired, a little picric acid should be added.

Yellow anilin ink cannot be recommended. A solution of 1 part of picric acid in 120 or 140 parts of water is better and cheaper.

NOTE ON LINIMENTUM SAPONIS.*

BY CHAS. HEYLMANN.

Much annoyance is annually experienced by the apothecary whose habitation does not lie directly under the sun's rays at the equator, by the instability of the officinal soap liniment. As soon as the cold season sets in, the fluidity of this preparation is invariably changed to a semi-solid, due to the fact that part of the soap employed is thrown out of solution by the fall in temperature, presenting an unsightly pharmaceutical preparation. This will always remain so, as long as the pharmacopœia directs that an olive oil soap be dissolved in a menstrum composed of 32 parts of alcohol and 6 parts of water.

The Pharmacopœia Germanica has partially overcome the difficulty of solidification by directing the employment of dilute alcohol, but it is very questionable whether or not this strength of spirit in the preparation does not modify its medicinal value as a liniment. There is no doubt but that a strong alcoholic menstruum is a more efficient rubefacient than a weaker strength, therefore such a reduction in the strength of the spirit is not advisable on this account. Much has been said regarding the purity of castile soap, and this has often been quoted as the cause of the difficulty regarding the preparation. Be this as it may, it matters little whether the quality of the soap be a pure olive oil soap or not, as neither will be soluble in the menstruum as directed by the U. S. Pharmacopœia whenever the temperature falls below that of 60° Fahr.

Therefore it becomes us to seek a remedy, not in the solvent, but in the soap. This subject presented itself in this light to me some twenty years ago, when I began to look about for a soap which had not the objectionable feature of insolubility possessed by olive oil soap. After much experimentation with different vegetable oils, I at last came upon castor oil, which presented itself by the fact of its ready solubility in stronger alcohol. A soap was accordingly prepared from this oil by saponifying it with caustic soda, one part of caustic soda being dissolved in four parts of water and about five parts of castor oil, this being sufficient to fully neutralize the sharpness of the alkali. The soap thus formed answered the purpose most admirably, and from that time to this I have never employed any other soap in preparing the *spiritus linimentum saponis*. I have during these many years fully tested the preparations thus made, and have not observed the least sign of congealing or even getting turbid at—20° Fahr., thereby recommending itself for use in the coldest climates. A soap prepared from almond oil retains its fluidity until the temperature has fallen to 27° Fahr.,

*From the Chicago Pharmacist.

when it begins to congeal. A soap made from this oil may also be objectionable on account of its high cost.

Within a few years the use of castor oil soap has been suggested by Charles H. Clark and L. E. Sayre, who have called the attention of the profession through the medium of the pharmaceutical journals, to the use of this body for the preparing of the officinal spirit and liniment of soap. I have, by experience, found that the following process for making the soap is much better than that at first employed: It consists in first forming a potash soap, by heating a solution of caustic potash (one part potash dissolved in six parts of water) with five parts of oil, stirring until a perfectly transparent, *not milky*, solution is formed; to this is now added a saturated solution of chloride of sodium, whereby the soap is changed from a potash to that of soda soap. Stirring it to be continued until the mixture has begun to cool, then allow to subside for a day and decant off the supernatant solution of the chloride of potassium, and the surplus of the uncombined alkali from the finished hard soap, which can be cut into pieces of a suitable size and laid aside to dry.

The quantity of chloride of sodium necessary for the decomposition of the potash soap is about five parts of chloride of sodium to every four parts of caustic potash used in making the potash soap.

CHICAGO, January, 1875.

ON SYRUP OF FERROUS PHOSPHATE PREPARED FROM METALLIC IRON.*

BY H. WILLIAMS JONES.

The British Pharmacopœia directs syrup of phosphate of iron to be made from precipitated phosphate, and so far as I am aware, all published formulæ for the syrup direct precipitated ferrous phosphate to be used. Since phosphate of iron precipitated from mixed solutions of sulphate of iron and phosphate of soda is extremely difficult to wash and very liable to oxidation, as all know who manipulate it, it occurred to me to prepare the phosphate direct from metallic iron by means of phosphoric acid. By this means a syrup is obtained which keeps remarkably well, which is quite free from the usual impurities arising from imperfect washing of the phosphate, which contains the phosphate of iron in an unoxidized condition, and which requires less free acid to keep it in solution. Further, the personal attention required in the preparation of the syrup by this means is much less than required by any other process.

To prepare the syrup, cover the bottom of a jar or bottle, fitted

*From the Pharm. Jour. & Trans.

with a cork, with coarse pure iron filings, and pour phosphoric acid of about twice the strength of the diluted acid of Pharmacopœia. Fit in the cork somewhat loosely, and let it stand for four or five hours. Action commences almost immediately, ferrous orthophosphate ($Fe_3P_2O_8$) is formed, and kept in solution by the free acid present. The hydrogen eliminated forms a hydrogen atmosphere in the jar, and prevents oxidation of the phosphate. At the end of the time named, the action will somewhat have ceased, and an acid solution of phosphate of iron will have been formed. To determine the proportion of iron in the solution, filter off 10 *c. c.*, and titrate immediately with bichromate (B. P. solution) after the addition of hydrochloric acid and water. Each c. c. of bichromate = ·0358 gram $Fe_3P_2O_8$. If the operation has been properly conducted the iron will all be present in the ferrous state, so that the bichromate will give the total iron present. Having found out how much is contained in 10 c. c. we have only to multiply the number of grams found by 5·4, when we have the number of grains of phosphate present in each fluid drachm of the liquor. Filter the remaining liquor, which, when poured off the iron, runs through paper quickly, and add sufficient syrup so that each fluid drachm shall contain 1 grain of phosphate of iron. If an acid of the strength named be left on the iron for five hours, more strong acid must be added to the syrup till it acquires a decidedly acid taste, when it will keep well. If it be considered a matter of importance that a definite amount of free acid should be present, note the sp. gr. of the original acid and calculate the amount of phosporic acid removed by the iron. With an acid of known sp. gr., and, therefore, of known percentage of phosphoric acid, the bichromate solution gives with little calculation (1) the amount of phosphoric acid removed by the iron, and (2) the amount of free acid in the solution. The required quantity of acid can then be added. The Pharmacopœia syrup is much too acid, and 15 minims of acid. phosph. dil. in the drachm will be found quite enough, and the syrup will keep well with 12 minims. If the process be well conducted no phosphate of iron will be lost by the precipitation. A solution seven times the strength of the syrup can be readily formed, which when mixed off with syrup forms an elegant preparation.

A NEW POULTICE.*

The time-honoured linseed-meal poultice seems to be about to be superseded by as cleanly and efficacious a substitute as the Rigollot papers which have so recently displaced its old companion-

* From the Medical Times and Gazette. Reproduced in the Pharm. Jour. & Trans.

in arms the mustard-poultice. M. Lefort, reporting to the Academie de Medecine on a new form of cataplasm invented by M. Lelievre, speaks in the highest terms of its excellence. It is prepared by saturating two superimposed layers of wadding with a solution of *Fucus crispus*, and drying them in a stove after they have been submitted to strong pressure. In this way a sheet of the consistence of cardboard is produced, a portion of which is cut off when wanted, and soaked in hot water for fifteen or twenty minutes; this swelling it out and filling its tissue with a mucilaginous fluid. It has been tried in several of the hospitals to the great satisfaction of both patients and attendants. It can be prepared in large quantities beforehand, as when it has once been dried it will keep for a long time withont undergoing any alteration.

M. Gosselin said that he had tried this cataplasm, and could speak as to its utility. When covered by an impermeable tissue, it does not dry up like other poultices, and especially it does not slide off from the part on which it is put, being sufficiently adherent to prevent its becoming displaced. M. Verneuil said that he had used it for several months in his wards, and had found it a most convenient application, for it can be cut and fashioned into any form or size desired. After being swollen out by soaking in warm water, it may remain in that state for twelve, eighteen, or even twenty hours; and after twelve hours it is as fresh as when first put on; so that it does not require renewal every five or six hours, like linseed-meal. It does not give rise to any bad smell, becoming at last only slightly acid. It neither softens nor crumbles; and as it does not soil either the parts or the linen, etc., it comes in contact with, it secures an amount of cleanliness that is of great importance. It is also economical, as it enables compresses and poultice-cloths which are so often badly washed and badly whitened, to be dispensed with. This latter point is also of importance as regards preventing the infection of wounds. M. Larıy believes that this emollient *fucus* is likewise to be of valuable service as a cataplasm in military service for hospitals and ambulances, by reason of its ready transport and facility of conservation. M. Demarquay, who has frequently employed these cataplasms, agrees with M. Larry that they will prove very useful in ambulances, taking up so little room and keeping so well. M. Leroy de Mericourt believes that these cataplasms will be of great service in the navy. On board a ship it is usually impossible to wash poultice-cloths, while, as linseed-meal cannot be preserved, poultices have to be made of biscuit-dust, which produces very bad poultices. The inventor is of opinion that when his cataplasms are produced on a large scale they will be cheaper than linseed-meal poultices.

Editorial.

THE QUEBEC PHARMACY ACT OF 1874.

We have received, from Quebec, a copy of the Act which passed during the last session of the Legislature, and which is now in force in the Lower Province. The Act is one of amendment, affecting the measure passed in 1870, by which the Pharmaceutical Association of the Province of Quebec was incorporated.

The opening sections of the Act confirm certain portions of the former Act which relate to the formation and establishment of the Association; provide for such alterations in the by-laws as may now be necessary; and fix the conditions under which persons at present in business may be admitted. All persons who furnish satisfactory evidence of their being actually engaged as chemists and druggists, on their own account, at the time of the passing of the Act, are entitled to registration as "Licentiates in Pharmacy;" clerks or assistants who have been so engaged, for not less than five years before the passing of the Act, may, upon passing a satisfactory examination, be registered as "Certified Clerks," but need not go through the regular course of study, and other preliminaries required of those who have had less than five year's experience. For the latter class of persons, as well as those who may be desirous of entering the business, the following course is laid down:—Every youth before he is taken as an apprentice by a Licentiate in Pharmacy, must produce satisfactory evidence of a good moral character, and pass a preliminary examination in the English, French, and Latin languages, and in arithmetic. He shall then be entitled to registration as a "Certified Apprentice," and shall pay to the Registrar a fee not exceeding the sum of two dollars per annum. In due course he may present himself for the minor examination, which embraces the translation and dispensing of prescriptions; pharmacy, chemistry, especially the chemistry of poisons, posology, and materia medica; and if showing a sufficient knowledge of these subjects may be registered as a "Certified Clerk," and shall contribute to the funds of the Association an annual fee not exceeding five dollars. Before entering into business on his own account, the clerk must pass the

Major examination, which embraces the subjects taken under the Minor, but a more extended knowledge of pharmaceutical chemistry and materia medica, as well as a certain proficiency in botany, will be required. The candidate must also produce evidence of having served four years in a drug store, and of having attended two courses of lectures on chemistry, two on materia medica, and one on botany. If these conditions are complied with the candidate may be registered as a "Licentiate in Pharmacy," and shall pay a fee not exceeding ten dollars per annum.

The amount of the several fees is, within the above limits, left to the discretion of the Council, and we believe that at present it has been concluded that one-half the maximum sum is to be exacted. The fees become due on the first day of May in each year, and those in arrear in the following July lose all privileges conferred upon them by the Act, and their names are dropped from the register, but they may be reinstated if, before the succeeding October, they pay the fees due, together with a fine of five dollars.

Authenticated certificates of examination, by duly appointed medical or pharmaceutical boards, may be accepted in lieu of the examinations required by the Act.

The Annual meetings of the Association are to be held alternately, in the cities of Montreal and Quebec, on the second Tuesday in June, or such other day near thereto as may be determined by the Council.

Sections 15 to 20 relate principally to the dispensing of poisons. On and after the first day of May in the current year, it shall be unlawful for any person except those registered under the Act, to sell or dispense certain poisons named in a schedule—Arsenic and preparations, prussic acid, tartar emetic, metallic cyanides, aconite and preparations, opium and preparations—except paregoric and syrup of poppies; essential oil of almonds unless deprived of prussic acid, corrosive sublimate, cantharides, savin and its oil, ergot of rye and preparations, strychnine, and all poisonous vegetable alkaloids and their salts. All sales of these substances must be entered in a book, and are subject to like restrictions to those in force in this Province, the only difference being that the articles must be labelled with a *black* label, on which the name and also the word "poison" are distinctly marked.

It is declared unlawful for any registered pharmacist to employ

any clerk, or apprentice, in any shop or store in which poisons are sold, except such clerk or apprentice be registered as required by the Act. Any person who falsely represents himself to be registered, or engages himself as a clerk or apprentice, without having previously complied with all the conditions which we have noted, is liable to a fine.

The penalties of the Act are, for unregistered persons selling poisons, a fine not exceeding fifty dollars and costs ; for false representation, or the sale of unlabelled poisons, or poisons sold without being entered in Poison book, a fine not exceeding twenty-five dollars and costs. Offenders may be prosecuted by the Association, or by individual persons. Penalties with costs are recoverable on the oath of any one credible witness, before a Recorder or Justice of the Peace, in the district in which the offence has been committed ; and may be collected by distress ; or, in default of sufficient distress, the offender may be imprisoned for a period not exceeding ninety days, or until the fine and costs be paid. Penalties imposed under the Act shall belong to the Association.

A proviso, exempting physicians from registration, forms the closing section of the Act. The wording is the same as in our Ontario law, but we hope that in the interest of physicians, pharmacists, and patients, the time will shortly come when all parties interested will agree to the abrogation of this remnant of antiquity.

SPURIOUS SENNA.

Mr. E. M. Holmes, curator of the Museum of the Pharmaceutical Society of Great Britain, recently read a paper, at an evening meeting of the Society, describing a new variety of Senna which had appeared in the London Market. Although only two bales of this senna, had, so far, been imported, he understood that the enormous quantity of two hundred tons had been consigned to the London agent, and would probably arrive before long. Examination of the leaves showed them to belong to a leguminous plant, possibly to the genus *Cassia*, but as this genus is an extremely large one, Mr. Holmes forwarded the specimen to Professor Oliver, who identified it as probably belonging to *Cassia brevipes*, D. C., a native of Costa Rica and Panama. A further examination of another sample con-

taining some flowers and young twigs, confirmed this conclusion.

The plant is distinguished from its congeners of the sub-genus *Chamœcrista* by its short, very hairy pod, with the hairs golden yellow and not appressed. The leaflets are about one and a quarter inches long, elliptic in outline, the lower margin being less curved than the upper,) and mucronate at the apex. The venation of the leaves is characteristic and affords the most ready means of distinguishing between the spurious and officinal kinds. In *C. brevipes* three principlal veins, diverging but slightly, proceed from the base to nearly the apex of the leaves; each of these veins is branched, pinnately, at a very acute angle, so that the leaflet appears to be furcate-veined.

In order to test the medicinal power of this so-called senna, Mr. Holmes took an infusion of one quarter of an ounce of the leaves but no purgative effect followed: nor had double this quantity the slightest effect. Hence, he concludes "that this new variety of senna is useless as a purgative, and can by no means replace or enter into competition with the officinal senna, even if it should be offered at a much lower price; and that should it, hereafter, occur mixed with ordinary senna, it must be looked upon as an adulteration.

When the two hundred tons of this senna, said to be on its way to London, arrives at its destination, it is probable that it will not meet with a very ready sale, as the dealers will be forwarned, and the consignment—which by the way is double the amount of the entire annual importation of East India senna—may find its way to other markets, possible on this side of the Atlantic, and on this account we have given a more than ordinary prominence to this editorial note.

CINCHO-QUININE.—At the request of Messrs. Billings, Clapp & Co., manufacturers of Cincho-Quinine, we publish the accompanying card. We may say that there has been a great deal of controversy in regard to the composition of this article. In 1870 Mr. Wenzell, of California, made an analysis, from which he concluded that cincho-quinine was merely cinchonine. This conclusion has also been arrived at by Mr. A. E. Ebert, of Chicago, who, at the

last meeting of the American Pharmaceutical Association, read a paper upon the subject, and denounced the medicine as a fraud. On the other hand, however, we have seen the reports of several analyses made by professional chemists, whose ability and probity cannot be doubted, and these all go to prove that cincho-quinine is what its manufacturers represent it to be. In view of this conflicting evidence, and as we have no experience of our own to guide us, we leave our readers to form their own conclusions, and, in justice to Messrs. Billings, Clapp & Co., publish, with pleasure, the following statements :—

Chemical Laboratory of the University of Pennsylvania,
West Philadelphia, January 29, 1875.

MESSRS. BILLINGS, CLAPP & CO.

GENETLEMEN,—I have received by express a package marked, "Sealed by S. P. Sharples, January 22, 1875," and containing a bottle of Cincho-Quinine with the label of James R. Nichols & Co., Chemists, Boston, which I have tested, and have found it to contain *quinine*, *quinidine*, *cinchonine*, and *cinchonidine*.

Yours respectfully,
F. A. GENTH,
Professor of Chemistry and Mineralogy.

Laboratory of the University of Chicago,
Chicago, February 1, 1875.

I hereby certify that I have made a chemical examination of the contents of a bottle of Cincho-Quinine, and by direction I made a qualitative examination for *quinine*, *quinidine* and *cinchonine*, and hereby certify that I found these alkaloids in Cinho-Quinine.

C. GILBERT WHEELER,
Professor of Chemistry.

WANTED.

A few copies of the first number of the Journal, old series (May, 1868), and of the first number of the new series (August, 1871). For copies of each of these fifty cents will be paid. Address PHARMACEUTICAL JOURNAL, Box 1133, Toronto.

Editorial Summary.

METHOD OF MAKING SUPPOSITORIES BY HAND.—Mr. G. W. Kennedy—who is a strong supporter of hand-made suppositories, and who, at the last meeting of the American Pharmaceutical Association, read a paper in advocacy of the method—contributes to the *American Journal of Pharmacy* a second paper in which he deprecates the practice of purchasing ready-made suppositories, and also describes his particular method of manipulation which he has found attended with most success. His directions are as follows :—Take of cacao butter a sufficient quantity, powder in a wedgewood mortar by first striking the butter gently until it is broken up into quite small pieces, a little care being required so as not to strike too hard, otherwise the friction produced would have a tendency to soften the butter, making it a little more difficult to manipulate ; then add the medicinal ingredient. and rub all together, forming a plastic mass to be rolled out into a suitable length, and cut up into as many pieces as suppositories have been directed, each piece to be formed by the fingers and a spatula into a conical shape. It is advisable to sprinkle a little lycopodium over the fingers to prevent contact of heat from the fingers, which would soften the mass during the necessary manipulation. If made in winter, when cacao butter is much harder, by the addition of one drop of glycerin to each suppository, a mass can be formed in a much shorter time.

OCCASIONAL INCOMPATIBILITY OF DILUTED PHOSPHORIC ACID AND TINCTURE OF CHLORIDE OF IRON.—In answer to a query proposed by the American Pharmaceutical Association, Mr. L. Dohme, (*Proc. Am. Pharm. Assoc.*) detailed the results of a number of experiments made in order to determine the reason why some samples of diluted phosphoric acid form precipitates with tincture of chloride of iron, while others do not. He comes to the conclusion that this effect is due to the presence of pyrophosphoric acid. With acid prepared from glacial phosphoric acid and nitric acid, as in the second U.S. formula, the precipitate was generally produced, and is attributed to the incomplete conversion of the meta and pyro acids into the tribasic form. On this subject, however, the author promises further investigation. Acid prepared directly from phosphorus was found miscible in all proportions, with tincture of chloride of iron, provided the precaution was taken not to carry the concentration too far, or rather not to employ a greater heat than 450° F. in that operation.

SOLUBILITY OF THE ACTIVE PRINCIPLES OF RHUBARB IN WATER AND ALCOHOL.—In order to determine whether water will exhaust rhubarb of its active medicinal constituents, Mr. Heinitsh (*Proc. Am. Pharm. Assoc.*) instituted a number of experiments and found that rhubarb thoroughly exhausted with water, dried, and then exhausted with alcohol, yielded to the latter menstruum an extract, which, when administered in pilular form, produced, in three grain doses, laxative effects, and in six grain doses proved an active purgative. This proves, conclusively, that water is not a suitable menstruum for rhubarb, or at all events, that a thorough exhaustion of its active medicinal principles cannot be effected with this liquid.

PULV. PIL. HYDRARGYRI.—In answer to a query as to the best method of preparing a mercurial powder to fully represent the officinal (U.S.) blue pill. Mr. J. F. Hancock, (*Proc. Am. Pharm. Assoc.*) proposed the following process. Mix in a mortar 384 grains of mercury with 200 grains of sugar, add sufficient syrup to form a paste and triturate until the mercury is thoroughly extinguished. Place the mortar containing the powder in a dry room, and expose to the air, with occasional stirring, until the moisture has been dissipated; add sugar until the powder weighs 1152 grains. Continue the exposure, with occasional stirring, for ten days when the powder will be ready for use.

ARTIFICIAL VANILLINE.—At a recent meeting of the Chemical Section of the Lyceum of Natural History, New York, Mr. Amend exhibited a specimen of artificial vanilline, received from Germany. It will be remembered that this new product was discovered by Mr. MM. Tiemann and Harmann, (see this Journal, October, p. 79.) The vanilline has already become an article of commerce, and commands a price of about $2.50 per ounce.

Students' Department.

Answers to the following questions must be sent in so as to be received by the editor before the twentieth of each month. Competitors must be engaged in the drug business, not being proprietors or having passed examination, and must furnish, with the answers sent, their real names and addresses. Answers to each of the questions must be written on *separate sheets* or slips of paper, and must be followed by the name and address of the competitor. It is trusted that all answers sent will be the *bona fide* work of competitors, and that no assistance will be sought except such as is afforded by books. Any attempt to copy *verbatim*, or in part, from any published work, will impair or altogether nullify any value which might otherwise have been assigned to such answer.

The same competitor may not carry off more than one First Prize and one Second Prize during the term of six months.

Answers requiring calculation and involving fractions must be given in decimals, which need not be carried beyond the third place.

The following books are offered this month as prizes:—

Successful competitors may select from any of the above works, and, on notifying the Editor, the book selected will be forwarded by post.

All communications to be addressed, E. B. SHUTTLEWORTH, Box 517, Toronto.

QUESTIONS.

1. *Chemistry.* (*a*)—If 10 ounces of water, temperature 212° F., be quickly agitated with 10 ounces of olive oil, temperature 40° C., what will be the temperature (centigrade) of the resulting mixture? (*b*) What is the temperature of water boiling in a closed vessel in which the pressure of the confined vapor equals that of ten atmospheres? (*c*) Describe the method of estimating the specific gravity of a solid, as potassium.

2. *Pharmacy.*—Describe the main points of difference between the British and U. S. officinal methods of conducting the process of percolation; state the advantages or disadvantages attending each.

3. *Materia Medica.*—Enumerate and give the doses and medical properties of the acids and metallic salts of the British Pharmacopœia.

4. *Botany.* (*a*) Give the leaves officinal in the B. P.; name the plants to which they belong, and give the class, order, tribe, genera and species. (*b*) Give office of starch deposited in seeds, and state the difference in this deposit in the bean and corn.

5. *Dispensing.*—Give the ingredients, and quantities of each that are necessary to be used in making one ounce of Balsam of Copaiba into eight ounces of emulsion. Describe, precisely, the method of manipulation.

6. *Prescriptions.*—Translate the following prescriptions into full Latin, and point out any errors relating to solubility, compatibility, posology, &c., which may be discovered :

Tannic Acid.....	one drachm.
Chlorate of Potash ..	two drachms.
Tincture of Iron.....	two drachms.
Tincture of Opium ...	one drachm.
Honey	one ounce.
Water	sufficient to make eight ounces.

Make a gargle, of which the patient may use a tablespoonful every two hours.

LAST MONTH'S QUESTIONS.

1. *Chemical Action of Light.*—The answers given to this question were, generally, very imperfect. A careful consideration of the subject shows five distinct points of inquiry. In regard to the first of these—the enumeration of several chemicals which, without foreign admixture, are sensitive to the action of light—tolerably full answers were returned, though some students evidently mistook the action of the air for that of light; as in the transformation of some proto into per oxides. Another error was that of instancing nitrate of silver as being sensitive; the pure salt is not discolored by exposure; it is only when organic matter, as dust, is present that any change takes place. We have preserved, for many years, the crystals enclosed in a glass vessel, exposed to diffused sun light, and no evidence of discoloration has followed. Some other salts of silver are, however, very quickly affected. The *chloride* darkens rapidly, and loses a portion of its chlorine, the violet subchloride being formed. On this change the art of photography on paper is, in great part, based. *Iodide of Silver* is very sensitive, but the nature of the change is not well understood. The salt does not appear to be changed in chemical composition. Photographs on glass, or, more correctly, on the collodion film, are executed through the agency of the iodide, or iodide and bromide of silver. The darkening of *fused nitrate of silver* is principally to be attributed to the oil used for greasing the moulds in which the caustic is cast; occasionally to the presence of chloride of silver added for the purpose of rendering the sticks less brittle. *Green iodide of mercury* is decomposed into red iodide and metallic mercury; the red iodide is also slightly affected in colour. *Suboxide of mercury* slowly changes into the red oxide and metallic mercury. *Calomel* becomes grey by exposure; perhaps by the formation of corrosive sublimate and mercury, the formation of oxide, or subchloride. *Iodide of Ammonium* changes through various shades of yellow to brown. *Santonine* undergoes similar changes, said to result from decomposition into

photo-santonin, formic acid, and other products. *Chloroform* rapidly decomposes, other chlorinated compounds being formed. *Hydrocyanic* acid is sensitive to light, but is also decomposed when the light is carefully excluded. These few examples will suffice to show the decomposing agency of light, and will also give some idea of the nature of these changes, which are, in general, effected on chemicals which are otherwise prone to change, or whose constituents are, as it were, loosely held together.

There can be little doubt that these changes would be retarded, or altogether prevented, by the use of colored bottles; and in all probability, yellow, or orange glass would be best suited to the purpose. It is true that it is customary to use bottles of a blue color, and most of our students have come to the conclusion that as blue glass *appears* to admit less light than any other the selection is a good one; but when we come to look into the question more closely, and inquire into the nature of light, we may find, that not only is this conclusion incorrect, but that, in most cases, blue glass is possibly the worst that could be employed. A few remarks on this subject may not be amiss.

If, through a slit or hole in the shutter of a darkened room, we admit a ray of white light—ordinary sunlight—and allow it to pass through a glass prism, we find that the ray is bent or deflected from its course, and that upon the opposite wall, or upon a white screen properly placed, a coloured image, or *spectrum*, is produced. The prism has analyzed the beam of whole light and split it up into various rays of different colors. At the lowest portion of the spectrum (or if the prism be reversed, at the upper portion,) we find a band of red, and ascending we pass through orange, yellow, green, blue, indigo, and violet. Newton termed these the seven primary colors, but half of them are produced by the overlapping—if we may be allowed the term—of intervening rays—as the red and yellow producing orange, or the yellow and blue producing green—we may assume that the spectrum is composed of but three primary colors, red, yellow, and blue. If, by means of a second prism, or lens, we reunite these elementary colored rays we find that the ray of white light is reproduced. This proves conclusively that sunlight, or any other white light, is compound or *heterogeneous* in its character. It is now interesting to know what are the characteristics of the *homogeneous*, or primary rays, and to this end we must consult the spectrum. If we hold the bulb of a thermometer in the various colored spaces we find that the mercury, or spirit, is, in some places, more affected than in others; and that the greatest rise in temperature takes place when the bulb is in the space, or a little below the space, occupied by the red rays; while at the other end of the spectrum there appears to be little or no sensible heat. It is therefore evident that the centre of calorific power is in the red ray. By an appropriate experiment it can also be shown that the maximum

of luminosity, or illuminating power, is in the yellow ray, decreasing with greater or less regularity toward either end of the spectrum. There still remains to be estimated another power or force—that of the chemical agency exercised by light. Many experiments might be shown in order to demonstrate this, but one of the most conclusive is that of receiving the spectrum upon a paper rendered sensitive to light by being washed with a solution of a salt of silver. We have thus a photograph of the image, and have at once an evidence of the chemical, or *actinic*, power of the rays. The greatest effect is obvious at the violet end of the spectrum, or a little beyond it, while the intensity decreases towards the other end—in the yellow space amounting to almost nothing. If, however, in the case of a particular salt of silver, we say that the maximum of chemical force is a little beyond the violet, it does not necessarily follow that the same will be observed with other salts of silver, or other sensitive substances. We find the rule will not exactly apply, as every substance appears to reach its maximum of sensitiveness in a different part of the spectrum; but, as far as we are aware, this deviation never extends beyond the blue rays, and seldom out of the violet. Hence we see that blue glass—which allows the blue ray to pass—is the worst that can be employed for the protection of sensitive chemicals, while yellow or orange glass transmits light which is almost or quite without chemical effect.

Some of our inquiring young friends may wonder why we say that in most cases the greatest calorific and actinic power is manifested beyond the visible spectrum. This is the fact, and though by the ordinary way of exhibiting the spectrum, it appears to commence with the red and end with the violet, or the reverse, there are means of rendering visible these outside rays. The *extreme* red ray may be seen by receiving the spectrum upon paper stained by a solution of turmeric; and the extreme violet ray, by holding in the space a tube containing a solution of sulphate of quinine, when a peculiar blue diffused light makes its appearance at the surface of the liquid.

We have enlarged on this subject in the hope that the minds of some of our young friends may be turned to a consideration of the nature and properties of light, and the science of optics. The study of these subjects forms one of the most delightful recreations which can be afforded, and is very instructive withal. In our youthful days this was one of our favorite studies, and we can well recall the time when, after cutting up some dozen or so of chandelier crystals, and thus securing a prism of fair perfection, our joy was almost as great as when we triumphantly mounted a pair of lenses in a brown paper tube (formed on a rolling-pin), and so made our first telescope. Although these instruments have been many times superseded, and the once valued prism has been replaced by others in which the striæ and other imperfections have been reduced to a minimum, the pleasure in these subjects continues unabated. By engaging in these

pursuits our young friends will find as much recreation and relief from study as in those pleasures of a more harmful and vastly less uninstructive character. E. B. S.

ORDER OF MERIT.

Maximum Number of Marks = 60.0.

No	NAME.	Chemistry.	Pharmacy.	Materia Medica.	Botany.	Dispensing.	Prescriptions.	Total.
1	"Ether," Toronto	10	10	10.0	9.8	4	10	53.8
2	C. McMichael, Hamilton	8	10	10.0	9.3	6	7	50.3
3	A. J. Thompson, Strathroy	9	10	8.5	9.0	5	7	48.5
4	R. McCormick, Ottawa	10	8	10.0	8.5	8	3	47.5
5	W. W. Stephen, Meaford	5	10	9.4	10.0	8	5	47.4
6	H. C. Goodman, St. Cath	3	9	9.5	9.7	8	7	46.2
7	R. N. Thurtell, Guelph	7	10	9.6	9.5	4	5	45.1
8	"Plumule," Ottawa	3	10	10.0	10.0	6	5	44.0
9	G. Graydon, St. Catharines	3	7	8.0	9.3	8	7	42.3
10	E. D. Martin, Milton West	5	9	7.5	8.0	6	6	41.5
11	D. B. Mills, St. Catharines.	7	p.c.	8.7	9.2	8	7	39 9
12	"Kino," Cobourg	—	6	10.0	10.0	6	7	39.0
13	H. Aldridge, Hamilton	4	8	9.0	5.0	2	10	38.0
14	J. Douglas, Owen Sound	4	10	6.0	9.8	8	—	37.8
15	J. H. Mackenzie, Mt.Forest	6	c	10.0	9.5	5	7	37.5
16	C. J. Daniels	3	10	7.3	6.5	0	7	33.8
17	J. W. Brown, Morrisburg	1	8	5.0	6.8	4	7	31.8
18	"Fluorine," Peterboro	1	7	7.0	6.5	2	7	30.5
19	H. Jarmuth, Mitchell	2	2	4.8	6.5	5	6	26.3
20	G. Maclagan, Lindsay	10	10	10.0	9.8	*		

The first prize is awarded to Mr. Henry A. S. Turner, ("Ether") Toronto; the second prize to Mr. C. McMichael, Hamilton.

* By an omission, the rating of two answers sent by Mr. Maclagan, cannot be given, but will appear in next number.

Dispensing.—Most of the answers in this department are substantially like the following:—"Just make the one arm that is light heavy enough to balance with the heavier one." This (which is very neatly written, and is marked higher on that account) although correct enough for very many practical purposes, misses the real difficulty altogether. It sometimes happens that the *heavy* arm of a balance is also *longer* than the other. In that case, although the arms may be made to balance whilst the scales are unloaded, the cause of error will not be removed, but only modified, and the weighing will be still incorrect. The method of *double weighing* removes all difficulty. Put the substance to be weighed into either of

the pans, and counterpoise it with any material that may be at hand. Then, after removing the substance, supply its place with weights until the scales again balance. This will give the exact weight without error. E. G.

Prescriptions.—The prescription given last month should read as follows :—

Recipe. Potassæ Chloratis ..... drachmas tres.
Tincturæ Ferri Perchloridi. drachmas quatuor.
Tincturæ Capsici. guttas decem.
Aquæ ad uncias octo.....
Misce, et fiat gargarissma more dicto utendum.

The books say that one part of chlorate of potassa is soluble in sixteen of water at 60°, but in practice it will be found that three drachms is about the utmost quantity that can be dissolved in an eight ounce mixture. E. G.

Transactions of Pharmaceutical Colleges and Societies.

MONTREAL COLLEGE OF PHARMACY.

At the monthly meeting of this Association, held on Thursday, 4th inst., Mr. S. J. Lyman read a paper on Fungology, which was listened to with the greatest interest. After introductory remarks, the lecturer alluded to the various theories relating to the origin of life, which have from time to time been promulgated, and passing on to the recent experiments made in order to prove the doctrine of spontaneous generation, the subject of microscopic fungi was naturally suggested. When we made a vegetable infusion, we found after a short time that a fermentation took place, its elements were changed and precipitation followed and its properties were impaired; all this was the result of the growth in the liquid of a microscopic fungus called *Mycoderma Acetum.* The juices of fruits also underwent fermentation from the growth of this fungus. If we examine the vinegar cruet, we shall find a mass of this fungus. A lens will show the plant very distinctly with animals playing among its branches. Vinegar is simply a liquid which has yielded up a portion of its elements for the growth of this fungus. This fungus is the enemy of good wine as is exemplified by the scrupulous care with which the makers regulate the temperature at which the juice of the grape is

kept. The celebrated chemist Pasteur had made many experiments in this direction and had thus acquired celebrity. The speaker went on to say that the clarets we received from France were little more than coloured vinegar of wine with spirit added. One of the most interesting forms of the fungi was yeast, *Fermentum cervisiæ*. Yeast was but a mass of fungi. Its vitality was wonderful; it might be dried and preserved for years, yet a little of its dust served to furnish plants enough to ferment thousands of gallons of liquid. Allied to the yeast fungus and of similar structure was the "Gory Dew" (*Palumella cruenta*); it consists of separate minute cells and belonged to the same family as the red snow plants; its rapid growth and blood-like appearance has often given rise to great alarm where its nature was not understood. One variety attacked bread giving the appearance of spots of blood, another was found in the potato; it might also often be observed in paste. The great enemy of the housewife was the blue mould which appeared in jellies and preserves, known by the name *Penicillum Glaucum*. To remedy this, the proper course to adopt was to cover the preserves whilst hot, to prevent, if possible, the access of the air. If the same system were adopted in putting up syrups, they would be found to keep better and prove more wholesome. The speaker enumerated the fungi and animalculæ which introduced themselves into the human system, often with fatal effect, and then entered into a description of the various orders and divisions of the fungi. There was chicory so largely used for the adulteration of coffee, and which was generally imported in a mouldy state; besides that were certain fungi which attacked wheat, barley, rye and maize, such as smut, mildew, rust and bunt. The farmer was continually propagating smut by feeding pigs with smutty corn, the spores of which were returned with the manure to the soil to reproduce a thousandfold more fungi upon the growing crop. If the diseased corn was burned with the stalk it would prove more profitable to the farmer than feeding his animals with it. Dry rot, which attacked wood and was the cause of so many accidents, was another dreaded fungus; its cause was owing to the wood being improperly seasoned and being confined in a damp close atmosphere, which favoured the germination of spores already existing in the wood. The prevention of dry rot was easily effected; first, by using timber seasoned under cover; secondly, by building walls of houses with a layer of cement or waterproof felt to prevent moisture rising from the earth, also free circulation of the air; thirdly, by infusing into the timber a solution of carbolic acid which was destructive to vegetable life. Milk teemed equally with fungi which were especially developed in feeding-bottles not thoroughly cleansed. A small quantity of milk often remained in the feeding-bottle, which in the warm nursery soon fermented by the growth of the milk fungus. If children could not be provided with the best of all, nature's feeding-bottle, then the artifical one should

be carefully cleansed with hot water and soda each time after it has been used. The lecturer would now come to something more interesting; the fungi which were used as food. The first he would notice was the *Lecanora Esculenta* of Asia; it was not larger than a pin's head; torn from its soil by whirlwinds and tornadoes it was carried miles away. It its travels it absorbed moisture and rapidly grew to the size of a nut ere it fell to the ground miles away from its mountain home. These fungi which fell from the sky formed layers five or six inches deep and afforded a most nutritious food. Their natural soil were the heights of Mount Ararat. There was much prejudice against the mushroom as an article of food, edible fungi being often given the name of toad-stool. This prejudice deprived many of this most delicious food and nutritious of all vegetable foods. Mr. Winder, of Toronto had collected and described 109 varieties of mushrooms indigenous to Canada, of which he had practically tested 37 as most palatable. Mr. Watt of this city had also collected and named a still larger number. At Rome what was called the toad stool was eaten, whereas the market inspector caused to be thrown into the Tiber those species for which so high a price was paid here. Still more singular was the fact that this latter variety, called *Agaricus campestris*, was the only kind admitted into the market at Paris. The speaker had eaten many varieties of mushrooms growing on the mountain, and had found them more digestible, more delicate in flavour and texture than the cultivated mushroom. He enumerated several varieties of mushrooms, such as *Coprinus Consatus* the *Agaricus oreades*, the *Hydnum Repandum*, the *Lycoperdon Giganteum* and the *Morchella Esculenta* (Morel). This famous fungus was found in pine woods and pastures. It was found on our mountains in spring and fall; also in the neighbourhood of St. Ann's and Sorel, and in the hills near Prescott. It was superior to all other fungi in its delicate and appetising flavour. It was more digestible than the truffle and without its sometimes heavy earthy taste. Its flavour was unsurpassed. The truffle was not indigenous to this country, yet it deserved to be mentioned. It was an underground mushroom principally met with in the forests of Picardy and Perigord. One had to guard, however, against poisonous varieties of fungi, such as the False Orange or *Amanita Muscaria*, of which there were several kinds; the Murderer's Mushroom, the Emetic Mushroom, and the Bloody Mushroom. He had also something to say on the cultivation of mushrooms. In Paris, beds were constructed similar in form to hot beds, the foundation being made of droppings from well fed horses. The lecturer gave, at some length, the way in which fementation was brought about into the bed, and explained the modes employed for promoting the growth of the mushroom. At the conclusion of the paper a discussion ensued, in which Messrs. Mercer, Hoffman, Gray, Muir and others took part. After which a unanimous vote of thanks was given to Mr. Lyman, and the meeting adjourned.

Varieties.

LEECHES.—Paris is the best market in Europe for leeches. The mouth of the Danube is now the best fishing-ground, and no less than £120,000 in value of leeches are annually sent to Paris from Trieste. The best leech is said to be a native of Austraiia, as he does his work in a shorter time than any other. The Viceroy of Egypt has granted a monopoly of 3,000,000 leeches annually, which are to be found in the bed of the Nile after the periodical inundation of that river, to a French dealer. On arriving in Paris, those not required for active duty are sent to Gentilly, where they are lodged in reservoirs provided with greasy mud, and filled with greenish water.—*Jour. Soc. of Arts.*

DISCOVERY OF A LOST PLANT.—There has lately come to light a case which will rank among the most curious on record. The mines of Laurium, in Greece, which were worked about 1,600 years ago, are, in a great measure, composed of scoria, or the refuse of ancient mines, which still yields a high percentage of silver. In clearing away a mass of this refuse, a quantity of seeds were discovered, which must have been buried for at least fifteen centuries. Restored to conditions favorable for germination, to the heat of the sun and contact with the air, the seeds gave signs of life, burst their buds, and sent down roots into the earth and threw up stems into the light. When these last had budded and blossomed, lo! a lost species of the genus *Glaucium* (horned poppy) of the order *Papaveraceæ* was revealed. Pliny and Dioscorides frequently describe the flower in their writings with great particularity, as its golden corolla is very beautful; but it has hitherto been unknown to modern science. Now, the plant which had disappeared from the face of the globe for 1,500 years or more is resuscitated by a strange and happy accident.—*Pharmacist.*

CEMENT FOR PORCELAIN.—A quantity of milk is coagulated by acetic acid. The casein is well washed with cold water and disolved in a cold saturated solution of borax. A thick but perfectly clear solution is obtained, which possesses great adhesive power and is quite colourless. In these respects it excels gum arabic. To this adhesive mixture finely-powdered quicklime is added. The broken ware is well rubbed over with the cement, tightly bound up, and dried by a gentle heat.—*Dinglor's Jour. in Chemist & Druggist.*

ON THE BLEACHING OF IVORY AND BONE.—M. Close finds that turpentine is an excellent bleacher of bones and ivory. He considers it especially useful in the preparation of anatomical specimens, for not only does it leave the bones of a dazzling whiteness, but quite removes all disagreeable odour, and this in three or four days by simple immersion of the bones in turpentine and exposure of the whole to sunlight. In diffuse daylight a little longer time is necessary. One precaution, however, is necessary: the object to be bleached should be kept a few millimètres above the bottom of the bath by means of zinc supports. Oil of turpentine is a powerful oxidising agent, and it acts by virtue of this property; an acid liquid is formed, which falls to the bottom of the vessel, out of contact with the specimen

supported above it. Wood may be bleached in the same way, and other essential oils, such as citron and other isomers of turpentine, may be substituted for the latter.—*Jour. de Pharm. et de Chem. in Chemist & Druggist.*

PREPARATION OF PRESSED YEAST.—J. V. Divis describes the preparation of pressed yeast, in a late number of *Chemisches Centralblatt.* He says ordinary beer yeast is stirred up with cold water, in which a small quantity of carbonate of ammonia has been dissolved. It is then allowed to settle, drained, washed and pressed into cakes, to which is added a little starch and ground malt. Some kinds of yeast settle with difficulty. In such cases, ice cold water in larger quantity may be employed, or a little alum may be added to the first water, but it must be completely removed by washing.

TRANSPARENT SOAPS.—In the manufacture of transparent soaps one of the most essential conditions is frequently overlooked, namely, that the soap should be as nearly neutral as possible. If the soap contains free fatty acids they afterward separate and form clouds and spots. If it contains free soda this absorbs carbonic acid from the atmosphere and produces fine radiations and star-like collections of crystals of carbonate of soda. In the manufacture of transparent glycerin soap, the transparency may be increased by the addition of a small quantity of white sirup.

DETECTION OF TURPENTINE IN LIQUID STORAX.—Hager recommends to fuse storax in a testtube placed in a water-bath, to add half its volume of absolute alcohol, and effect solution by agitation; this is then agitated with several times its volume of petroleum benzin, and the operation repeated twice. The decanted benzin solutions are united and evaporated in a water-bath, from a tared vessel. The residue should weigh 45 to 55 per cent. of the storax; it should be colorless, with a bluish opalescence, and of an agreeable odor. If turpentine be present, the residue will be yellowish, of the odor of the turpentine, and larger in weight.—*Pharm. Centr. Halle. Am. Journal of Pharmacy.*

Registrar's Notice.

The Registrar begs to remind every person registered and carrying on business as chemist and druggist in the Province of Ontario, that the annual renewal fee of four dollars becomes due on the first day of May next, in accordance with section 17 of the Pharmacy Act. Those members residing in the country who may remit by cheque will please add twenty-five cents to cover collection.

All communications and remittances to be sent and made payable to

GEORGE HODGETTS, Registrar.

P.O. Box 1133, Toronto.

DRUGS, MEDICINES, &c.	$ c.	$ c.
Acid, Acetic, fort	0 14 @	0 15
Benzoic, pure	0 22	0 27
Citric	1 40	1 50
Muriatic	0 05	0 06
Nitric	0 11½	0 15
Oxalic	0 22	0 23
Sulphuric	0 03¾	0 07
Tartaric, pulv	0 50	0 50
Ammon, carb. casks	0 22	0 24
" jars	0 23	0 24
Liquor, 880	0 25	0 28
Muriate	0 14	0 15
Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
Nitrous	0 40	0 42
Sulphuric	0 50	0 50
Antim. Crude, pulv	0 15	0 17
Tart "	0 55	0 65
Alcohol, 95 per ct.....Cash	2 02	2 05
Arrowroot, Jamaica	0 18	0 22
Bermuda	0 50	0 65
Alum	0 02¾	0 03½
Balsam, Canada	0 33	0 38
Copaiba	1 10	1 15
Peru	3 40	3 75
Tolu	2 50	2 60
Bark, Bayberry, pulv	0 20	0 22
Canella	0 17	0 20
Peruvian, yel. pulv	0 35	0 50
" red "	1 60	1 70
Slippery Elm, g. b	0 18	0 20
" flour, packets	0 28	0 32
Sassafras	0 15	0 18
Berries, Cubebs, ground	0 20	0 25
Juniper	0 06	0 10
Beans, Tonquin	0 62	1 10
Vanilla	30 00	30 00
Bismuth, Alb	2 90	3 00
Carb.	3 10	3 25
Camphor, Crude	0 38	0 40
Refined	0 45	0 50
Cantharides	2 20	2 30
Powdered	2 30	2 40
Charcoal, Animal	0 04	0 06
Wood, powdered	0 10	0 15
Chiretta	0 23	0 30
Chloroform	1 10	1 55
Cochineal, S. G	0 65	0 70
Black	85	90
Colocynth, pulv	0 60	0 65
Collodion	0 70	0 80
Elaterium .....oz	3 20	4 00
Ergot	0 70	0 75
Extract Belladonna	1 50	1 60
Colocynth, Co	1 25	1 75
Gentian	0 50	0 60
Hemlock, Ang	0 00	0 95
Henbane, "	1 70	1 80
Jalap	5 00	5 50
Mandrake	1 75	2 00
Nux Vomic.....oz	0 40	0 50
Opium .....oz	1 80	
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 32	0 40
Gum, Aloes, Barb. extra	0 70	0 80
" " good	0 40	0 50
" Cape	0 16	0 20
" " powdered	0 20	0 30
" Socot	0 50	1 35
" " pulv	1 00	0 00
Arabic, White	0 50	0 60
" powdered	0 60	0 75
" sorts	0 24	0 30
" " powdered	0 42	0 50
" com. Gedda	0 13	0 16
Assafœtida	0 40	0 42
British or Dextrine	0 13	0 15
Benzoin	0 35	0 75
Catechu	0 12	0 15
" powdered	0 25	0 30
Euphorb, pulv	0 35	0 40
Gamboge	1 40	1 50
Guaiacum	0 45	1 00
Myrrh	0 50	0 85

DRUGS, MEDICINES, &c.—*Contd.*	$ c.	$ c.
Sang Dracon	0 60	
Scammony, powdered	6 00	6 50
" Virg. "	14 50	—
Shellac, Orange	0 80	0 85
Gum, Shellac, liver	0 60	0 70
Storax	0 40	0 45
Tragacanth, flake	1 10	1 75
" common	0 53	0 65
Galls	0 22	0 30
Gelatine, Cox's 6d	1 15	1 20
Glycerine, common	0 21	0 30
Vienna	0 29	0 30
Prices	0 60	0 75
Honey, Canada, best	0 15	0 16
Lower Canada	0 14	0 16
Iron, Carb. Precip	0 20	0 25
" Sacchar	0 40	0 55
Citrate Ammon	1 75	1 80
" & Quinine, oz	0 52	0 55
" & Strychine	0 20	0 25
Sulphate, pure	0 08	0 10
Iodine, good	4 50	5 00
Resublimed	6 00	6 50
Jalapin	1 25	1 50
Kreosote	2 40	2 50
Leaves, Buchu	0 22	0 32
Foxglove	0 25	0 30
Henbane	0 35	0 40
Senna, Alex	0 27	0 60
" E. I	0 14	0 20
" Tinnevilly	0 20	0 30
Uva Ursi	0 15	0 17
Lime, Carbolate.....brl	5 50	—
Chloride	0 05	0 06
Sulphate	0 08	0 12½
Lead, Acetate	0 15	0 16¾
Leptandrin.....oz.	0 60	—
Liq. Bismuth	0 50	0 60
Lye, Concentrated	1 50	1 60
Liquorice, Solazzi	0 50	0 55
Cassano	0 23	0 40
Other brands	0 14	0 25
Liquorice, Refined	0 35	0 45
Magnesia, Carb. 1 oz.	0 20	0 25
" 4 oz.	0 17	0 20
Calcined	0 65	0 75
Citrate.....gran.	0 60	0 75
Mercury	2 20	2 30
Bichlor	2 00	2 10
Chloride	2 35	2 45
C. Chalk	0 95	1 00
Nit. Oxyd	2 40	2 50
Morphia Acet	4 50	4 60
Mur.	4 50	4 60
Sulph	4 65	4 75
Musk, pure grain.....oz	25 00	—
Canton	0 60	1 20
Oil, Almonds, sweet	0 40	0 45
" bitter	14 00	15 00
Aniseed	4 00	4 25
Bergamot, super	7 75	8 00
Caraway	3 20	3 50
Cassia	2 00	2 25
Castor, E. I	0 15	0 17
Crystal	0 22	0 25
Italian	0 26	0 28
Citronella	1 05	1 15
Cloves, Ang	3 50	3 75
Cod Liver	1 25	1 50
Croton	1 75	2 00
Juniper Wood	0 80	1 00
Berries	2 75	3 00
Lavand, Ang.....oz.	0 00	1 00
Exotic	1 25	1 50
Lemon, super	3 80	4 00
ord	3 20	3 40
Orange	3 00	3 25
Origanum	0 65	0 75
Peppermint Ang	15 00	16 00
" Amer	5 50	7 00
Rose, Virgin	8 50	8 75
" good	7 00	7 25
Sassafras	0 75	1 90
Wintergreen	6 00	6 50
Wormwood, pure	4 00	6 00
Ointment, blue	1 60	1 70
Opium, Turkey	9 25	9 50
pulv	11 50	12 00

DRUGS, MEDICINES, &c.—*Cont'd*	$ c.	$ c
Orange Peel, opt.	0 30	0 36
" good	0 12½	0 20
Pill, Blue, Mass.	1 60	1 65
Potash, Bichrom	0 18	0 20
Bi-tart	0 33	0 35
Carbonate	0 14	0 20
Chlorate	0 35	0 40
Nitrate	8 00	9 00
Potassium, Bromide	70	0 80
Cyanide	0 60	0 70
Iodide	3 80	4 00
Sulphuret	0 25	0 35
Pepsin, Boudault's...oz	1 40	—
Houghton's... doz.	8 00	9 00
Morson's ...oz.	0 85	1 10
Phosphorous	1 10	1 20
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	2 20	—
" 100 oz. case.	2 17	—
" 25 oz. tin..	2 17	—
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	1 75	2 00
" E. I.	0 75	0 90
" " pulv	1 00	1 10
" " 2nd	0 60	0 70
" French	0 75	—
Sarsap., Hond	0 53	0 60
" Jam	0 88	0 90
Squills	0 10	0 15½
Senega	1 10	1 10
Spigelia	0 25	0 30
Salts, Epsom	2 25	3 00
Rochelle	0 30	0 32
Soda	0 02½	0 03
Seed, Anise	0 13	0 16
Canary	0 12	0 13
Cardamon	2 00	2 10
Fenugreek, g'd	0 08	0 09
Hemp	0 06½	—
Mustard, white	0 14	0 16
Saffron, American	0 75	0 85
Spanish	12 00	13 00
Santonine	7 25	7 50
Sago	0 08	0 09
Silver, Nitrate.....Cash	14 85	16 50
Soap Castile, mottled	0 11	0 14
Soda Ash	0 03¾	0 05
Bicarb. Newcastle	5 75	6 25
" Howard's	0 14	0 16
Caustic.	0 05½	0 05¾
Spirits Ammon., arom	0 35	0 35
Strychnine, Crystals	2 00	2 20
Sulphur. Precip	0 10	0 12½
Sublimed	0 03½	0 05
Roll	0 03	0 04½
Vinegar, Wine, pure	0 55	0 60
Verdigris	0 35	0 40
Wax, White, pure	0 70	0 80
Zinc. Chloride.....oz	0 10	0 15
Sulphate, pure	0 10	0 15
" common	0 06	0 10
DYESTUFFS.		
Annatto	0 35 @	0 60
Aniline, Magenta, cryst	2 50	2 80
" liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitrol, pure	0 09	0 10
Camwood	0 06	0 09
Copperas, Green	0 01½	0 02
Cudbear	0 16	0 25
Fustic, Cuban	0 02½	0 04
Indigo, Bengal	2 40	2 50
Madras	0 85	0 90
Extract	0 26	0 30

DYESTUFFS—*Continued.*		
Japonica	0 07	0 08
Lacdye, powdered	0 33	0 38
Logwood	0 01⅞	0 03
Logwood, Camp	0 01⅞	0 03
Extract	0 9½	0 12
" 1 lb. bxs	0 13	—
" ½ lb. "	0 14	—
Madder, best Dutch	0 11	0 12
2nd quality	0 10	0 11
Quercitron	0 03	0 05
Sumac	0 06	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
SPICES.		
Allspice	0 11½ @	0 12
Cassia	0 26	0 28
Cloves	0 60	0 65
Cayenne	0 22	0 28
Ginger, E. I.	0 19	0 20
Jam	0 30	0 30
Mace	1 50	1 60
Mustard, com	0 20	0 25
Nutmegs	1 15	1 25
Pepper, Black	0 22½	0 23
White	0 31	0 32
PAINTS, DRY.		
Black, Lamp, com	0 07 @	0 08
" refined	0 25	0 30
Blue, Celestial	0 08	0 12
Prussian	0 65	0 75
Brown, Vandyke	0 10	0 12½
Chalk, White	0 01	0 01½
Green, Brunswick	0 07	0 10
Chrome	0 16	0 25
Paris	0 30	0 35
Magnesia	0 20	0 25
Litharge	0 07	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 07¼	0 08
Venetian	0 02½	0 03¾
Sienna, B. & G.	0 07	0 08
Umber	0 07	0 10
Vermillion, English	2 10	2 20
American	0 25	0 35
Whiting	0 1⅜	0 02
White Lead, dry, gen	0 08¾	0 09
" " No. 1	0 07	0 08
" " No. 2	0 05	0 07
Yellow Chrome	0 12½	0 35
" Ochre	0 02½	0 03½
Zinc White, Star	0 10	0 12
COLORS, IN OIL.		
Blue Paint	0 12 @	0 15
Fire Proof Paint	0 06	0 08
Green, Paris	0 30	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1 lb tins	0 11	0 12
Putty	0 03¾	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25 lb. tins	2 35	—
" No. 1	2 10	—
" No. 2	1 85	—
" No. 3	1 60	—
" com	1 30	—
White Zinc, Snow	2 75	3 25
NAVAL STORES.		
Black Pitch	4 10 @	4 50
Rosin, Strained	3 80	4 25
Clear, pale	5 75	7 25
Spirits Turpentine	0 50	0 52
Tar Wood	4 40	4 50
OILS.		
Cod	0 63 @	0 70
Lard, extra	1 10	1 20
No. 1	1 05	1 10
No. 2	0 85	0 90
Linseed, Raw	0 62½	0 67½
Boiled	0 67½	0 73½
Olive, Common	1 05	1 10
Salad	1 80	2 30
" Pints, cases	4 20	4 40
" Quarts	3 25	3 50
Seal Oil, Pale	0 75	0 75
Straw	0 68	0 70
Sesame Salad	1 30	1 35
Sperm, genuine	2 55	0 75
Whale refined	0 70	