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Original and Selected Papers.

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ON THE ADMINISTRATION OF CASTOR OIL.

BY E. GREGORY.

Castor Oil is indisputably nauseous and unpleasant to take, so much so that some patients cannot be induced to swallow it, by any device or on any consideration. At the same time its qualities are such that in some disturbed states of the system no other purgative can be substituted with safety. On this account a great deal of ingenuity has been exercised in endeavouring to devise means by which the dose may be swallowed without tasting it. So far as I know, success in this attempt has been only partial, and I fear the difficulties in the way are too great to be entirely overcome. Efforts seem to have been made in three directions: first, to enclose the oil in a tasteless envelope, such as the hard and soft castor oil capsules. To these there seem to be two objections. One, from the number of capsules necessary to be taken for a purgative dose; the other from the fact that most of the makers, in their efforts to reduce the size of the dose, have been tempted to add a foreign ingredient, such

as podophyllin, or croton oil, both of which are of so drastic a nature as to make it unwise to give them to a delicate patient. The second class of efforts have been made principally by medical men and nurses, and have consisted in floating the oil on some vehicle, such as tea, coffee, punch, wine, beer, etc., etc., The result is that the patient, in spite of the most careful management, finds some of the oil sticking to his mouth, and sinks back in the bed with the conviction impressed on his mind that oil is abominable stuff. The most successful vehicle of this kind that has come under my observation is flax-seed tea, well sweetened and flavored with any agreeable aromatic. If the oil be floated on this, and before the dose is taken, the lungs be thoroughly exhausted, so that the whole can be drunk with a deep inspiration, the taste is very little noticed. The third direction in which inventors have exercised their ingenuity in endeavoring to cover up and disguise the unwelcome flavor is by adding various ingredients to the oil, and by making it into an emulsion. Of this class are Copland's Sweet Castor Oil, which answers admirably for children, but for adults has the disadvantage of retaining its natural appearance, and of being much too thick and clammy for reasonably pleasant use. Wilson's Castor Oil Emulsion has the taste well disguised, and has a little less of the clamminess, but is open to the objection of being too thick, and there is just the suspicion in my mind that the strength may have been fortified by the addition of some more powerful purgative.

In the May number, p. 357, of the *JOURNAL* is an article by Mr. Herbert G. Rogerson, in which he gives a formula adapted to emulsify most oils and balsams. It certainly makes a very nice looking preparation, having a white pearly lustre, and with the taste and smell of the active ingredient very well disguised. But it is too thick and must be gulped down.

For some twelve or fourteen years past I have used the following formula for a Castor Oil draught which has proved very acceptable to adults who could not get down the pure oil. For children it does not answer so well, the dose of necessity being double that of the oil :

℞. Ol. Ricini, ℥j.  
 Mucil. Acaciæ ℥ij.  
 Shake well together, then add  
 Syr. Simp. ℥ij.

Shake again, then flavor with Spts. *Menthæ Pip.*, or according to taste, and make up to two ounces with water. This mixture can scarcely be called an emulsion, but it mixes well on vigorous shaking. The taste is well disguised; it is thin enough to be easily taken from a wineglass, and it leaves no oil sticking round the mouth. I have lately obtained still better results from the following formula :

℞. Ol. Ricini, ℥j.  
 “ Anisi, gtt x.  
 Chloroform, gtt x.

Shake well together, then add  
 Mucil Acaciæ ℥ss.

Shake well and make up to two ounces of water. I know not whether this may be considered an infringement on Mr. Copland's patent, but it is a very nice looking and palatable preparation, and does not separate so speedily as the last.

LINDSAY, July 25th.

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## ON PAREIRA BRAVA.\*

BY DANIEL HANBURY.

The botanical origin of the various stems and roots known as *Pareira Brava* is extremely obscure. By most writers the drug is referred without question to *Cissampelos Pareira* Linn., a climbing plant of the order *Menispermaceæ* growing in the tropical regions of both the Old and New World.

Some years ago the difficulty of purchasing *Pareira Brava* of good quality in London induced me to seek a supply in the West Indies. I accordingly procured on behalf of the firm of which I was then a member, a quantity of the stems and roots of *Cissampelos Pareira* L., collected in Jamaica, under the supervision of Mr. N. Wilson, director of the Bath Botanical Garden in that island. The first importation was accompanied by herbarium specimens of the plant, the examination of which removed all doubt as to its origin. I also obtained specimens of stems of *Cissampelos Pareira* similarly authenticated, from correspondents in Trinidad, Brazil and Ceylon.

From these materials it at once became evident that the long-accepted statement that *Pareira Brava* is derived from *Cissampelos Pareira* Linn. was erroneous.† In fact neither the stem nor the

\* From the Pharm. Jour. and Trans.

† This fact was first pointed out in the *Pharmacopœia of India*, 1868, p. 8, note.

root of the plant at all resembles any of the forms of that drug I had ever met with in commerce.

What then is the *true Pareira Brava*?—To answer this question we must look back to the early history of the drug.

The merit of having first given some account of *Pareira Brava* is usually conceded to the Dutch traveller Piso, who in his work *De Medicina Brasiliensi*, published in 1648, described a plant called by the Portuguese *Caapeba*, *Cipó de Cobras* or *Herva de Nossa Senhora*. Piso's figure is scarcely recognizable, but his description of fruit as resembling the catkins of hop (*semen magnum coloris rosacei, e capsulis lupulo similibus prominens*) applies well enough to a *Cissampelos*, and in fact *C. glaberrima* St. Hil. is known under these Portuguese names in Southern Brazil at the present time. My friend Mr. J. Correa de Mello, of Campinas, Prov. S. Paulo, has been good enough to send me a specimen of this plant and its root; and the latter I find to be wholly unlike any sort of *Pareira Brava*.

That Piso does not mention *Pareira Brava* was indeed remarked as long ago as 1710\*; and it is only since the drug has been supposed to be derived from *Cissampelos* that authors have identified it with Piso's *Caapeba*.

*Pareira Brava* was certainly first brought to Europe by the Portuguese. It first attracted general attention in 1688, when Michel Amelot, Marquis de Gournay, a privy councillor of Louis XIV., and a very distinguished political personage, brought it with him from Lisbon, whither he had been sent as ambassador by the French king. There can be no doubt that the drug was considered to possess extraordinary properties. Rouillé, the successor of Amelot in the Lisbon embassy, also took home with him to Paris some *Pareira Brava*; and in 1710 we find it claiming the notice of the French Academy,† who requested Etienne-François Geoffroy, Professor of Medicine and Pharmacy in the College of France, to investigate its virtues. Jean-Claude-Adrien Helvetius, a physician of great merit, who though a young man was consulted by Louis XIV. in his last days, and was afterwards attached to the court of Louis XV., tried the drug still earlier,‡ and gave strong testimony in its favour.

Both Geoffroy and Helvetius were correspondents of Sir Hans Sloane, that dilligent promoter of science whose immense collections gave origin to the British Museum,—and among the Sloanian MSS. I have found a letter of Helvetius§ addressed in 1715 to Monsieur

\* *Hist. de l' Acad. Royale des Sciences*, année 1710, 56.

† *Hist. de l' Acad. Royale des Sciences*, année 1710, 56.

‡ Helvetius, *Traite des Maladies les plus frequentes et des remedes spécifiques pour les guerir*, Paris, 1703, 98.

§ Sloane MS. No. 3340, p. 291.—The letter has already been published in *Phil. Trans.* No. 346, Nov. and Dec., 1715, p. 365.

Duyvenvoorde, ambassador from the States General to George I., a portion of which I will here quote:—

“ I am extremely pleased s<sup>r</sup> that you have apply'd yourself to me for my advice about the use of the *Pareira Brava* which has been recommended to you, because I can give a very good account of it having been one of the first that introduced it in France. I have made abundance of lucky experiments about it which have made this medicine very well known to me, wherefore, I assure you, you can do nothing better than to make a tryall of it. . . . The Pareira Brava is a root which comes to us from Brazil by the way of Lisbon, but which the war has rendered pretty scarce; however it is to be found among the good druggists and is sold [at] Paris for 40 livres the pound. 'Tis called in Brazill the Universall Medicine, and made use of there in all kinds of distempers. A Capuchin monk who comes from thence told me he could not give it a greater character than by assuring me that in all their voyages they carried the gossell in one pockett and the Pareira Brava in another. . . . ”

Helvetius recommended the finely-powdered root in five grain doses, to be taken in infusion warm like tea.

Petiver, apothecary of London, and secretary to the Royal Society, an active collector of objects of natural history of every kind, whose letters are also in the Sloanian collection, thus wrote, 'Dec. 11th, 1716, to Colonel Worsley, His Majesty's Envoy at Lisbon:

“ . . . I am glad to hear y<sup>e</sup> Brazil fleet is safely arrived, w<sup>ch</sup> I hope has brought some materialls for my succeeding *Collectaneas*, and amongst them nothing can be more welcome than specimens of y<sup>e</sup> leaves and fruit of y<sup>e</sup> Ipecacuanha, Pareira Brava, Balsam, Capevæ and y<sup>e</sup> true Brasile and Brasileto woods, all which will be very acceptable discoveries. . . . ”\*

The first author to give an account in print of Pareira Brava seems to be Pomet, whose *Histoire des Drogues* was completed in 1692.† He describes the drug as then recently seen in Paris, and he figures the specimen given him by Tournefort.

Geoffroy, in his excellent *Tractatus de Materia Medica*,‡ a work he did not live to complete, calls the drug by its Brazilian name of *Butua* or *Pareira Brava* of the Portuguese, and describes it as a root, woody, hard, contorted, externally of dark colour, rough with many wrinkles, some long, some running round it transversely, like that of *Thymelæa* [*Daphne Gnidium* L.] internally of a dull yellowish hue, knit together, as it were, with many woody fibres, so that when cut transversely it exhibits several concentric circles, inter-

\* Sloane MS., 3340, p. 306.

† As proved by letters of approbation which precede it. But it was not published until 1694.

‡ Tom. II. (1741) 21.

sected by numerous rays of fibres passing from the centre to the circumference; inodorous, somewhat bitter, with a certain degree of sweetness like liquorice, as thick as the finger, or sometimes as a child's arm. He adds that the Brazilians and Portuguese most highly extol its virtues as a diuretic, lithontriptic, vulnerary, stomachic, cordial, and alexipharmic,\* and, in fact regard it as a complete panacea.

The question now arises—Can the drug which was introduced with so much laudation be clearly identified?

As already stated, Pomet has figured it, and his engraving is excellent. But Sloane has left us better materials. In his collection of materia medica, now in the British Museum, there are many well-preserved specimens of the drug obtained from different persons and at different periods, *and all of one kind*; and in his voluminous manuscript catalogues and his other papers, are entries throwing light on their origin.

The first notice that I have found is a letter from Lisbon, dated October 17th 1699, and addressed by Joseph Geston to John Ellis,† in which the writer says:—

“By order of my brother W<sup>m</sup>. Geston, I send you here inclosed six sticks of *Pareira Brava*, or *Parra Brava*. The use of it I am informed, is in powder, one scruple, and to the strongest patient one octave [drachm] in Rhenish wine. . . . Its vertues are for the stone, gravell, obstruction of the urine, and for the colick, —a very excellent remedy.”

Though this letter is not addressed to Sloane, nor is he mentioned in it. yet from its occuring among his correspondence there can be no doubt that the specimens to which he relates were intended for him.

The entries in his manuscript catalogues, which are in his own handwriting, are these:—

“652. *Pareira Brava*.—From Brasile, pretended to be good for the stone.”

“4036. *Pareira Brava*.—A root used in the stone.”

“6708. The *Pareira Brava*, of a brown colour, from Brazil, said to be best sort.—From Mons<sup>r</sup>. Geoffroy.

\* Hill judiciously remarks that this is going too far in its praise, and yet omitting some of its real virtues. “It is certainly a diuretic,” he says, “of no inferior kind, and has done great service in nephritic cases; and pluriesies and quinzies has been attended with more success than almost any medicine we know of singly. In suppressions of urine scarce anything is more efficacious or more instantaneous in its effect, but it is folly to infer from this that it will dissolve the stone. . . . In case of ulceration of the kidneys or bladder, when the urine is purulent and voided with great difficulty, there is scarce anything equal to this root as a remedy.”—*Hist. of Mat. Med.* 1751, p. 600.

† Sloane MS., 4045, fol. 240.

"10471. Sev<sup>ll</sup>. specimens of the *Pareira Brava*, from "Lisbon, accounted a great remedy in suppression of water "and the stone,—according to Mons<sup>r</sup>. Geoffroy, the *Ambitua* "or *Butua* of Zanoni.—From Dr. Fuller, Sevenoaks."

In 1866, I applied to my friend Theodor Peckolt, druggist, of Rio de Janeiro, then residing at Catagallo in the same province, on the subject of *Pareira Brava*, in consequence of which I received from him two specimens of two plants, the one market *Butua* or *Pareria Brava legitima*, the other *Butinha* or *Pareria Brava miuda* (literally *small Pareria Brava*), together with a large dried entire plant of the former. The herbarium specimens of these plants presented no characters by which I could distinguish them as two species; and Mr. Peckolt subsequently informed me that their difference consists chiefly in *habit*, and that the first or *legitimate Pareira Brava* is found in much drier situations than the small sort or *Pereira Brava miuda*.

I have also received specimens from my friend Mr. J. Correa de Mello of Capinas, marked *Parreira Brava pequena* (*small Pareira Brava*) or *Abuta pequena*, and others labelled *Leaves of the plant producing Pareira Brava*, all of which seem referable to Mr. Peckolt's plant. Mr. Correa de Mello has likewise sent me the dried root, and I have also received the root as supplied by a drug house of Rio de Janeiro.

Within the last few weeks two specimens of roots bearing some leaves, marked respectively *Pareira Brava, large leaf*, and *Pareira Brava, small leaf*, have been presented to the Pharmaceutical Society as well as to myself by Mr. G. B. Francis, of the firm of Hearon, Squire, and Francis. Between these two sorts I fail to recognize any difference.

The roots of Mr. Peckolt's *Pareria Brava legitima*, those sent me by Mr. Correa de Mello, and those received from Mr. Francis, completely agree with Sloane's specimens, as well as with Pomet's figure.

As to the plant, I identify it with *Chondodendron\* tomentosum* or Ruiz et Pavon, with an authentic specimen of which in the herbarium of the British Museum I have compared it. It is the *Cocculus Chondodendron* of De Candolle (Pro. I. 98), and has been figured as *Cocculus(?) platyphylla* by Auguste de St. Hilaire,† and by Eichler,‡

\* Mr Myers (*Contributions to Botany*, III., 307) contends for this name being written *Chondrodendron* as more in accordance with its derivation. But I think it safer to retain the original spelling as accepted by all botanists.

† *Plantes Usuelles des Brasiliens*, pl. 42.

‡ Martius, *Flor. Bras.*, fasc. 38, tab. 48. Eichler makes *two* species under the name of *Botryopsis*, Miers *eight*, six of them being apparently forms of *Ch. tomentosum*. Mr. Mier's species as named by himself, can be seen in the British museum, and a type-specimen of the plant figured by Eichler in the Kew Herbarium.



as *Botryopsis platyphilla* Miers. It agrees well with the plate of *Cissampelos Abutua* in Vellozo's *Flora Fluminensis*\* with which Eichler doubtfully identifies it.

*Chondodendron tomentosum* has been found in various parts of Brazil where it is known as *Butua* and *Abutua*. Its raceme of large oval berries, exactly like a bunch of grapes, is another evidence that it is the plant which the old Portuguese colonists called *Pareira Brava* or *Wild Vine*.† Neither the fruit nor the foliage of *Cissampelos Pareira* have anything about them suggestive of a grape vine.

(To be continued.)

## ADULTERATION OF VARIOUS ARTICLES OF FOOD.‡

*Tea*.—There are two chief classes of teas—the green and black varieties. Under the first head are included the Hysons, Twankay, and Gunpowder; and under black teas, Pekoe, Souchong, Congou, and Bohea. Both classes are subject to many serious adulterations at the hands of the exporters, and again on arrival in Europe. Mixtures of different kinds of tea are legitimately made in the course of trade for the purpose of suiting special tastes; but inferior varieties are often dishonestly mixed with the more costly kinds in order to increase profits. Leaving aside the consideration of “tea-mixing,” we find that to green and black teas have often been added the leaves of other plants. Those of plum, sloe, ash, willow, poplar, hawthorn, beech, plane, orange, elm, horse chestnut, elder, and oak have been detected. These leaves are dried and prepared by roasting and “facing” so as to resemble genuine tea very closely. The product is sometimes called “Maloo mixture.” Facing is used for the purpose of coloring the leaves and increasing weight. The bodies employed are China clay, gypsum, chalk, French chalk, black lead, Prussian blue, indigo, chromate of lead, carbonate, and even arsenite of copper, Venetian red, and fine white sand. The powders are attached to the leaf surface by a convenient adhesive material. Spent (exhausted) tea-leaves are often dried, colored with catechu and an iron salt, then faced, and the product mixed with good tea, “Maloo mixture,” or Lie tea. The last-named substance is made up of the tea and other leaves, sand, or plaster of Paris, bound together by starch or gum, so as to form granular particles that can be “faced,” so as to resemble black or green gunpowder. *Genuine*

\* Tom. X., tab. 140. Mr. Myers regards this to represent his *Abuta macrophylla*, a very different plant.

† In Portuguese the word is written *Parreira*, and signifies a vine that grows against a wall or over an arbour. *Parra* is a vine-leaf.

‡ From the London Medical Record, in New Remedies.

*tea*, when placed in a muslin bag and kneaded in warm water for a few minutes, should not give up any powder, quickly subsiding when the water is allowed to stand.

*Coffee*.—Chicory, acorns, sawdust, roasted roots of various kinds, and grain, tan, groats, lentil seeds, baked livers, Venetian red, burnt sugar. Admixture with chicory is allowable if the compound be truly labelled. *Genuine Coffee* should not cake when pinched between the fingers. When a little is thrown on cold water it floats, and very slightly tinges the water. Adulterated coffee sinks and rapidly colors the water brown.

*Cocoa*.—Chicory, cocoa-husk, fats, starches, sugar, Venetian red, bole. *Genuine cocoa* should not have a sweet taste, nor red color. As much cocoa as can be piled upon a threepenny piece, when placed on a square of platinum foil and strongly heated by a spirit-lamp flame, should burn almost completely away, leaving a very minute quantity of reddish-colored ash.\* The same remarks apply to *chocolate*.

*Sugar*.—Fine white loaf sugar is rarely adulterated, but colored sugars sometimes contain chalk, sand, clay, starch, sugar, flour, dextrine, plaster of Paris: as impurities, fragments of cane, molasses, vegetable albumen, and sugar-mites or acari. *Good Sugar* should be free from the least bitter taste, and ought to dissolve completely in water. Loaf-sugar should give a perfectly clear and colorless solution; brown sugar a clear but colored liquid. If insects be present they float on the syrup, and appear as small specks, which can be easily removed for microscopic examination. *Bon-bons*, unless when mixed with harmless starch or injurious white or colored mineral powders, produce clear solutions when dissolved in water. If any insoluble residue be left, the deposit should be allowed to settle, the liquid poured carefully off, and the powder collected, dried, and heated on platinum foil. If white and wholly combustible, it probably consists of starch. Chromate of lead (yellow), arsenite of copper (green), china clay and gypsum (white), and most other injurious mineral pigments give insoluble and fixed powders. Sulphide of mercury or vermilion, though volatile when heated on platinum foil, is easily recognized by affording a heavy red powder on treatment of the sweets with water.

*Milk*.—The chief is undoubtedly water; but skim-milk, annatto, brains, chalk, gum tragacanth, and other gums; sugar, decoction of white carrots, starch, and turmeric, are stated to be used occasionally. *Good milk* should be free from acidity, and when allowed to stand in a vessel ought not to deposit solid matter. When placed in a tall graduated glass cylinder, it should throw up at least 10 per

\* The microscope is alone able to detect mixtures of many organic bodies, as starches, fats, chicory, etc., in this and other cases. The simple tests given usually serve simply to exclude injurious substances.

cent. of cream after standing for twelve hours. This is on the whole the least objectionable rough test that can be used.

*Butter.*—Water, much salt, starch, flour, dripping and lard. *Good butter* should not have a rancid smell. When a quantity is melted and poured into a small narrow phial, and the latter allowed to stand near to a good fire, the milky layer of water that falls to the bottom of the bottle should not form more than one-tenth of the total bulk of fluid. When the melted butter is poured off, the water should not strike a blue color when shaken with a drop of tincture of iodine.

*Bread.*—Water, rice, potato, and other starches, salt, alum, bone-dust, clay, carbonate of magnesium, chalk, gypsum, and sulphate of copper; or impure from bad flour. *Good bread* is sweet and agreeable to the taste. It does not present a mouldy appearance, and ought not to give a thick liquid when steeped in water. If bread become soft and sodden on standing, it is probably adulterated with rice. When a piece containing much alum is dipped in a very weak solution of the coloring matter of logwood, the bread is quickly dyed of a purple tint. Good bread ought not to contain more than 38 per cent. of water, and should burn to a very minute ash when heated on platinum foil.

*Flour (Wheaten).*—Rice, barley, dari, bean-flour, "cones" flour, Indian corn, rye, potatoes, alum, gypsum, clay, ergot, darnel. *Good flour* should not be acid or musty, but ought to have a pleasant flavor. When a small quantity is burnt on platinum foil (see Cocoa) a scarcely perceptible residue of mineral matter should remain. As flour containing ergot is poisonous, it is a matter of importance to be able to distinguish this dangerous product of disease in the wheat. We can accomplish this easily by shaking up the suspected flour with a mixture of one part of chloroform and six parts of strong spirit of wine. The ergot, if present in the flour, will float on the liquid and form a brown scum.

*Arrowroot (West Indian).*—Potato-starch, sago-meal, rice, gypsum, china clay, chalk. *Genuine Maranta Arrowroot* is a dull white powder, which crackles strongly and in a peculiar manner when pressed between the fingers. When mixed with twice its weight of strong hydrochloric acid, it yields an opaque jelly. Potato-starch, under similar circumstances, affords a transparent jelly. When burnt on platinum foil, arrowroot should leave a scarcely perceptible residue if adulterated with mineral powders. A fragment of iodine placed on a warm plate near to the sample, colors Maranta arrowroot chocolate brown, sago-starch yellowish, wheaten-starch violet, and potato-starch a dull lilac color.

*Isinglass.*—Though the best, or Russian isinglass, is an unimportant article of food, it may be well to mention that it is sometimes adulterated with gelatine and with inferior Brazilian isinglass. *Genuine Russian Isinglass* occurs in opaque white filaments, which

do not become transparent when placed in water, nor do they swell to a material extent. Gelatine, on the contrary, becomes transparent, and swells considerably. Russian isinglass affords a firm, translucent jelly; the Brazilian variety, for corresponding weights of material and water, does not afford nearly so firm a jelly, and it is much more milky.

*Vinegar*.—Sulphuric acid, and other mineral acids, water, "grains of paradise," chillies, corrosive sublimate (?). Arsenic and copper as accidental impurity. *Unadulterated Vinegar* is allowed by special enactment to contain one-thousandth of oil of vitriol. When paper moistened with vinegar containing this proportion of sulphuric acid is dried before the fire, no charring takes place until the paper is rather strongly heated; but if the proportion of acid be much greater, blackening results before the paper seems quite dry. It must be remembered that this is but a very rough and indecisive test. When a piece of clean and bright copper wire is immersed in vinegar, diluted with a little water, and heated nearly to boiling in a glass vessel, the copper quickly loses its color and assumes a leaden hue if arsenic or mercury be present. Copper may be detected in a fresh sample, much diluted with water, by means of the steel needle, as described under *Preserved Fruits*. Pungent substances, "grains of paradise," for example, may be detected by evaporating a quantity of the vinegar nearly to dryness in any convenient porcelain vessel. The residue should not have a very fiery taste.

*Mustard*.—Ordinary mustard is rarely free from admixture with one or other of the varieties of flour, turmeric being added to improve the color. The addition of flour in moderate proportion may be permitted on the score of convenience, but turmeric should not be added. For flour, china clay, plaster of Paris, or chalk have been substituted, the coloring material being yellow ochre, or even the poisonous chromate of lead. *Mustard* should not become brown when moistened with a little "spirit of hartshorn," and when burnt on platinum foil should leave but a small quantity of a nearly white ash.

*Cayenne Pepper*.—Dense flours or starches, mustard, turmeric, ochre, vermilion (?), red lead. *Cayenne*, when shaken with cold water, the mixture allowed to stand for a minute, and the liquid poured off, should not leave any heavy red powder at the bottom of the vessel. It ought to leave but little ash when burnt on platinum foil.

## DETERMINATION OF POISONOUS VEGETABLE SUBSTANCES FOR FORENSIC INVESTIGATIONS.\*

The writer proposes chloroform as a very important and easily applicable test reagent for distinguishing between the various vegetable alkaloids. From solution in sulphuric acid the following substances are gradually withdrawn by repeated agitation with chloroform:—caffeine, theobromine, colchicine, thebaine, papaverine, narcotine, and picrotoxine. From the same solution, after neutralizing with an alkali, chloroform withdraws immediately and completely, in the cold, strychnine, chinine, chinidine, cinchonine, caffeine, theobromine, emetine, atropine, hyoscyamine, aconitine, veratrine, physostygmine, narcotine, codeine, thebaine, nicotine, conine; and more slowly, brucine, colchicine, and paverine; sabadilline only when warmed; and narceine in smaller quantities. Morphine and solanine are not withdrawn by chloroform from either an acid or alkaline solution.

In order to apply the alcohol test, the object is to cut up, warmed to 75° C., heated with water containing sulphuric acid, and the solution digested at that temperature; the insoluble residue is pressed off, and repeatedly extracted with warm water. The acid extracts thus obtained are nearly neutralized by bicarbonate of soda till only a slight acid remains, and then evaporated in a water-bath to a thin syrup. This is mixed with four times its volume of 90 per cent. alcohol, and, after twenty-four hours, warmed to 40° or 50° C., filtered off, and the residue extracted with alcohol. From the alcoholic extract the alcohol is then completely distilled off. The residue of distillation is filtered, chloroform added, and then ammonia, till there is a distinct alkaline reaction, and the solution is then repeatedly agitated. The chloroform solution is then separated, and the alkaline fluid extracted with fresh portions of chloroform, until no residue is left on evaporating a small portion of the liquid. The alkaline fluid is in the meantime placed aside, and all the chloroform solutions several times agitated with fresh portions of water containing sulphuric acid. The chloroform is separated from the sulphuric water, the latter neutralized with ammonia, and then shaken again several times with chloroform. The chloroform solution now obtained is passed through a filter moistened with chloroform, washed with chloroform, and evaporated. The residue that remains behind is tested for all those alkaloids which have been mentioned above as being extracted from an alkaline solution by chloroform. The alkaline aqueous fluid that was placed aside is treated with a fresh quantity of chloroform and dilute sulphuric acid till it becomes acid, again

\* Abstract of a paper by Dr. Joseph Nowak in the 'Sitzungsberichte der kais. Akademie der Wissenschaften' of Vienna, translated in the *Pharm. Journ. & Trans.*

agitated with chloroform, and the chloroform separated and evaporated. Any picrotoxine that may be present and the remainder of the colchicine remain in the residue. On the now acid aqueous fluid is poured a stratum of amyl-alcohol, the solution made alkaline with ammonia, and shaken, the amyl-alcohol taken off, filtered, and evaporated; all the morphine, digitaline and solanine, and the greater part of the remainder of the sabadilline, narceine, and picrotoxine will be found in the solution; in the residue after evaporation, a small quantity of the narcotine, caffeine, papaverine, theobromine, digitaline and colchicine. The first extract with chloroform is now evaporated, the residue repeatedly extracted with warm water containing sulphuric acid, the acid fluid neutralized with ammonia and agitated with chloroform. The remainder of the substances will remain, after evaporation of the chloroform.

Dr. Nowak also gives the following reactions resulting from the application of concentrated sulphuric acid:—

Of the poisonous substance of which an analysis is required a small quantity is placed on a watch-glass, and one or two drops of chemically-pure sulphuric acid added. The results obtained may classify the substances into six groups, as follows:—

1. The substance remains colorless: chinine, cinchonine, morphine, strychnine, caffeine, theobromine, codeine (coniine, nicotine), atropine.
2. A yellow color of different shades ensues: chinidine, colchicine, emetine, narcotine, aconitine, picrotoxine, solanine, veratrine, sabadilline.
3. The substance become rose-red: brucine.
4. It becomes first red, but is very soon dissolved with a yellow color: thebaine.
5. A violet color results: papaverine.
6. Various shades of brown are produced: delphinine, narceine, digitaline.

The paper includes also instructions for a variety of other useful tests to determine the presence of the particular alkaloids.

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## NOTE ON THE EXHIBITION OF RESIN OF COPAIBA.\*

BY A. W. GERRARD.

*Dispenser, and Teacher of Pharmacy, University College Hospital.*

The above resin has been recently introduced to the notice of the medical profession by Dr. Samuel Wilks as possessing therapeutic advantages over the balsam, and likewise as being more agreeable for the patient to take. In a letter to the *Lancet* of June the 21st, Dr. Wilks, in reply to numerous inquiries that had been made as to the best method of dispensing it, gave the following formula which had been recommended by me, and was used in the dispensary of Guy's Hospital:—

Take of—

Resin of Copaiba .....	180 grains.
Rectified Spirit .....	5 drachms.
Spirit of Chloroform .....	1 “
Mucilage of Acacia.....	2 ounces.
Water to .....	12 “

Mix according to art.

These ingredients, when mixed in their proper order, form a mixture which, although it contains the resin in a fine state of division, I did not consider altogether satisfactory, as after standing a day or two the resin collects at the bottom of the bottle, forming a semi-compact mass which is shaken apart with difficulty. With the view of overcoming this objection, I made experiments with various other substances and obtained the best result in the following:—

Take of—

Resin of Copaiba .....	15 grains.
Compound Powder of Almonds .....	30 “
Water to.....	1 ounce.

Rub the resin with the powder until well incorporated, then add the water after the manner of forming an emulsion.

This forms a cream-colored emulsion of a very satisfactory character, having but a faint odor of copaiba. This may be removed by the addition of compound tincture of lavender, which at the same time imparts and agreeable pink tinge.

The emulsifying power of the powder of almonds is undoubtedly due principally to the fixed oil it contains, which acts as a solvent of the resin; the action is also assisted by the gum and sugar. For the use of hospital dispensers and others who may have frequent occasion to dispense it, it may be kept in a concentrated form, 1=4.

\* *Phar. Jour. & Trans.* No. 161.

## THE OPIUM TRADE WITH CHINA AND ITS PROSPECTS.\*

It is now exactly one hundred years since the East India Company embarked in the opium trade with China. Previously the only opium exported into that country was conveyed thither by the Portuguese from Turkey, and the annual consumption did not exceed 200 chests per annum, it being used strictly for medicinal purposes. The drug, despite official prohibition of its use, slowly but surely advanced in favour as an intoxicant until, as is well known, it is now an article of almost general consumption. Vigorous measures have from time to time been adopted by the Chinese Government to curtail its use, and the war of 1839 was the outcome of repressive action. The British merchants of Canton refused to send away the "receiving ships," and, as a consequence, were imprisoned until the whole of the drug in Chinese waters, amounting to 20,000 chests, and valued at about 3,000,000*l* sterling, was given up to the authorities, and by them thrown into the sea. The Chinese were made to pay dearly for this outrage; but it needed two other wars, as well as the moral impression produced by the sack of the summer palace and the fall of Peking, to induce the Government to legalize the introduction of the drug. Lord Elgin's treaty placed the trade on a secure footing, and it has since yielded to the Indian revenue a splendid but precarious return. It has never been controverted that a *bona fide* and general demand for the drug existed and still exists among the Celestials, and the efforts of a paternal government to dictate to its subjects what tastes they may indulge in seem misdirected and unjustifiable. After having opened up and at some risk maintained a market for the opium of our Indian empire, we are naturally deeply interested in anything that may affect our interests in that direction. The increased and increasing production of the drug in China is therefore to us a matter of some moment. The old Chinese custom of forbidding the people to grow the poppy is still kept up; but a report of our consul at Hankow gives a good reason why the prohibition is everywhere disregarded. Proclamations, he says, are of course continually being issued by local magistrates, exhorting people to cultivate cereals and abandon opium for more useful crops; but as the officials are the chief consumers of the drug, and in addition derive a considerable revenue therefrom, these proclamations are intended only as a means of extorting more money from the cultivators. In the great western province of Szechuen we learn that nearly "half the land" is appropriated to the culture of the poppy, and even in the south-western provinces of Yunnan and Kweichoo, which have been wasted by a Mahomedan rebellion for some years,

\* From the Chemist and Druggist.



the production is very considerable. It pays the producers so well that its cultivation steadily increases, and has now, moving eastwards, invaded the provinces of Honan and Hoonan, in the centre of the empire. From the irregular manner in which the Chinese levy their land dues it is quite impossible to arrive at a correct estimate of the production. It may be estimated roughly, however, as varying from 50,000 to 80,000 piculs (say 3,937,500 to 6,300,000 lbs). The British Consul at Shanghai anticipates that the rapidly-increasing growth of the native poppy will have a most disastrous effect upon the importation from India, for although the consumption in China increases year by year, yet year by year so does the cultivation of the poppy increase, and as this native drug is far cheaper than the Indian, it is thought that the latter will be eventually driven out of the market, unless it can be put into consumers hands at a reduced price. This is probably an extreme view to take of the case, but nevertheless it is quite clear that the "placing" of our vast Indian production is jeopardized to a considerable extent by the "home supplies." As regards quality, however, the native growth is at present much inferior, and can by no means compete successfully with Indian opium. The evidence of Mr. Caine, our consul at Hankow, on this point is confirmatory of this conclusion.

Situated midway on the navigable source of the Yiang-tse-Kiang, in the very heart of China, Hankow is the central depot in the interior of the country for opium imported in foreign steamers, and it is also the first great inland port at which the Indian opium coming from the sea-coast is brought into competition with the native drug grown in the western provinces of China, and carried down the great rivers for consumption in the other parts of the country. Thus Mr. Caine enjoys peculiar opportunities for observing the course of trade and ascertaining what are the chances of native beating the foreign drug out of the market, and his report to the Government of India is more hopeful than that of his brother official at Shanghai. He says "the native article is consumed by the poor exclusively, as inferior teas are in England." We are, moreover, informed that the drug grown in the province of Yunnan of especial excellence is supplied largely to the conterminous province of Hoonan, which is, nevertheless, the largest importer from Hankow as a centre of the foreign drug. This is a significant fact, and proves the conclusion arrived at, "that the best native opium, under the most favourable circumstances, is unable to compete successfully with the more tasty foreign article."

It is just possible that we may attach undue importance to the culture of the poppy in China, but the extension of that culture certainly justifies some degree of uneasiness. Next to the land, opium is the most lucrative source of the Indian revenue, bringing in over 6,000,000 per annum, and any circumstance which tends to

render its great market insecure or uncertain demands vigilant attention. We trust, therefore, and believe, that the Government of India will adopt such measures as will ensure its being reliably informed at short intervals of the progress of opium production in the Celestial empire. Although we may be powerless to prevent, it is none the less desirable to confront disagreeable eventualities.

## VARNISHES.

By varnish we understand a liquid of an oily or resinous nature employed for coating various objects, the thin film becoming dry and hard, protecting the object on which it is laid from the action of air and water, and at the same time imparting a glossy and shining surface. We distinguish oil and spirits varnishes. Oil varnishes are usually prepared from linseed oil, but sometimes, especially for artists' purposes, poppy seed and walnut oils (so called dry oils) are used. Linseed oil, (raw) becomes slowly converted by the action of the air into a tough, elastic, semi-transparent mass; but this property is possessed in a far higher degree by the so-called boiled oil, that is to say—an oil which has been brought by the action of heat and of oxidizing materials into a state of greater activity, in fact—into a state of incipient slow oxidization, the result of which is the formation of the substance termed by Dr. G. J. Mulder linoxine, which in many of its properties corresponds to caoutchouc. The drying of oil varnishes is not therefore due to evaporation (leaving, as is the case with alcohol varnishes, a coherent film of resin,) but to the oxidizing action of the oxygen of the air, whereby a coherent film of linoxine is formed. Linseed oil (raw) is converted into what is termed varnish by heating the oil with certain substances which more or less readily give off oxygen, while these substances also act upon the elaine, palmitine, and myristine of the linseed oil. The substances with which raw linseed oil is boiled are litharge, oxide of zinc, and peroxide of manganese. It is certainly preferable to carry this operation into effect upon the water bath, or at least with vessels provided with steam jackets. The oxides are employed in coarse powders, which are suspended in a linen bag in the oil. In practice 1 part of oxide of zinc or litharge is taken to 16 parts of raw oil; and of the manganese 1 part to 10 of oil; the oxides become partially dissolved in the oil, while they aid in converting the palmitine, &c., (not linoleine,) into plaster, (lead or zinc soap). Boiled linseed oil usually contains from 2.5 to 3 per cent. of litharge dissolved. Neither the addition of sulphate of zinc nor such absurdly added substances as onions, bread crust or beet root have any result whatever. Linseed oil intended to be mixed with zinc white should not be boiled with litharge, but with peroxide of manganese. The lower the

temperature at which linseed is boiled the brighter its color. Mulder found that when raw linseed oil, especially if old, was kept from 12 to 18 hours at a temperature of 100° it acquired the property of boiled oil. Sometimes, after boiling, linseed oil is bleached by exposing it in shallow trays 10 centims. deep, best made of sheet lead, covered with sheets of glass, to the action of strong summer sunlight. Liebig's recipe for making a bright varnish is the following : To ten kilos of raw linseed oil are added 300 grms. of finely pulverized litharge, after which there is added a solution of 600 grms. of acetate of lead ; the mixture is vigorously stirred, and after the subsidence of the materials the clear varnish is ready for use. Borate of manganese is, according to Barruel and Jean, an excellent so-called siccative (dryer) when added to raw linseed oil, 1 part to 1,000 of oil. Mulder's experiments confirm this statement in every respect.

**GOLD SIZE.**—This is used in gilding for fixing gold leaf on wood paper, &c., and consists of a solution of linseed oil and lead plaster in oil of turpentine, prepared by first saponifying linseed oil with caustic soda or potassa, and precipitating the aqueous solution of the soap with a solution of acetate of lead, the lead soap thus formed being next dissolved in oil of turpentine.

*Lemon Kali.*—

Take of bicarbonate of soda.

Tartaric acid, of each,  $\bar{z}$  ijss.

Sugar (white),  $\bar{z}$  xi.

All to be in the state of a fine powder. and separately dried by a gentle heat, after which they are mixed together and flavored with oil of lemon, 10 drops, and otto of rose 1 drop. Passed through a sieve and put into dry bottles well corked.

## Editorial.

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### THE COUNCIL MEETING.

From the minutes of the meeting, published in this number of the JOURNAL, it will be seen that the new Council has formally organized, and has entered upon the duties and responsibilities which have devolved upon it, and which, during the somewhat lengthy term of office, extending over the next two years, will continue to demand the time and attention of our pharmaceutical executive.

The result of the election of officers gives, with two exceptions, an entirely new set of officials. This applies to members of the Council as well as those who do not belong to this body, but who are paid servants thereof. A seat in the Council, rendered vacant by the resignation of Mr. Hodgetts, the new Registrar, is filled by Mr. Love, who ranked fourteenth on the voting list. We think this plan of filling vacancies to be a good one, and much better calculated to fulfil the wishes of the majority of the members of the College than any election by the members of the Council could possibly do, if such intimation were disregarded. In the event of any amendment to the Pharmacy Act, or by-laws, we think this should be borne in mind; and, in any case, the precedent now offered might be taken advantage of as affording a sure and just basis upon which the filling of seats, rendered vacant by death or resignation, might be effected in accordance with the views of the majority.

The Mason outrage was brought up for discussion, but nothing was elicited with which our readers have not already been made acquainted. The explanations of the Registrar will be found in the official report.

The matter of dealing with defaulters remains precisely as it was; although the disposition of the Council appeared to be in favor of summary measures, it was pointed out that, at the previous meeting, a resolution of a rigorous character had been passed, but had not been carried into effect. It was thought sufficient to call the attention of the new Registrar to this resolution, and to direct him to act promptly, in accordance with its provisions. As this

measure may have been lost sight of by our readers, it may with benefit be transcribed: "That inasmuch as a number of persons have, either through inadvertance or neglect, omitted to renew their registration fee for the present year, and that the Council are unwilling to take severe steps to enforce this duty without giving due warning of the consequence of such neglect, the Registrar be instructed to notify such parties, that, unless such fee be paid within 14 days from the date of receipt of letter, proceedings will be taken in accordance with the 25th clause of the Act, and that the Registrar be instructed to carry out this resolution." It is to be hoped that the energy of the Registrar will be early applied to this matter, so that this prolific cause of dissatisfaction may be at once removed.

A committee to amend the Pharmacy Act was appointed, and have much work before them. There are several important omissions in the original measure, and the workings of the College during the past two years have rendered obvious many points which might, with great advantage, be embodied in an amended Act. On behalf of the Committee we would request that parties having suggestions to make, send them to us for publication, so that they may be freely discussed before being presented to the committee.

It was proposed that a by-law of the College, touching the duties of the Registrar, be amended, and notice of motion was given to that effect. The purport of this addition will be that, the Registrar preserve and present to the Council, at each sitting, the papers and credentials relating to the qualifications of persons whom he may have registered during the interval between the Council meetings. This is an important matter, and, if properly and carefully carried out, both by Registrar and Council, will prevent the recurrence of certain irregularities which have taken place, and which so long as the former lax system is pursued cannot fail to recur.

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### THE EXAMINATIONS.

The fifth semi-annual examination for certificates of proficiency was held on the day preceding the council meeting. Out of twelve candidates nine succeeded in passing. It will be remembered that prizes were awarded to the two competitors who are foremost on the list. In the present case the first prize was taken by Mr. J. H.

C. Fisher of Bobcaygeon, whose marks numbered  $81\frac{1}{2}$ , and the second prize by Mr. W. R. Carmichael of Toronto, who was credited with  $80\frac{1}{4}$  marks.

For the purpose of ascertaining the degrees of proficiency shown by the candidates at the various examinations, we have looked up the details, and tabulated them as follows:

Date.	No. of Candidates.	No. Passed.	Highest No. Marks.	Average.
Aug., 1871	5	3	74.00	72.00
Feb., 1872	10	8	91.00	79.00
Aug., 1872	16	12	99.50	73.80
Feb., 1873	13	10	90.25	78.90
Aug., 1873	12	9	81.50	68.52

From this we find that the degree of proficiency as shown by the average number of marks, was, at the last examination, lower than any other occasion. The first prize was also carried off with a fewer number of marks than at any previous occasion, except at the first examination. The tempting number of  $99\frac{1}{2}$  marks out of a possible 100, gained at the third examination, by Mr. Maclagan of Lindsay, still remains unsurpassed, and will, indeed, be difficult to excel. The total number of students examined since the organization of the Board is 56. Of these 42 were successful, so that we have an average of about 1 out of 5 to represent the unfortunate "plucked."

The questions given at the last examination are reproduced for the benefit of intending candidates, who may thus gain a knowledge of the scope and direction of the studies in which they will be tested.

#### *Pharmacy.*

1. How many minims in an imperial gallon? and how many troy grains in an avoirdupois pound?
2. Explain briefly the principles of Filtration, Maceration, Percolation and Distillation.
3. Give the composition, properties, and doses of three different Pills of the British Pharmacopœia.
4. Give formula, dose, and action of Pulv. Ipecac. Co.
5. In what form does iron exist in Mist. Ferri Co.? What alteration takes place in appearance and constituents on keeping? State the cause and remedy.
6. Give an outline of the process for preparing Morphia? Name the principal salts of this alkaloid. Give the properties and doses.
7. Give the names of antidotes for Arsenious Acid, Strychnia, and Oxalic Acid.

8. Name the ingredients (with proportions) in five of the more important narcotic and sedative tinctures.
9. Give mode of preparation and dose of Liq. Bismuth.
10. Recognize samples of preparations.

*Practical Dispensing.*

1. Mrs. Smith.

R	Ol. Terebinth	ʒi	
	Aq. Flor. Aur	ʒss	
	Aq. Pur.	ʒi	
	Mucil. Acac.	ʒij	
	S. V. R.	ʒij	M. S. A.
	Sig. ʒij ter die.		

2. R Pulv. Jalapæ ʒss  
 Hyd. Subchlor gr. vi M.  
 Div. in Chart iij.  
 Sig. cap. ij, vel iij, ut ad sedes necesse sit.

3. Mrs. Jones.

R.	Ol. Carui	gtt. iss.	
	ft. pil. sec. art. Mitte xij		
	Sig. St. j ter die ante cibum.		

*Materia Medica..*

1. What is Glycerine? How obtained experimentally and commercially?
2. Where and how is Nitrate of Potash obtained. and what are its properties and uses?
3. Define Gums, Gum Resins, Resins, and Balsams, so as to show where they differ, giving an example of each.
4. What available Emetics are there? Give doses.
5. What is the chief source of Ammonia? Name four important preparations, giving properties and doses.
6. How would you distinguish Calomel from White Precipitate?—Quinine from Cinchonine?—Chlorate of Potash from Chloride Potassium?—Phosphate Lime from Hypophosphite of Lime?
7. What is Arrowroot? Where and how obtained? Name the varieties in use.
8. Give officinal names for Gamboge, Indian Hemp, Iceland Moss, Hemlock Leaves, Blue Vitriol, Copperas, Rhatany Root, Musk, Gun Cotton, Canada Balsam.
9. How would you determine the commercial value of Cinchona? What per centage of alkaloids would constitute a fair sample?
10. Give common and officinal names of samples.

*Chemistry.*

1. In what proportions does Oxygen combine with Iron, and how are the salts of the different oxides designated?





4. R Hydrarg. Chlor. gr. xii.  
Conf. Rosæ q.s.  
Ut fiat pil xi, quarum sum. j, post cœnum.
5. R Tinct. Opii ʒi  
Syr. Croci ʒi  
Tr. Cardam. Co. ʒii  
Aq. Cinnam. ʒvi
6. Write out No. 1 in full Latin words.
7. Point out errors in Latin in the following:  
"Sumatur pillulas duo omne nocti."  
Give reasons for the alterations.
8. Write a Latin Prescription for a four-ounce mixture to contain four doses of 20 grs. chloral, with syrup tolu and cinnamon water. One-fourth to be taken at bed-time, and repeated in an hour if sleepless.
9. Write the following in full in Latin and English:  
R Haust. Nig. ʒiv  
Sig. ʒi, mane sumd. augeatur dosis s. o. s.  
M. cochl: exhib. disique iteretur prout urg. morb.
10. Write a prescription in the usual form for an 8 oz. mixture, to contain in each dose
- |                            |           |
|----------------------------|-----------|
| Compound Syrup of Squills  | ½ drachm. |
| Camphorated Tincture Opium | 15 drops. |
| Syrup Tolu                 | 20 drops. |
| Iodide Potassium           | 3 grains. |
- Peppermint water to make up the quantity desired. Dose, half a tablespoonful three times a day.

VICTORIA MEDICAL COLLEGE.—The new building, in which this school is now located has been found fully equal to the expectations which were entertained at the time of its erection. For internal convenience, for a comfortable well-lighted theatre and dissecting room, the building is unsurpassed on the continent. The comfort of students is secured in having the rooms well warmed, ventilated, and lighted by gas. The laboratory is pleasantly situated, has abundance of light, and communicates by folding doors with a lecture room. Here, students have every necessary opportunity of acquiring a knowledge of practical chemistry.

The attention of the Medical Students is especially directed to the fact that the certificates of attendance at this College are recognized by the Royal Colleges of Surgeons and Physicians of London, England, and also by those of Edinburgh. A number of graduates have already taken honors in Great Britain; and may be found in almost every part of the world occupying high positions of professional trust.

The Toronto General Hospital, opposite the college, supplies ample clinical advantages. This institution may not contain as many beds as those in larger cities, but there are quite enough to meet the requirements of medical students. All forms of disease may there be studied, and all kind of surgical operations are from time to time performed. Indeed, the student will be better able to learn in a small well-appointed hospital than in a large one, where a multitude of cases bewilder the mind and divide the attention. Arrangements have been made by the Hospital Staff to deliver a course of clinical lectures, open to all medical students upon payment of the usual fees.

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## Editorial Summary.

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**New Remedy for Dysentery.**—The *Canada Lancet* for August, contains a reprint of a paper, originally published in the *Edinburgh Medical Journal*, which from the high standing of its author,—Dr. Kerr, of Galt—and the thorough and careful manner in which the experiments detailed were conducted, cannot fail to attract the attention of the medical profession, and, indeed, has already done so to an extent which must be gratifying to the author. Dr. Kerr appears to have made a specialty of the treatment of dysentery, and more especially directed his attention to the compounding of a medicine which should, as nearly as possible, answer to all the indications of that frequent and fatal disease. Commencing some twenty years ago, with a combination of camphor, henbane, and opium; various other ingredients—amounting in all to thirty two—were successively tried, and the majority discarded. When adding any new ingredient to the original combination, the result was verified to the most satisfactory extent, before any conclusion was arrived at. Seven constituents were, at last, selected, and the compound so formed has now been tested for over fourteen years. Dr. Kerr communicated his receipt to fifteen of his medical friends, labouring in Canada, California, the Southern States, and Africa, and these gentlemen have tried the medicine in their practice and communicated the results to the author; out of nearly five hundred cases, the records of which have been kept, only four terminated fatally. Of the constituents of the medicine, four are officinal, viz.: opium, stramonium, dulcamara, digitalis; three non-officinal, sium, lineare, cicuta maculata, conio selinum canadense. All are more or less narcotic; and digitalis, dulcamara, and sium lineare are also

diuretic. So many are necessary evidently from each possessing some peculiarity in the way in which it affects the system; the combined effect of these peculiarities being required to combat the disease. Without opium the combination is slightly aperient, improves appetite, promotes sleep, and, according to experience gained in dysentery and other diseases, heals ulceration of the mucous membrane. In dysentery, opium is necessary apparently to check the frequent motions of the bowels, the strictly curative power depending chiefly, if not altogether, on the other ingredients. In infants generally, and also in a few adults, digitalis does not act favourably. In such instances I have substituted squills with great benefit. Adults generally require the combination with digitalis; of a very few infants the same may be said; and to many adults the combination with digitalis, or that with squills, may be given indifferently. Excepting opium and squills, the part employed is the leaf. Digitalis and squills are combined in the proportion of half a part each,—all the others in that of one part. For infants, opium is reduced to a half part. The usual dose to adults is six and a half grains, digitalis or squills being each half a grain, and all the others one grain each.

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**Digestive Property of Oysters.**—In a communication to the *Boston Medical and Surgical Journal*, Dr. E. H. Hoskins details the result of some experiments on the digestion, or solution of oysters, by artificial means. These experiments point out the reason why oysters are, generally, found an acceptable, and beneficial form of diet for invalids; and though physicians have, hitherto, been in the habit of ordering them empirically, it would appear that there are good chemico-physiological reasons for the selection. The author found that two entire oysters were dissolved by being subjected, for two hours, to the action of one grain of pepsin and one ounce of water. Thinking over this somewhat extraordinary result, he was led to the belief that the oysters themselves possessed a digestive property. This is reasonable enough, for as the writer says: "The oyster is an organized being with a stomach. etc., calculated to digest infusoria—as its food—and hence possessing a gastric juice; and if so, what should hinder that gastric juice from digesting even the oyster itself, if submitted to the proper condition. With oysters, as bought by the quart, there is so much liquor. On boiling a little of this liquor it coagulated, indicating so much coagulable albumen. I took another portion of two drachms of this liquor, one drop of hydrochloric acid, and submitted to 100° Fah. for two hours. It remained perfectly clear, and, on boiling a half of it, there was no coagulation, and, applying Fehling's test, there was the beautiful purple color produced, the whole indicating that there was in the liquor a natural element to produce the result. This experiment I

have tried repeatedly ; and, to make the matter still more conclusive I placed one ounce of the filtered liquor in a flask, added to it 120 grains of thoroughly washed and wiped, solid part of an oyster, and five drops hydrochloric acid, and submitted to 100° Fah. for seven hours. On filtering, I had only seventeen grains of solid matter left thus showing that 103 grains of the solid oyster had been digested in one ounce of the liquor."

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**Essence of Ylang-Ylang.**—This perfume, which is also known as Ilang-ilang, and Alan-gilan—the latter of which is probably most correct—is made the subject of a short paper, by M. Gal, (*Comptes Rendus*, translated in *Phar. Jour. and Trans.*) The essence is obtained, by distillation, from the flower of the *Unona odoratissima*, an anonaceous tree growing in the Antilies and Jamaica. It has a density of .980 at 15° C, and passes over entirely in distillation, without leaving any carbonaceous residue. Ebullition commences at 160° C., and the boiling point gradually runs to 300° C. The essence is insoluble in water; soluble in ether; and partially soluble in alcohol. The insoluble portion (in alcohol or water?) when dissolved in ether, appears, after the evaporation of that solvent, as a semi-fluid, transparent mass; about one-fourth of the essence yields this product. Treated with potash, until all soluble or saponifiable matter is extracted, a substance is left which is insoluble in water. When hydrochloric acid is added to the aqueous portion, a solid body, of crystalline aspect, is deposited. This product possesses the physical and chemical properties of benzoic acid.

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#### **Tartrate of Magnesia prepared with Metatartaric Acid.**

—E. Leger, (*Repert de Pharm.* in *Phar. Jour. and Trans.* No. 159), remarks on the instability of solutions of tartrate of magnesia, most of the salt being deposited. He proposes to use metatartaric acid prepared by heating the ordinary acid to 170° C (338° F.); a variety of the acid, not susceptible of crystallization, is produced. It forms with magnesia a soluble, tasteless, salt, which is said to be a more reliable and energetic purgative than the citrate. The acid should be fused in a porcelain, or silver basin; small portions of acid being added, successively. The operation is finished as soon as the acid becomes liquid, and assumes an amber colour. The solution of tartrate of magnesia is made with cold water, the proportions necessary are, one part of carbonate of magnesia to two of acid. The solution, thus prepared, may be preserved for several weeks; and the author is of opinion that this new salt will quickly come into use, as it is much superior to the more expensive and less effective citrate.

**Brazil Nut Oil.**—B. Corenwinder, (*Four. Pharm. et Chim. in Pharm. Jour. and Trans.*) gives a paper describing the source from which the brazil nuts of commerce are obtained; and also states the result of an analysis of the kernel of the nut. The *Bertholletia excelsa*, which produces the nuts, is a majestic tree, growing abundantly on the banks of the Orinoco, and in Brazil. The fruit is a spherical nut, about the size of a child's head, and is divided internally into four compartments, each containing several seeds; generally from six to eight in each division. These seeds are the nuts of commerce. An analysis of the fresh kernel gave:

Water, - - - - -	8. 00
Oil, - - - - -	65. 60
Nitrogenous matters - - - - -	15. 31
Non-nitrogenous organic matters, - - - - -	7. 39
Phosphoric acid 1.35	
Lime, potash, silica, etc., 2.35	3. 70

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100. 00

In Brazil and Guiana an excellent edible oil is extracted from the nut, but it is feared that the rapidity with which the oil becomes rancid would preclude its importation into Europe, while in a palatable state; but the author considers that an oil might be obtained for the manufacture of soaps, and other industrial purposes, while the oil-cake might be advantageously employed as manure, or, perhaps, as food for cattle.

**Poisoning by Substitution of Strychnine for Quinine.**—The Philadelphia *Medical and Surgical Reporter* gives the details of two cases of poisoning, which in all probability resulted from a druggists' mistake. A physician, of Kentucky, feeling somewhat unwell, went to the store of a druggist, and took from a bottle, labelled "quinine," what he supposed was an ordinary dose of that drug. Shortly afterwards, he was taken violently ill, and, in a short time, expired. The cause of his death was thought to be an affection of the heart. Next day, a boy was served with a similar dose, out of the same bottle, and with a similar result. This aroused the suspicions of the friends of the physician, and the remaining contents of the bottle have been sent for analysis; with what result is not stated. It is generally supposed that strychnine had, by mistake been put in the quinine bottle. If this is the case, it is likely that the matter will not end here, but that others may prove the unfortunate victims of this fatal error.

**Dietetic Value of Oatmeal.**—A writer in *La Medicale* speaks very favorably of the value of oatmeal, and, more especially, as a food for infants. Experiments were made with a large quantity of the meal, and it was concluded, that in regard to azotic or plastic elements, and such as are “respiratory,” the oatmeal is analagous to human milk, or that of the cow. The most advantageous form of administration was arrived at by macerating a tablespoonful of the meal in a glass of water, for twelve hours, straining through a seive, boiling until of the consistency of a jelly, and adding sugar or salt, according to taste. Milk may also be employed instead of water. Analysis of oatmeal gave:

Water, - - - - -	8. 7
Fatty matter, - - - - -	7. 5
Starch, - - - - -	64. 0
Nitrogenous matter, - - - - -	12. 2
Mineral substances, - - - - -	1. 5
Cellulose, dextrin and loss - - - - -	6. 1
	100. 00

**Strange Instance of Spontaneous Combustion.**—In the same journal we notice a case of spontaneous combustion, which, however strange it might at first appear, is, by no means unlikely. A physician had prescribed for a pain in the chest, a liniment of linseed oil and camphor, which the patient applied, but found almost unbearable by reason of the sensation of burning which it occasioned. In about an hour, the cotton wool, upon which the mixture had been applied, took fire, and before it could be removed actually burnt the patient's neck. This story may, or may not be true, but as we have said it is by no means impossible or improbable.

**Opium Trade of Great Britain.**—In 1840, the amount of opium which passed through the British market was 35,848 pounds. In thirty years the commerce in this drug has been extended so that in 1870 the quantity exported reached 150,000 pounds, valued at £196,165 stg. A like increase is noticeable in the exports of Cinchona bark. In the first named year the quantity sold was 1,058 cwts.; in 1870, 12,785 cwts., valued at £123,375 stg.

**Aromatic Tincture of Assafœtida.**—A writer in the *American Journal of Pharmacy*, proposes a combination of aromatics with assafœtida, as yielding a mixture of more agreeable odor, and

lest disgusting taste than the simple tincture. The formula given has been tried, and the preparation is quite permanent :

Tinct. Assafœtidæ, U. S. P. - - - - -	8 fld. oz.
“ Aurantii, U. S. P. - - - - -	2 fld. oz.
Ess. Menthæ Pip. - - - - -	3 fld. oz.

The dose will be from one and a-half to two fluid drachms, and the mixture should be taken without the addition of water.

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**Preparation of Camphorated Oil.**—J. B. Schmidt, (*Pharmacist and Chem. Record*), proposes an expeditious and effectual method for the solution of the camphor. The gum is pulverized, by the use of a little alcohol, and added to the oil, previously heated to between 140° and 150° F. Solution is immediately effected. No appreciable loss of camphor results from the application of heat.

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## Ontario College of Pharmacy.

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### COUNCIL MEETING.

The regular semi-annual meeting of the Council was held on Wednesday, August 6th, 1873.

The following members were present : Messrs. B. Lyman, Hugh Miller, J. T. Shapter, Wm. Saunders, Chas. Brent, J. Roberts, L. W. Yeomans, F. Jordan, E. Harvey and Geo. Hodgetts.

Mr. H. J. Rose, Registrar, took the chair, when he called upon Prof. Shuttleworth and Mr. Love to act as scrutineers. The election of officers was then proceeded with, by ballot, resulting as follows :

President, Mr. Benj. Lyman, who then took the chair and returned thanks for the honor conferred on him.

Vice-President, Mr. Wm. Saunders.

Registrar and Secretary, Mr. George Hodgetts.

Treasurer, Mr. H. Miller.

Auditors, Mr. Shapter and Mr. Love.

Examiners, Mr. J. T. Shapter, Prof. Shuttleworth and Mr. Yeomans.

In accordance with by-law 19 Mr. Geo. Hodgetts tendered his resignation as member of the Council, thanking the members for the honor conferred on him, and at the same time nominating, as his successor, Mr. N. C. Love, as standing next on the list, at the late election.

Mr. Saunders considered some other section should be represented, as for instance, Niagara or St. Catherines. Mr. Harvey thought sections unrepresented should be favored, though he considered Toronto was not over represented.

The President advocated the election of another Toronto member, so that the Legislature should be watched, and, in case we required amendments to the Pharmacy Act, there would be those on the spot to attend to such matters.

Some little discussion then took place as to the member to fill the vacant seat.

Mr. Shapter proposed, seconded by Mr. Saunders, that Mr. Paffard, of Niagara, be elected. An open vote was taken, which resulted in the election of Mr. Love who then took his seat.

Mr. Jordan proposed, and Mr. Love seconded, that Prof. Shuttleworth continue as editor of the Journal. Carried.

The minutes of the last meeting were read and adopted.

Mr. Saunders read the report of the Examiners :

*To the Council of the Ontario College of Pharmacy:*

The Examiners beg to report that in accordance with the requirements of the Pharmacy Act an examination of candidates for registration was held yesterday in the lecture room of this college.

Twelve students presented themselves, of whom nine gained the required number of marks to entitle them to a diploma. One hundred marks being possible there were scored by

J. H. C. F. Fisher, Bobcaygeon .....	81½	1st prize.
W. R. Carmichael, Toronto.....	80½	2nd prize.
G. W. York, Waterford.....	76	
F. H. Holgate, Georgetown.....	67½	
D. F. Lucas, Buffalo .....	67	
R. McKenzie, Lucknow .....	63½	
G. F. Sproule, Brantford .....	60½	
J. B. Smith, Millbrook .....	60	
J. P. Lawrason, St. George.....	60	

On Chemistry the papers of Messrs. Holgate and York were very creditable, on other subjects the greatest number of points was obtained as follows :—Botany; Fisher and York. *Materia Medica*;



Fisher. Prescriptions; Lucas and Fisher. Pharmacy; Fisher and Carmichael. Practical Dispensing; Holgate, Fisher and Carmichael equal.

It is suggested that two members of the Council be appointed to supervise the practical dispensing and preserve order at the examinations. At present it is extremely difficult to prepare a report in time for the meeting of Council. Should the number of students greatly increase, it would be almost impossible, unless some assistance in this way should be given by the Council.

All of which is respectfully submitted.

WM. SAUNDERS, }  
R. W. ELLIOT, } *Examiners.*  
H. J. ROSE, }

Toronto, August 6, 1873.

Mr. Saunders explained why Mr. Rose was selected as examiner in place of Mr. Brendon.

Moved by Mr. Miller, seconded by Mr. Harvey, that the report of the Examiners be received and adopted. Carried.

Moved by Mr. Saunders, seconded by Mr. Jordan, that a committee of two be appointed from among the members of the Council, to aid the examiners, at the next examination, in the way of supervising the department of Practical Pharmacy, and to assist in the necessary arrangements required. Carried.

Mr. Love and Mr. Harvey were appointed a committee to supervise.

Mr. Saunders presented an account from Brown Bros. for prizes. Approved by Council.

The Treasurer's report was read as follows:

*George Hodgetts, Treasurer, in account with the Ontario College of Pharmacy:*

		RECEIPTS.	
Feb'y.	1, 1873.	To Balance in Bank .....	\$1,496.70
	1	"    "    hand .....	136.14
March	5	"    Cash from Registrar .....	84.00
May	3	"    "    "    " .....	206.50
	7	"    "    "    "    " .....	118.75
June	2	"    "    "    "    " .....	234.00
	5	"    "    "    "    " .....	383.00
	7	"    "    "    "    " .....	234.60
	14	"    "    "    "    " .....	263.00
	23	"    "    "    "    " .....	164.00
	30	"    Int. on ac. in Canada Bank of Com.	27.80
July	30	"    Cash from Registrar.....	190.00

\$3,538.49

## DISBURSEMENTS.

Feb'y.	5, 1873.	By	Cash paid, expenses Members attending Council Meeting, February Session .....	\$61.76
	5	"	Cash paid, Examiners .....	30 00
	5	"	" J. A. Clark, Student ...	17.00
	7	"	" Globe Print. Co. Advt.	12.00
	15	"	" Monetary Times account	
			Journal, Nos. 6 & 7..	109.00
	19	"	" Mail Print. Co. Advt...	10.00
	22	"	" Postage account, Col.	3.20
March	5	"	" H. J. Rose, 9 mo. salary as Registrar .....	300.00
	5	"	" Geo. Hodgetts, 6 mo. do. as Treasurer .....	50.00
	5	"	" Postage account Jour...	6.00
	17	"	" Monetary Times account	
			Journal No. 8.....	54.25
April	1	"	" Postage account Jour...	6.50
	21	"	" Monetary Times account	
			Journal No. 9 .....	54.25
May	2	"	" Postage act. College \$3	
			Journal \$5.50.....	8.50
	6	"	" Monetary Times account	
			Journal No. 10 .....	55.00
	10	"	" Brown Bros., Prizes \$17.05, labels \$1.50	18.55
	23	"	" Postage Act. College...	3.00
	28	"	" " " ...	3.00
	29	"	" " " ...	1.00
June	3	"	" " Journal ..	6.00
	4	"	" " College...	3.00
	13	"	" " " ...	3.00
	24	"	" Monetary Times account	
			Journal No. 11 .....	54.25
	24	"	" Postage Act. Journal...	1.85
	27	"	" " College...	3.00
July	2	"	" E. B. Shuttleworth $\frac{1}{4}$ salary as editor .....	125.00
	5	"	" Postage act. Journal \$6 account College \$4..	10.00
	8	"	" J. Roberts, attendance & Travelling expenses, Feb. 1872.....	23.92
	8	"	" Messrs. Elliot & Co., prizes Aug. examination 1872 .....	9.85

## Ontario College of Pharmacy.

10	"	"	Monetary Times account	
			Journal No. 12 ... ..	57.25
10	"	"	Do. print'g envel., &c..	11.70
21	"	"	H. J. Rose, $\frac{1}{4}$ salary as	
			Registrar .....	100.00
30	"	"	Hunter, Rose & Co. adv.	2.20
30	"	"	Telegram 35c., Com-	
			mission on Mr.	
			Waits cheque 25c...	60
30	"	"	Bal. in Canadian B'k of Commerce	2,323.86
				\$3,538.49

We the undersigned appointed by the Ontario College of Pharmacy have examined the above statement, and compared it with vouchers, and find them all correct.

WM. H. DUNSPAUGH, } Auditors.  
HUGH MILLER, }

Toronto, Aug. 1, 1873.

*Pharmaceutical Journal in Account with Geo. Hodgetts, Treasurer:*

## RECEIPTS.

July 31, 1873.	To Balance.....	\$540.85
Aug. 1	To cash from Registrar, advertisements, &c	\$120.00

## DISBURSEMENTS.

Feb. 15, 1873.	By cash paid <i>Monetary Times</i> printing No.	
	o and 7 .....	\$109.00
Mar. 5	" " Postage on Journal .....	6.00
17	" " <i>Monetary Times</i> print'g No. 8	54.25
Apr. 1	" " Postage on Journal ... ..	6.50
21	" " <i>Monetary Times</i> print'g No. 9	54.25
May 2	" " Postage on Journal .....	5.50
6	" " <i>Monetary Times</i> print'g No. 10	55.00
June 3	" " Postage on Journal .....	6.00
24	" " <i>Monetary Times</i> print'g No. 11	54.25
24	" " Postage on Journal .....	1.85
24	" " E. B. Shuttleworth $\frac{1}{4}$ salary..	125.00
July 5	" " Postage on Journal .....	6.00
10	" " <i>Monetary Times</i> print'g No. 12	57.25
		\$540.85

We the undersigned, appointed by the Ontario College of Pharmacy have examined the above statement, and compared it with vouchers, and find them all correct.

WM. H. DUNSPAUGH, } Auditors.  
HUGH MILLER, }

Toronto, Aug. 1, 1873.

Moved by Mr. Miller, seconded by Mr. Love, that the report of the Treasurer be received and adopted. Carried.

The Registrar's report was read as follows :

To the Council Ontario College Pharmacy,

GENTLEMEN,—Your Registrar begs to report, that for the past six months there have been issued 401 renewals for certificates of registration, 23 new registrations have been made and 27 fees for the year 1872 have been paid. Circulars have been sent twice to members in arrears for the current year and I propose sending again (the Journal for the present month having been stopped to such parties) explaining, thereby remitting at once, they can have the Journal sent so as to keep their tyles perfect. The number still in arrear is about 100, though the payments are coming in daily.

There having been some remarks made as to the information given by me regarding members in arrear, I beg to explain to the Council my action in the matter. On the 30th May I was applied to for a list of persons who had not complied with the requirements of the Pharmacy Act, this information I did not think myself compelled or justified in giving and refused to do so. About 10 days subsequently I received a letter from a lawyer in Toronto enclosing a list of names of parties whom he wished to know, were registered or not for the current year. Upon consulting a legal friend I was told that as Registrar I could not withhold the information without rendering myself liable to legal proceedings, and I accordingly gave the information, at the same time notifying the parties themselves that such information had been asked for and given. This led parties to think that I was a consenting party to the blackmailing letters which had been sent.

I had received application previously from Registered members and others asking whether certain persons had registered, and had given it.

I have to report that I have received several applications to register parties, who by sending certificates worded to the effect that applicant is entitled to be registered under the Pharmacy Act, and signed by members of the College in many cases, which on enquiry I have found to be incorrect. It is to be regretted that members should not be more familiar with the Act than to sign such certificates as it places your Registrar in the awkward situation of having to call in question a written statement.

With regard to the financial condition of the Journal, I have no material improvement to report. When in New York in April last, I placed it in the hands of an advertising agent who thought he could procure some, but I have not received any except that of a sewing machine company who require the advertisement to be taken in goods.

The receipts for the Journal account for the past year have been

Dr.

For Advertising.....	\$288.15
Subscriptions and back numbers .....	13.95
Balance on hand .....	53.90
	<hr/>
	\$356.00

Dr.

By Treasurer .....	\$ 19.35
Postages .....	15.50
Treasurer.....	63.65
Treasurer.....	137.50
Treasurer.....	120.00
	<hr/>
	\$356.00

The accounts outstanding are as follows :

Past due.....	\$165.00
Do. disputed .....	50.00
Current .....	275.00
	<hr/>
	\$490.00

Respectfully submitted,  
HENRY J. ROSE.

Some little discussion took place on the action of detective Mason in attempting to blackmail some of the members of the College. Letters on the subject were read from some of the members; also one taking exception to the registration of Mr. Brodie.

Mr. Rose was requested to make explanations in regard to several items which came up in his report, which he did in a satisfactory manner.

Moved by Mr. Saunders, seconded by Mr. Jordan, that a cordial vote of thanks be given to Mr. H. J. Rose, our retiring registrar, for the able manner in which he has labored since the first meeting of our Council. Carried unanimously.

Moved by Mr. Saunders, seconded by Mr. Brent, that certificates of the New York College of Pharmacy, and of the Chicago College of Pharmacy, be accepted equally with those of the Philadelphia College of Pharmacy.

Mr. Saunders made a few remarks expressive of the friendly feeling of this College towards kindred Institutions. Motion carried unanimously.

The President brought up the case of defaulters, and after some discussion the registrar was directed to act according to a resolution

at previous meeting. Some conversation then took place as to the best means of reaching those druggists throughout the province who have never registered, but nothing definite was arrived at.

Mr. Saunders read a letter from Mr. Jeffries, asking for the registration of Mr. Switzer of Petrolia, who had previously been in partnership with him at Beaverton.

Moved by Mr. Saunders, seconded by Mr. Shapter, that the certificate be granted. Carried.

The President suggested the advisability of a committee, to be appointed by the Council, to secure some amendments to the Pharmacy Act.

Moved by Mr. Saunders, seconded by Mr. Jordan, that a committee be appointed to consider what alterations are desirable in the Pharmacy Act, to consist of the President, Registrar, Mr. Love, Mr. Shapter and Mr. Miller to report at the next meeting. Carried.

Mr. Yeomans gave notice of motion for amendment to by-law No. 3 to provide for Registrar to place before the Council, at each meeting, the papers upon which he may have issued any certificates during the time intervening since meeting previous.

The President drew the attention of the Council to the fact, that the Medical Council were about to introduce a bill, in which there is a clause affecting druggists; the members expressed themselves satisfied that the members of the Council resident in Toronto would do their duty in the matter. He also stated that several members of the College had been prosecuted for selling peppermint lozenges on Sunday. No action was taken, and there being no other business, the Council adjourned.

GEO. HODGETTS,

*Secretary & Registrar.*

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## Registrar's Notices.

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The Registrar would beg to call the attention of those members of the College who have not paid the Annual Fees for 1872 and 1873, to sections 17, 20, and 25 of the Pharmacy Act, which they will do well to read. (See Pharmacy Act in Sale of Poisons Book.)

The Registrar is sure that those who have the interest of the profession and the College at heart will lose no time in paying up their fees; and those who have not registered, if they consult their own interest, will lose no time in doing so. All business in connection with the College to be addressed to

GEO. HODGETTS, REGISTRAR,  
Toronto.

LIST OF CHEMISTS, *who have renewed their registration since the list was published last month.*

AMBROSSE, J. D. L., Brampton.	PERRY, J. J., Napanee.
BANISTER, E., Brampton.	PERRY, R. E., Napanee.
BROWN, THOS., Paris.	SMITH, S. H., St. Catharines.
BROWN, WM., Owen Sound.	THOMAS, E. P., Forest.
COPLAND, THOS., Hamilton.	WAIMSLEY, D. L., Elmira.
FEAD, W., Stouffville.	WEEKS, A. D., Uxbridge.
HORTON, W. D., Windsor.	WILSON, D. G., Wingham.
JOHNSTON, W. S., Peterboro.	YEOMANS, H., Belleville.
KEMPT, A. W., Peterboro.	YEOMANS, L. W., Belleville.
LAW, R. E., Richmond Hill.	YORK, J. E., Otterville.

*New Registrations.*

DYKE, THOS. J., Detroit.	SWITZER, E. R., Petrolia.
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The following gentlemen, having passed the examination, have been duly registered:

CARMICHAEL, W. R., Toronto.	MCKENZIE, R., Lucknow.
FISHER, J. H. C. F., Bobcaygeon.	SMITH, J. B., Millbrook.
HOLGATE, F. H., Georgetown.	SPROULE, G. F., Brantford.
LAWRASON, J. P., St. George.	YORK, G. W., Waterford.
LUCAS, D. F., Buffalo.	

LIST OF ASSOCIATES, *from 15th June, 1872.*

APPLETON, R. H., Buffalo.	MATHIESON, G., Toronto.
BLACKADER, D. R., Brantford.	MILLER, E., Dresden.
BREDIN, R. G., Belleville.	MITCHELL, J. A., London.
CHERRY, JAS. L., Woodstock.	MCLAREN, A. D., Normanton.
CLINIE, J. D., Millpoint.	NICHOL, A. S., Perth.
COOK, J. C., Kincardine.	OLIVER, N. E., Petrolia.
COTTRELL, G. W., London.	PHILIPS, P., Leamington.
GIBBARD, JOHN, Toronto.	ROSSER, H., London.
GOODEVE, W. H., Guelph.	STRONG, W. T., London.
GREEN, W. J., Port Hope.	SCHOFIELD, H., Toronto.
HOWSE, W. R., Toronto.	THORNTON, J. A. M., Smith's Falls.
HOWARD, T. A., Montreal.	TAYLOR, E. B., Toronto.
KENLY, D., Ottawa.	WALTON, E., Peterborough.
KELLOCK, D., Perth.	WINKLE, E., Mt. Forest.
KELLOCK, JAS. F., Perth.	WATSON, CHAS., Arnprior.
MUSSELMAN, E., Brantford.	WIGGLE, S., Leamington.

GEO. HODGETTS, REGISTRAR.

Toronto, 27th August, 1873.

WHOLESALE PRICES CURRENT,—SEPTEMBER, 1873.

DRUGS, MEDICINES, &c.		\$ c.	\$ c.	DRUGS, MEDICINES, &c.—Contd.		\$ c.	\$ c.
Acid, Acetic, fort.		0 14	@ 0 15	Sang Dracon		0 60	0 70
Benzoic, pure		0 23	0 30	Scammony, powdered		6 00	6 50
Citric		1 50	1 60	" Virg. "		14 50	—
Muriatic		0 05	0 06	Shellac, Orange		0 55	0 60
Nitric		0 11½	0 15	Gum, Shellac, liver		0 50	0 52
Oxalic		0 27	0 30	Storax		0 40	0 45
Sulphuric		0 03½	0 07	Tragacanth, flake		1 10	1 40
Tartaric, pulv.		0 50	0 50	" common		0 53	0 65
Ammon, carb. casks		0 23	0 24	Galls		0 28	0 32
" jars		0 23	0 24	Gelatine, Cox's 6d.		1 15	1 20
Liquor, 88o		0 25	0 28	Glycerine, common		0 25	0 30
Muriate		0 14	0 15	Vienna		0 5	0 30
Nitrate		0 45	0 60	Prices		0 60	0 75
Ether, Acetic		0 45	0 50	Honey, Canada, best		0 15	0 17
Nitrous		0 35	0 37	Lower Canada		0 14	0 16
Sulphuric		0 50	0 50	Iron, Carb. Precip.		0 20	0 25
Antim. Crude, pulv.		0 13	0 17	" Sacchar		0 40	0 55
Tart		0 65	0 70	Citrate Ammon		1 50	1 50
Alcohol, 95 per ct.	Cash	1 60	1 72	" & Quinine, oz.		0 53	0 58
Arrowroot, Jamaica		0 16	0 22	" & Strychine "		0 17	0 25
Bermuda		0 50	0 65	Sulphate, pure		0 08	0 10
Alum		0 02½	0 03½	Iodine, good		10 00	10 50
Balsam, Canada		0 45	0 50	Resublimed		0 75	1 00
Copaiba		0 85	0 90	Jalapin		1 25	1 50
Peru		3 80	4 00	Kreosote		2 40	2 50
Tolu		0 0	1 00	Leaves, Buchu		0 22	0 30
Bark, Bayberry, pulv.		0 20	0 22	Foxglove		0 25	0 30
Canella		0 17	0 20	Henbane		0 35	0 40
Peruvian, yel. pulv.		0 42	0 50	Senna, Alex		0 27	0 60
" red		1 10	2 20	" E. I.		0 14	0 20
Slippery Elm, g. b.		0 15	0 20	" Tinneville		0 20	0 30
flour, packets.		0 28	0 32	Uva Ursi		0 15	0 17
Sassafras		0 15	0 20	Lime, C. rholate	br	5 50	—
Berries, Cubebs, ground		0 20	0 25	Chloride		0 06	0 07
Juniper		0 06	0 10	Sulphate		0 08	0 12½
Beans, Tonquin		0 62	1 10	Lead, Acetate		0 14	0 15
Vanilla		26 00	28 00	Leptandrin	oz.	0 60	—
Bismuth, Alb		3 40	4 00	Liq. Bismuth		0 50	0 75
Carb.		3 65	4 00	Lye, Concentrated		1 75	2 00
Camphor, Crude		0 38	0 41	Liquorice, Solazzi		0 50	0 55
Refined		0 45	0 50	Cassaró		0 23	0 40
Cantharides		2 80	3 00	Other brands		0 14	0 25
Powdered		2 85	3 10	Liquorice, Refined		0 35	0 45
Charcoal, Animal		0 04	0 06	Magnesia, Carb.	1 oz.	0 20	0 25
Wood, powdered		0 10	0 15	" "	4 oz.	0 17	0 20
Chiretta		0 20	0 30	Calcined		0 65	0 75
Chloroform		1 10	1 65	Citrate	gran.	0 63	0 75
Cochineal, S. G.		0 80	0 95	Mercury		1 30	1 35
Black		1 10	1 20	Bichler		1 30	1 40
Colocynth, pulv.		0 50	0 60	Chloride		1 45	1 55
Cloiodion		0 00	1 00	C. Chalk		0 65	—
Elatarium	oz	5 80	5 90	Nit. Oxid		1 60	1 70
Ergot		0 50	0 60	Morphia Acet		4 45	4 60
Extract Belladonna		2 00	2 25	Mur.		4 45	4 60
Colocynth, Co		1 25	1 75	Sulph		4 60	4 75
Gentian		0 50	0 60	Musk, pure grain	oz	23 00	—
Hemlock, Ang		0 85	0 95	" Canton		0 90	1 20
Henbane, "		2 10	2 40	Oil, Amonds, sweet		0 42	0 50
Jalap		5 00	5 50	" bitter		14 00	15 00
Mandrake		1 75	2 00	Aniseed		4 00	4 25
Nux Vomíc.	oz	0 40	0 50	Bergamot, super		6 25	6 50
Opium	oz	1 50	1 50	Carraway		3 20	3 50
Rhubarb		5 00	5 50	Cassia		2 80	2 90
Sarsap. Hon. Co.		1 00	1 20	Castor, E. I		0 15	0 15
" Jam. Co.		4 00	4 50	Crystal		0 22	0 25
Taraxicum, Ang		0 70	0 80	Italian		0 26	0 28
Flowers, Arnica		0 17	0 25	Citronella		1 25	1 35
Chamomile		0 32	0 40	Cloves, Ang.		2 20	2 40
Gum, Aloes, Barb. extra		0 70	0 80	God Liver		1 5	1 50
" " good		0 40	0 50	Croton		1 75	2 00
" " Cape		0 16	0 20	Juniper Wood		0 80	1 00
" " powdered		0 20	0 30	Berries		6 00	7 00
" " Socot.		1 05	1 35	Lavand, Ang.	oz.	0 90	1 00
" " pulv		1 00	0 00	Exotic		1 40	1 60
Arabic, White		0 70	0 75	Lemon, super		5 00	5 50
" " powdered		0 60	0 75	ord.		3 20	3 40
" " sorts		0 28	0 30	Orange		4 00	4 25
" " powdered		0 72	0 50	Origanum		0 65	0 75
" com. Gedda		0 13	0 16	Peppermint Ang.		13 00	14 40
Assafoetida		0 35	0 42	" Amer.		3 50	3 75
British or Dextrine		0 13	0 15	Rose, Virgin		8 50	8 75
Benzoin		0 35	0 75	" good		6 80	7 00
Catechu		0 12	0 15	Sassafras		0 90	1 00
" powdered		0 25	0 30	Wintergreen		6 00	6 50
Euphorb, pulv.		0 35	0 40	Wormwood, pure		4 00	6 50
Gamboge		1 40	1 50	Ointment, blue		0 90	1 00
Guaiaicum		0 35	1 00	Opium, Turkey		8 50	8 75
Myrrh		0 50	0 70	pulv.		10 50	10 75



WHOLESALE PRICES CURRENT.—SEPTEMBER, 1873

DRUGS, MEDICINES, &c.—Cont'd		\$ c.	\$ c	DYESTUFFS—Continued.	
Orange Peel, opt.		0 30	0 36	Japonica	0 06½ 0 07
" good		0 12½	0 20	Lacdye, powdered	0 33 0 38
Pill, Blue, Mass.		1 00	1 00	Logwood	0 02 0 03
Potash, Bi.chrom		0 23	0 27	Logwood, Camp	0 02 0 34
Bi-tart		0 33	0 35	Extract	0 10 0 14
Carbonate		0 14	0 20	" 1 lb. bxs	0 13 —
Chlorate		0 55	0 60	" ½ lb. "	0 14 —
Ni rite		10 50	11 00	Madder, best Dutch	0 15 0 16
Potassium, Bromide		11 5	1 40	2nd quality	0 12 0 11
yanide		0 75	0 80	Quercitron	0 03 0 05
Iodide		7 75	8 00	Sumac	0 06 0 08
Sulphuret		0 25	0 35	Tin, Muriate	0 10½ 0 12½
Pepsin, Boudault's	oz	1 40	—	Redwood	0 05 0 06
Houghton's	doz	8 00	9 00		
Morson's	oz.	0 85	1 10	SPICES.	
Phosphorus		0 95	1 00	Allspice	0 11¼ @ 0 12
Podophyllin		0 50	0 60	Cassia	0 39 0 40
Quinine, Pelletier's		—	2 45	Cloves	0 27 0 28
Howard's		2 50	—	Cayenne	0 30 0 35
" 100 oz. case.		2 45	—	Ginger, E. I.	0 16 0 17
" 25 oz. tin.		2 45	—	Jam	0 20 0 30
Root, Colombo		0 13	0 20	Mace	1 75 1 75
Curcuma, grd		0 12½	0 17	Mustard, com	0 20 0 20
Dandelion		0 17	0 20	Nutmegs	1 15 1 20
Elecampane		0 16	0 17	Pepper, Black	0 22½ 0 23
Gentian		0 08	0 10	White	0 48 0 50
" pulv		0 15	0 20	PAINTS, DRY.	
Hellebore, pulv		0 17	0 20	Black, Lamp, com	0 07 @ 0 08
Ipecac		1 50	1 60	" refined	0 25 0 30
Jalap, Vera Cruz		1 00	1 25	Blue, Celestial	0 08 0 12
" Tampico		0 70	1 00	Prussian	0 65 0 75
Liquorice, select		0 12	0 13	Brown, Vandyke	0 10 0 12½
" powdered		0 15	0 20	Chalk, White	0 01 0 01½
Mandrake		0 20	0 25	Green, Brunswick	0 07 0 10
Orris		0 20	0 25	Chrome	0 16 0 25
Rhubarb, Turkey		2 50	2 75	Paris	0 30 0 35
" E. I.		1 10	1 20	Magnesia	0 20 0 25
" pulv		1 20	1 30	Litharge	0 07 0 09
" 2nd		0 90	1 00	Pink, Rose	0 12½ 0 15
" French		0 75	—	Red Lead	0 07½ 0 08
Sarsap., Hond		0 40	0 45	Venetian	0 02½ 0 03½
" Jam		0 88	0 90	Sienna, B. & G.	0 07 0 08
Squills		0 10	0 15½	Umber	0 07 0 10
Senega		0 90	0 95	Vermillion, English	1 50 1 60
Spigelia		0 25	0 30	American	0 25 0 35
Sal., Epsom		2 25	3 00	Whiting	0 85 0 90
Rochelle		0 32	0 35	White Lead, dry, gen.	0 08½ 0 09
Soda		0 02½	0 03	" No. 1	0 07 0 08
Seed, Anise		0 13	0 16	" No. 2	0 05 0 07
Canary		0 05	0 06	Yellow Chrome	0 12½ 0 13½
Cardamon		2 25	2 50	" Ochre	0 02½ 0 03½
Fe ugreek, g'd.		0 09	0 10	Zinc White, Star	0 10 0 12
Hemp		0 06½	—	COLORS, IN OIL.	
Mustard, white		0 14	0 16	Blue Paint	0 12 @ 0 15
Saffron, American		1 15	1 50	Fire Proof Paint	0 06 0 08
Spanish		12 00	13 00	Green, Paris	0 30 0 37½
Santonine		8 25	9 00	Red, Venetian	0 07 0 10
Sago		0 08	0 09	Patent Dryers, 1 lb tins.	0 11 0 12
Silver, Nitrate	Cash	14 85	16 50	Putty	0 03½ 0 04½
Soap Castile, mottled.		0 11	0 14	Yellow Ochre	0 08 0 08
Soda Ash		0 04	0 05	White Lead, gen. 25 lb. tins.	2 50 —
Bicarb. Newcastle		—	6 5	" No. 1	2 25 —
" Howard's		0 14	0 16	" No. 2	2 00 —
Caustic		0 06½	0 06½	" No. 3	1 75 —
Spirits Ammon., arom.		0 35	0 35	White Zinc, Snow	1 30 —
Strychnine, Crystals		2 60	2 70	NAVAL STORES.	
Sulphur. Precip		0 10	0 12½	Black Pitch	5 00 @ 5 25
Sublimed		0 03½	0 05	Rosin, Strained	4 50 —
Roll		0 03	0 04½	Clear, pale	7 80 —
Vinegar, Wine, pure.		0 55	0 60	Spirits Turpentine	0 60 0 65
Verdigris		0 35	0 40	Tar Wood	5 50 5 75
Wax, White, pure.		0 75	0 80	OILS.	
Zinc. Chloride	oz	0 10	0 15	Cod	0 63 @ 0 65
Sulphate, pure.		0 10	0 15	Lard, extra	0 00 —
" common		0 06	0 10	No. 1	0 80 0 85
DYESTUFFS.				No. 2	0 75 0 80
Annatto		0 35 @	0 60	Linsced, Raw	0 76 0 85
Analine, Magenta, cryst.		3 00	4 00	Boiled	0 81 0 80
liquid		2 00	—	Olive, Common	1 10 1 20
Argols, ground		0 15	0 25	Salad	1 80 2 30
Blue Vitrol, pure.		0 10	0 10	" Pints, cases	4 20 4 40
Camwood		0 06	0 09	Quarts	3 25 3 80
Copperas, Green		0 01½	0 02½	Seal Oil, Pale	0 75 0 75
Cudbear		0 16	0 25	Straw	0 68 0 75
Fustic, Cuban		0 02½	0 04	Sesame Salad	1 30 1 50
Indigo, Bengal		2 40	2 50	Sperm, genuine	2 80 2 80
Madras		0 00	0 95	Whale refined	0 90 0 95
Extract		0 30	0 35		