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Original and Selected Papers.

LABORATORY NOTES.

BY E. B. SHUTTLEWORTH.

Use of Glycerin in the Estimation of Tannin.

The estimation of tannic acid by means of a solution of gelatin is generally a tedious and troublesome process. The precipitate formed is so slowly deposited that, without resorting to a filtration almost as inconvenient, it is difficult to determine the exact point when a sufficient quantity of the precipitant has been added, as also to separate the precipitate at the close of the operation. In order to ascertain the completion of the process, Wheeler* suggests that a tube, loosely closed at the bottom with sponge, be dipped into the solution; the filtered liquid which enters the tube is then tested with a further quantity of the gelatin solution. Muller† accelerates the clarification of the liquid by adding a certain proportion of alum. I have found that both these ends may be more easily accomplished

* Mem. Chem. Soc. iii. 319.

† Chem. Centr. 1859, 42. Watts' Dict. ii. 765.

by adding to the tannin solution a small quantity of glycerin. The precipitate by gelatin subsides more or less readily according to the concentration of the solution.

As I have noted in a previous paper,* the precipitation of tannin may be altogether prevented by employing a very large proportion of glycerin, so that it is probable that in using a lesser quantity, a small proportion of the precipitate is retained in solution. In comparative examinations—and it is chiefly in this manner that estimations are made—this is of no consequence, as the loss may be determined when making the standard solution. Even with simple water the indications are not altogether reliable, and a certain allowance must be made, as the precipitate is not absolutely insoluble in water without the tannin is in considerable excess.

Fluorescence of the Acid Residue from the Manufacture of Ether.

Those who are practically acquainted with the preparation of ether may have noticed the extraordinary fluorescent appearance of the sulphuric acid remaining at the close of the process. I am not, however, aware that this property has ever been noted in any of the journals, and to those engaged in researches on fluorescence the fact may be of interest.

The alkaline tincture of the root of *Gelsemium sempervirens;* solutions of chlorophyll, sulphate of quinine, asphaltum, or esculin; oil of peppermint treated after Fluckiger's method; various petroleum products, or other liquids in which fluorescence is very strongly marked, do not compare in intensity with the ether residue.

Viewed by reflected light, the liquid is of a deep green color, and appears to be perfectly opaque; by transmitted light it is brownish red. The degree of fluorescence is influenced by the purity of the alcohol which has been treated by the acid; the intensity increasing with the impurities present. Methyl compounds, especially, have an intensifying effect.

Cement for Affixing Labels to Tin or other Metallic Substances.

Of the various formulæ which have been published, none have given such satisfactory results as that in which tragacanth mucilage is mixed with honey. Paste of this kind has, however, two disadvantages—tardiness in drying, and susceptibility to damp. I have

*Can. Pharm. Jour., vii. 229.

found that by incorporating or triturating with the mixture a considerable proportion of dry wheaten flour, these disadvantages are very much reduced, and the adhesiveness and permanent tenacity of the film are perceptibly improved. I think that those who try this plan will have every reason to be satisfied with it. The following proportions may be used:—

Tragacanth Mucilage	10 parts.
Honey	10 parts.
Flour	1 part.

A cement possessing better damp-resisting properties, but having the disadvantage of not being permanently adhesive where the surface of the metal is at all greasy, and also being objectionable on account of its dark color and liability to disfigure the label, is formed by boiling together, until solution is effected, 2 parts of shellac, 1 of borax, and sixteen of water. Shellac dissolved in alcohol will produce a cement having perfect damp-resisting properties, but the film is very apt to separate from a polished surface. Flour paste, to which a certain proportion of sulphuric acid has been added, makes a lasting paste, but the acid often acts on the metal—especially if exposed to damp—and unsightly stains are produced, which penetrate the label. This paste cannot be used for ordinary colored papers, or with some colored inks. Mixtures of flour paste with molasses, syrups, or honey, have been recommended, but are never reliable.

SPRUP OF WILD CHERRY.*

BY CHARLES G. POLK, M.D.

The interest recently bestowed on this old and valued syrup by pharmaceutical investigators indicates that perfect satisfaction in the method of preparing it has not yet been attained, therefore a recital of my experience may be regarded as not an unwelcome intrusion.

I had scarcely crossed the Esculapian threshold ere I recognized the therapeutical value of Wild Cherry Bark, and also became dissatisfied with the officinal modes of preparing both the fluid

*From the Druggists' Circular.

extract and syrup, neither, alone, seeming to represent the qualities obtained by the officinal cold infusion.

In the old fluid extract the cyanhydric acid was dissipated, and the attempt to restore it by the emulsion of almonds proved to be only adopting a quite unsatisfactory substitute for that developed by the emulsine and amygdaline afforded by the bark, and in the present officinal formula no effort is made to resupply it; so neither formula reaches my wishes, and I regard a satisfactory fluid extract of Wild Cherry a desideratum to be yet attained.

With the syrup our success has been better. The solvent power of glycerine enables us to secure much richer percolates than was afforded when water was used as the only menstruum. But even with glycerine the coarse powder usually employed is very seldom, if ever, entirely exhausted of its medicinal constituents, and in consequence the syrup does not represent full officinal strength. To obviate the difficulties besetting this preparation, I sought a remedy in a fine powder, one about No. 60 seeming to come the nearest to my wishes. This I packed tightly in a large glass funnel, without moistening (a favorite idea of mine with many preparations), and then poured one-half of the water gradually on a paper diaphragm to prevent disturbing the powder, closed the funnel, and set it aside for forty-eight hours; then removed the plug from the lower opening, and permitted the percolate to drop slowly until it had passed, and set this portion aside; added the glycerine, sugar, and the remainder of the water, and continued the process until the entire amount was obtained. I also set this aside, waited four days, and mixed the two solutions together. Experience has taught me that I obtained a syrup much richer in cyanhydric acid, and of a darker color, by this delay, than I did when the sugar and glycerine were at once added to the entire percolate;—reason—these prevent the reaction between the emulsine and amygdaline. I find a temperature of at last 86° required to give the best result, and it is also important to exclude both light and air from the first portion of the percolate, these rapidly decomposing the cyanhydric acid. I also consider the idea advanced by Mr. Rother, that the presence of tannic acid, which is quite abundant in the percolate, prevents the disruption of the amygdaline by emulsine, is not sustained by experience, or at least mine is at variance with that conclusion.

The precipitate, which appears in a few days, may depend in some degree upon the unfriendly relation of the emulsine and tannin, which the presence of sugar promptly removes, as the turbidness found in the first percolate soon disappears after its admixture with the last, and forms a clear, rich syrup, quite superior to that made in the officinal manner. By my method the atmospheric exposure incident to maceration, before packing in a percolator, is avoided,

the capillary attraction is allowed full force, and the first portion of the percolate will represent nearly ounce for ounce of the menstruum, and will nearly exhaust the powder of all the principles water will extract.

The glycerine and syrupy menstruum secures the bitter tonic principles that water fails to take up, and thus insures complete exhaustion of the bark.

Therapeutically, I find the above method gives better results than when made by other methods. In no class of cases is this more marked than in those of consumption, with night-sweats, hectic fever, troublesome coughs, and marked debility. The percolation of the sugar through powdered bark seems to extract a tonic principle not liberated by glycerine.

Philadelphia, Pa.

NOTES ON SOME NORTH AMERICAN DRUGS. *

BY JOHN M. MAISCH.

Cranesbill appears to be used very extensively in some sections of the country, while in others it is comparatively unknown—at least as a domestic remedy. In July, 1872, I received a plant from the region of the Blue Ridge in the State of Virginia, which proved to be *Geranium maculatum*, Lin. The letter accompanying it stated that *it* (whether the rhizome alone or the entire plant, was not mentioned) has a great celebrity there as a cure for dysentery, diarrhœa and all kinds of bowel complaints. It seems probable, however, that the herbaceous portion of the plant is not employed for the purposes mentioned, since it has merely a faintly bitter taste and is nearly devoid of astringency.

Antidote to Snake Poison.—In August last the root and radical leaves of a plant were received from Mr. T. D. Reed, of Meridan, Miss., which, the letter stated, "is said to be a specific for snake-bite, and, in fact, the country people used no other antidote in cases of snake-bite." Unfortunately, the letter gives no information whatever in regard to the part employed for the purposes stated, or to the manner in which it is used. The plants sent contain neither stem nor flowers, but from the black colour of the dried plants and the character of the leaves, were at once referred to the genus *Gerardia*, and by comparison with herbarium specimens were recognized as *Gerardia* (Dasystoma, Benth.) *quercifolia*, Pursh. It belongs to the subgenus Dasystoma, which comprises perennial plants with rather large yellow flowers, with the leaves, particularly the

* From the American Jour. of Pharm. March 1874.

lower ones, more or less pinnatifid or cut toothed, and opposite on the stem, the floral leaves being often alternate ; it is very difficult to preserve the green color of the plants, all the species readily turning black on drying. The genus belongs to the order of *Scrophulariaceæ*.

The species in question resembles and is closely allied to *Ger. flava*, Lin., and *integrifolia*, Gray, and is distinguished from both by the plant being smooth and glaucous, the lower leaves being usually twice pinnatifid, and by the peduncles attaining about the length of the calyx, they being shorter in the other two species named.

Most probably the subterraneous portion is the part employed, and it is not unlikely that, like every other so-called snake roots, the black colour which it assumes on drying may have first attracted attention to it for the purpose named. It consists of a short and rather thin upright rhizome, sending off from eight to ten rootlets, which are about six inches or more in length, nearly simple, when dry slightly furrowed longitudinally and readily breaking transversely. The fracture is even, somewhat granular, exhibits a thick cortical portion of a dark gray colour, surrounding a thin ligneous centre, of a yellowish colour and a rather irregular shape. As far as can be judged from the taste, the root probably contains a principle analogous to saponin.

Verbena bracteosa, Mich.—Branches of this plant were received last August from Mr. Buntin, of Terre Haute, Ind., who states that it is used there by physicians in the form of infusion, with marked success, in the treatment of scrofulous affections, particularly in scrofulous sore eyes, and that its alternative properties are claimed by some to be more potent than those of iodide of potassium. The plant is abundant in the neighbourhood of Terre Haute, and the specimen received agrees in every respect with the specimens in the College herbarium coming from Kentucky.

The plant is procumbent and widely spreading, with its stems branching to the length of from twelve to eighteen inches. It is covered with spreading whitish hairs, the leaves are narrowed at the base into a short petiole, broadly lanceolate in outline, deeply cut-toothed, or the lower pinnatifid and the teeth rather acute. The small blue or purplish flowers are collected in dense spikes terminating the branches, the numerous bracts being longer than the flowers, lance-linear in shape or the lower deeply three-cleft. Its hoariness and its dense long bracted and squarrous spikes are quite characteristic for this species, which possess a gradually developed but lasting bitterness.

I have not been informed of the strength or dose in which the infusion is given. The plant appears to merit some attention, particularly with the view of isolating the bitter principle and determining its value as an alternative.

California Opium.—I have received from Mr. J. H. Flint, of

Marysville, Cal., a handsome specimen of opium, in regard to which the following information was given :

" The opium was raised in Sutter county on the Sacramento River, about fifteen miles from this city. The expense attending the cultivation of the poppy, and the collection of opium, does not warrant the outlay of sufficient capital to produce large quantities, although the soil and climate are admirably adapted to that purpose. I obtained 7¾ per cent. of morphia from a specimen *recently collected*. It yielded 52 per cent. of soluble matter to boiling water, and lost 17 per cent. of moisture after drying at 212° F. What I have used seems to answer quite as well as the imported article."

From this statement it appears that the opium was assayed in its crude undried state ; if an allowance is made for the 17 per cent. of moisture, Mr. Flint's assay would give (100—17) : 100 : 7-75 : 9-34 per cent. morphia in dry opium, or nearly the strength of opium as directed by the pharmacopœia. The high price of labour in California, it may be supposed, renders the cultivation of the poppy solely for the production of opium unprofitable ; but the seeds contain a large percentage of a bland fixed oil, and after its expression are valuable as feed for cattle ; poppy culture may, therefore, notwithstanding the drawback of high wages, not prove unprofitable.

The opium received was more homogeneous in texture than Smyrna opium, of a good strong narcotic odor, and unexceptionable in its physical properties.

Oregon Balsam of Fir.—Under this name an oleo-resin has appeared in our commerce during the last year, which is rather suspicious in appearance. As far as could be ascertained, it comes from New York, and the writer has not been able to trace it beyond that city. It is a thick liquid, perfectly transparent, of a bright brownish colour and a distinct terebinthinate and aromatic odor. On rubbing a little of it between the fingers, different odors become quite evident, the last one remaining being that of nutmegs. It has the appearance of being merely a solution of common rosin in oil of turpentine flavored perhaps with a little of the oil of *Eucalyptus globulus* and a somewhat larger quantity of the volatile oil of nutmegs. Is such an article known on our Pacific coast, and if so, what is its source and how is it obtained ?

Adulterated Serpentaria.—Recently a rhizome with its rootlets was handed to me, with the statement that several bundles of it had been found in a bale of serpentaria obtained from a Western State. The adulteration was promptly recognized as the underground portion of *Cypripedium pubescens*, Lin. (not *C. parviflorum*)*. This differs so considerably from *Aristolochia serpentaria* and *reticulata*, that the former can never be mistaken for the latter, and the adulteration can therefore be practised successfully only when Virginia

* For a description of these rhizomes refer to Amer. Jour. of Pharm. 1872, p. 297.

snake root is sold in bulk. The rhizome of the latter is quite thin, rarely exceeding one-tenth inch in diameter, the remnants of the over-ground stems are invariably projecting as short branches from the rhizome, which terminate by a scarcely concave scar. The rhizome of Cypripedium is much coarser, the stems die off to the rhizome, leaving large deeply cup-shaped scars, the older ones penetrating deeply into the rhizome. Cypripedium, moreover, is a monocotyledonous plant, while serpentaria is dicotyledonous and the difference in the characteristic disposition of the lignous bundles is quite evident.

UNOFFICINAL FORMULAS.

REPORTED BY J. F. HANCOCK.

(*Continued from page* 280.)

ELIXIR PYROPHOSPHATE OF IRON, QUINIA, AND STRYCHNIA.

(C. Lewis Diehl's Formula.)

He says: "This requires particular manipulation, which precludes the use of simple elixirs.

"The following formula, the result of concert experiments of my friend, Mr. E. Scheffer, and myself, has been used by me since autumn, 1869, and I can recommend it as uniformly successful, when the manipulations are carefully conducted :—

"Take of Sulphate of Quinia	60 grains.
Strychnia	1 grain.
Citric Acid	5 grains.
Stronger Alcohol	3 fluid ounces.
Spirit of Orange	80 minims.
Syrup	6 fluid ounces.
Pyrophosphate of Iron	½ troy ounce.
Distilled Water	7 fluid ounces.
Water of Ammonia	suff. quantity.

"Triturate the sulphate of quinia, strychnia, and citric acid together, until minutely divided, then add the alcohol and spirit of orange. Warm the syrup slightly (to 150° F.), and add to the turbid mixture, when, upon stirring, the mixture becomes clear. To this add the pyrophosphate of iron, previously dissolved in the distilled water, and finally, carefully add water of ammonia, drop by drop, until the elixir is perfectly neutral to test-paper; filter. The finished preparation has a greenish-yellow color, a pleasant flavor of orange, and is permanent."

BITTER WINE OF IRON.

(James T. Shinn's Formula, slightly modified).

We have had several years' experience with the following formula, and it has given entire satisfaction to prescriber, dispenser, and consumer.

Take of Sulphate of Cinchonia	45 grains.
Sulphate of Quinia	15 grains.
Citric Acid	60 grains.
Citrate of Iron, *soluble*	240 grains.
Concentrated Tinct. Fresh Sweet Orange-peel	3 fluid ounces.
Distilled Water	3 fluid ounces.
Sherry Wine	8 fluid ounces.
Syrup	2 fluid ounces.

Dissolve the sulphates and citric acid in two ounces of the water, and the iron in the remaining ounce of water: mix the two solutions, and add the other ingredients, previously well mixed together.

The only change from the original formula is in the kind and quantity of orange flavor, for which we claim an improvement. See *Proceedings of American Pharmaceutical Association*, 1864, p. 234.

ELIXIR OF GENTIAN WITH IRON.

Take of Extract of Gentian	128 grains.
Citrate of Iron, *soluble*	128 grains.
Distilled Water	1 fluid ounce.
Simple Elixir	15 fluid ounces.

Dissolve the extract and iron in the water, *warmed*, and add the simple elixir: filter.

ELIXIR OF BROMIDE OF POTASSIUM.

Take of Bromide of Potassium	640 grains.
Red Elixir	16 fluid ounces.

Mix.

This contains five grains of salt in each fluidrachm, and is given as a type. The red elixir does not seem to answer for the elixir bromide of calcium; caramel is a more suitable coloring substance for the calcium elixir. We prefer the simple elixir in this case, and to use no coloring substance.

SYRUP OF LICORICE ROOT.

Take of select Licorice Root in moderately coarse powder	4 troy ounces.
Diluted Alcohol	sufficient quantity.
Sugar	12 troy ounces.

Moisten and pack in a conical percolator; macerate for twelve hours, percolate to exhaustion. Place the tincture over a water-bath until reduced to ten fluid ounces, filter, and then add the sugar; lastly, sufficient distilled water to make sixteen fluid ounces of finished syrup.

The syrup of licorice root, when carefully prepared, is more effectual and more convenient for masking the bitterness of quinia than is the very popular "compound elixir of taraxacum," and being free from the stimulating influence of alcohol, which is present in the elixir, is well adapted for children. The proper proportions will be one grain of quinia (any salt of it) to the fluidrachm, and if those for whom quinia is ordered will take the precaution to chew a small quantity of licorice root, previous to taking the quinia mixed with the syrup of licorice, in the proportions here recommended, scarcely any bitterness will be observed. As a matter of course, acids mixed with quinia and licorice syrup, will immediately develop the bitter taste.

It has of late become fashionable to use glycerine as an antiseptic and solvent in elixirs, as well as other compounds of pharmacy, but our aversion to the general use of glycerine for internal administration, for various reasons, has prevented its introduction in our formulas.

The results of our investigations of liquid pepsin preparations will not warrant the introduction of more than the one formula, which is really a wine of pepsin, and has been found useful in many cases.

SYRUP OF WILD CHERRY BARK.*

BY G. B. THOMPSON, OF BUFFALO, N.Y.

It being desirable to produce from the wild-cherry bark a pleasant and reliable preparation at a reasonable price, and feeling that it would be appreciated by many of the readers of your valuable and instructive journal, I propose to give you what has, in my judgment, proved a very good formulæ for making a syrup which costs less than many of the preparations in the market, and has given good and satisfactory results not only as a tonic, but also as a sedative. I have experimented considerably in the use of glycerine, not only as a preservative, but also as a solvent of the active principles of the wild-cherry bark, and am thoroughly convinced of its efficiency. I find that, with a little care, a syrup even superior to many of the fluid extracts, and much superior to the syrups in the market, can be produced by using the following formula:—

Wild-cherry bark, moderately fine	10 troy oz.
Glycerine	4 fluid ozs.
Crushed Sugar	56 troy ozs.
Cold water, 60° F., sufficient.	

*From the Druggists' Circular, Jan., 1874.

Mix the glycerine with twelve ounces of the water, and with this liquid moisten the powdered bark carefully, so that the particles will not adhere. Pack the moistened powder in a glass percolator, taking care to have the lower opening of the percolator previously corked. Then pour upon the powder the balance of the menstruum, cover, and let stand from twelve to twenty-four hours; then remove the cork, and proceed with percolation, adding enough cold water to obtain two pints of percolate. To this, transferred to a wide-mouth bottle of sufficient capacity to admit of shaking, add the sugar and shake occasionally until the sugar is dissolved, taking care not to use any heat during the process, to have the temperature as previously stated, and to keep bottle tightly corked all the time.

MANUFACTURE OF PARAFFIN IN THE UNITED STATES.

At a recent meeting of the Philadelphia College of Pharmacy, Dr. A. W. Miller read a paper, reported in the *American Journal of Pharmacy*, relating to the manufacture of several petroleum products, and, amongst others paraffin. This is extensively prepared in the neighborhood of Philadelphia. The method of manufacture is thus described: "The process begins by subjecting the so-called residuum of the coal oil refiners to distillation in large stills, made of five-eights inch boiler iron, having a capacity of about 1500 to 2500 gallons. Direct heat is applied immediately beneath the stills, the bottoms of which toward the end of the process reach a white heat. The distillate is condensed in a system of iron pipes, which are contained in large wooden tanks. Distillation begins at 220°, and is terminated at about 570°. The product is a thick, unctuous mass at ordinary temperatures, but it liquefies at about 100°, or a little over. It has the peculiar iridescent color and the characteristic odor of petroleum. The residue of the distillation is a hard, porous, black mass, which is free from odor and presents a close analogy to the ordinary coke of the gas works. In the yards referred to, it is in fact called coke, and is used as fuel to heat the stills.

The distillate, which has thus been obtained, is next treated with from four to five per centum of sulphuric acid, to *kill the green*, as it is termed by the workmen. After the removal of the acid by carbonate of sodium, the oily mass is introduced into bags, made of the material called duck, each of which holds about three or four gallons. A number of these are then placed horizontally in an ordinary screw press, being superimposed on each other and separated by intervening boards. During the summer, it is necessary to use ice in order to lower the temperature and prevent too much loss of paraffin.

The oil expressed during this process has the gravity of 25°; it is known as heavy paraffin oil, and is an excellent lubricator for cylinders. It can be readily deodorized and also freed from unpleasant taste, so that it may represent the softer variety of the so-called cosmoline.

The crude paraffin, when taken from the presses, is melted and run into moulds. It is now of a light yellowish or straw color, rather soft, and still strongly redolent of petroleum. In this state it is sold to the refiners, who further purify it, in order to adapt it to the multitudinous purposes to which modern industry applies this valuable inheritance of prehistoric ages.

The refiners subject the crude article, which they designate as *wax*, to powerful hydraulic pressure, and thus obtain therefrom a second variety of paraffin oil of about 28° gravity. This is also used almost exclusively as a lubricator. The residue is further purified by treating it with a variety of gasolin or benzin of definite density, which is specially prepared for this purpose. Steam is also called into requisition in order to completely deodorize the product.

Two varieties of pure, white paraffin are manufactured, namely, the ordinary hard article having an apparently crystalline structure, and another having a softer and more gelatinous consistence, which is termed *gum stock*, and is chiefly consumed for chewing-gum. Some of the refiners consider these two products as separate and distinct bodies, and state that they cannot convert either of them into the other. One single refining establishment in this city is reported to find a market for an average production of these substances to the extent of 10,000 lbs. per month.

Among the more important applications of paraffin in our neighborhood may be enumerated its use for laundry purposes; when added to starch, it imparts to it an additional lustre in the same manner as spermaceti or white wax. It has been found to be an effective preservative of wood, and large quantities are consumed in this industry. Chewing-gum, as has been already stated, is the softer variety of paraffin; although this is apparently a very trivial and non-important article, it is in reality sold in enormous amounts by many of the wholesale confectioners. The manufacturers of friction matches are heavy purchasers of paraffin, which they used for impregnating the sticks, so that they will more readily ignite, and burn with greater uniformity. Of late, paraffin is also beginning to be used extensively for the purpose of sizing various textile fabrics. Paraffin or ozokerite candles are well known, and they are confidently asserted to produce a finer light than any other variety. Confectioners also use paraffin to impart a gloss or lustre to some of their bon-bons, such as cream chocolate drops and others.

In Europe, paraffin has in addition been used for water-proofing various woven goods, for coating the interior of wine and beer barrels, for the preservation of fresco paintings, for the purpose of

saturating cork and paper, as a sizing or finish for leather and small articles turned from wood and bone, as a preservative of fruits and for many other similar applications."

THE ROSE HARVEST IN ADRIANOPLE.*

The following report on the Rose Harvest for 1873 in the vilayet of Adrianople has been received from Mr. Vice-Consul Dupuis :—

Although the rose harvest in this province does not take place at any precise period, still, it is generally expected to commence early tn the month of April; but, owing to wet weather and a cloudy spring, this year harvesting operations did not begin till near the end of May. It is also to be remarked that a high temperature in April will cause the rose-buds to develop early, chilly weather retarding the blossoming of the flowers until milder and softer weather sets in.

In cloudy or wet seasons the rose plants blow gradually, and harvesting lasts about a month, when the gathering of the flowers is rendered easy, and operations of distillation are conducted with care and attention; whereas when the weather is dry, only half that time is occupied, and distillation is more rapidly proceeded with. The advantage of a damp season over a dry one consists in a greater yield of oil in the former, when about 8 to 9 okes or 22 to 24 lbs. of the blossoms are required to produce one miscal or 1½ drachm, whilst in the latter 14 to 16 okes or 38 to 44 lbs. of the flowers will barely suffice to produce the same quantity.

In low and sheltered localities the rose tree comes to perfection sooner than in high lands, owing to the greater power of the sun than in elevated positions, where harvesting is naturally more backward.

The harvest this year has, on the whole, been more remunerative to cultivators, and the crop, it is said, will yield in quantity some 500,000 miscals, or about 93,750 ounces of otto or attar of rose, and is valued at about £70,000; but as the weather throughout last spring was moist, distillation was profuse, consequently it is less strong than last year's produce. The best quality of otto varies in price from 17 to 18 piastres the miscal, or from 15s. 4d. to 16s. 10d. per ounce; whilst inferior qualites realize from 14 to 15 piastres the miscal, or 13s. 1d. to 14s. the ounce.

The mode adopted for testing the purity of the different qualities of these oils is to put the essence into flasks, which are afterwards immersed in water at a temperature of 63° to 68° F., when if the quality be good it will freeze; this oil is preferred to all others as being of the purest kind. These oils will also greatly differ in quality,

*Phar. Jour. & Trans.

according to the nature of the soil. A stony, sandy ground, impregnated with oxide of iron, is said to favour the growth of the plant, and produces oil of the very best quality; while hard, unmixed land will only yield oil of an inferior kind, which will not freeze at 52° F.

Manufacturers also frequently adulterate these oils by an admixture of a substance likewise produced by them from certain kinds of grasses.

Otto of rose is mostly exported to Germany, and buyers and agents from that country annually resort to this province, and make extensive purchases for firms to the amount of upwards of 61,800 ounces, the remainder finding ready markets in the East and Constantinople.

The principal localities where this valuable article is manufactured are in the districts of Kizanlik, Karlowo, Kalofer, Eski-Saara, Jeni-Saara, Tschirpan, and Philipopoli, on the southern slopes of the Balkan mountains, the first-named places being chiefly renowned for their extensive plantations of roses of the most esteemed varieties, viz., the damask rose, sempervirens, and musk rose.

JAPANESE TEA.*

The best tea is produced in the province of Yamashiro. At Ogura, in that province, there are trees from 400 to 500 years old, producing tea worth five dollars per pound. The hedges in the lanes and round the kitchen-gardens in the villages are generally tea shrubs. The production of tea in Japan in 1871 is estimated at about 36,000,000 lbs., about half the quantity being consumed in that country and about half exported. It is thought that an increase of about 15 per cent. per annum may be counted on for some years. The Consuls (British) describe the method of preparing the tea. The leaves are steamed, then rolled on mats or rubbed between the hands, dried over a charcoal fire, and sifted; the process of drying and sifting being repeated. Great care is necessary in keeping the tea, when packed, protected from the air; if exposed, it loses both its flavor and its color. Tea from young shrubs does not remain good for more than a year; tea from old trees is at its best at the end of the first year, and remains so for eight months. The chief tea merchants of Kiôto have been getting some Chinese over, to prepare tea in the Chinese fashion; it is sold at prices varying between 10d. the kin and 8d. the kin, the kin being equivalent to 1.33 English pound avoirdupois. As is well known, China leaf finds its way to the hands of the foreign purchaser fully cured and packed and ready for exportation; but Japan leaf comes to market in a

comparatively raw state, requiring further firing to extract sufficient moisture to permit its exportation. There are several tea-firing establisments in Yokohama, giving employment in the height of the tea season to some 1,800 or 2,000 hands, mostly women and children, who work at a sum equal to 9½d. a day, the working day being from 7 A.M. to 5 P.M. Japan teas, fine, finest and choice, rank with fine to finest China Moyune greens; medium to good medium, with good to fine Foochow or Amoy Oolongs; and low medium with good cargo Oolongs. Japan tea finds very little sale in the English market; most of it goes to the United States or Canada. Acting Vice-Consul Wilkinson (Hiogo) explains that the taste for teas differs in America and in England. In America the prevailing taste is for green or uncolored teas, while in England it is for black teas, and it has been found easier and more profitable to prepare Japan teas than the former. The difference depends partly on the original quality of the leaf and partly on the preparation. In the preparation of black tea the leaf is taken when fresh, and after it is picked it is wetted and put into baskets, where it is allowed slightly to ferment; but the Japanese have not yet adopted this method, and it is thought it would not be remunerative. There is a want of body in the Japan tea, and lower grades would not compete successfully with the corresponding grades of Chinese tea; the latter can be produced more cheaply, and gives a liquor more suitable to English tastes. In the original quality of the leaf, too, Japan teas are more suitable for green teas. There is a difference also between black and green teas in the manner of firing. Black teas are fired in baskets; but the bluish green color of the leaf which is preferred in America, is best produced by firing in iron pans. Japan teas are not, as a rule, colored with any pigment. In the preparation of China green tea there is a mixture used of gypsum and Prussian blue, or indigo, giving a glazed slate color. In Nagasaki an imitation of China green tea is prepared and exported under the names of gunpowder, hyson, young hyson, and Twankay. These are colored in this manner, but nearly all the tea that goes from Yokohama or Hiogo is uncolored—that is the only coloring it receives is from the action of the heat and the metal pans. In order to produce the color by this means, the tea is very highly fired This gives the liquor drawn from it what teamen call a "biscuity" flavor, which is liked in America, but which is not liked in England so well as the more mellow flavor which teas have when not so highly fired. Tea is not improved by high firing, except that it will keep longer without deteriorating, and this no doubt is an advantage in the eyes of dealers. But in the process of firing it loses more, and as the leaf is rendered more brittle there is a larger proportion of dust. In basket-firing tea will lose from 3 to 5 per cent.; if fired in pans it will lose 9 per cent. The color of the liquor which Japanese uncolored tea draws is like that which is drawn by fine Oolongs—a pale

olive; but it is not so bright as that drawn by the finest grades of China green teas. Great importance is attached to the color of the liquor, as it is a rule that the finer the grade of the tea the paler is the liquor it draws. In ordinary China black teas the flavor of the liquor is considered much more than the color, which is generally reddish. It should not, however, be muddy, as that indicates that it has been adulterated. Japan tea is packed in half-chest boxes, the average weight being about 46 lbs. The lower the grade of the tea the lighter it weighs; a box which will contain 55 lbs. of the choicest tea will have only 44 lbs. of the common grade. In some districts of Japan there has been great carelessness shown in the matter of picking; owing to the anxiety of buyers to hurry forward purchases, the natives were unable to devote the usual time to the preparation of the leaf. This carelessness, if continued, must eventually lead to loss.

MODE OF ACTION OF CHLORAL

According to some recent experiments made by M. Gubler, a French scientist, and reported in the *Journal de Pharmacie*, chloral does not act, as hitherto been taught, by the development of chloroform in the blood, but by its direct action as chloral. The effects of chloroform are mainly and primarily anæsthetic, while those of chloral are soporific, and not anæsthetic, except secondarily, when the function of the heart is dangerously depressed. M. Gubler describes the toxic effects of chloral as acute and chronic. The acute are vomiting, vertigo, prostration, stupor, coma, convulsions, and sometimes death from paralysis of the herat. Chronic chloralism is characterized by accidents analogous to those of ergotism, that is to say, by hyperæthesia, general malaise, desquamation of the epidermis of the fingers, superficial ulcerations about the nails, anasarca, albuminuria, feeblenness of the heart and embarrassment of respiration. These accidents often terminate in death. Such dangerous consequences may be avoided by not giving the chloral for too long a period of time. In either kind of poisoning, the toxic effects are to be combated by calefaction, olfaction of stimulating odors, artificial respiration, and inhalation of oxygen.—*Druggist's Circular.*

THE SPHERE OF MODERN PHARMACY.

The following extract is taken from the report of a lecture—kindly furnished by the author—Dr. Frederick Hoffmann, of New York. The lecture was delivered before the College of Pharmacy of that city, and is very interesting throughout. Our space will not admit of a lengthy extract, but the following remarks, though merely forming an introduction to the lecture are so appropriate to the times that we give them entire :—

" It is a well known fact that the achievements of the physical sciences, and their practical application to the pursuits of industry and commerce, have caused remarkable changes in many branches of the arts and trades, and that they also have exerted a considerable influence upon the scope and drift of the drug trade and of pharmacy. The pharmaceutical laboratory of yore has gradually passed away, and in its stead the establishments of the manufacturing chemists have risen to supply the medicinal chemicals and most of the pharmaceutical preparations ; the pharmaceutist is not any more a manufacturer but mainly a dispenser, the responsiblity only for everything that he dispenses is left to his share, and consequently the duty of critical scrutiny and discrimination of the preparations of the chemical manufacturer, and of the products of nature as supplied by the commerce in drugs.

These gradual changes in the sphere of his occupation have naturally exercised a correspondent alteration in the practical and scientific requirements of the pharmaceutist. Although one of the most interesting parts of his former practice has been taken out of his hands, the pharmaceutist has not lost ground in the compass of his attainments ; it is the critical exercise of knowledge and skill in the direction of scrutiny and discrimination which forms the pre-eminent requisites of the modern pharmaceutist, and which extends his professional qualification and efficiency ; or, in other words, it is nowadays of less importance to the pharmaceutist to acquire a practical skill of manufacturing medicinal chemicals, or to know exactly the therapeutical action of drugs, than to have a precise knowledge of their characteristic properties and the ability of ascertaining their identity and qualities.

This change in the pursuit of the pharmaceutist is also evident in pharmaceutical literature. The number of treatises on chemical, as well as on pharmacognostical and microscopical examinations, increase from year to year ; while those treating of the methods of manufacture lose in ratio and pre-eminence. Moreover, the most advanced pharmacopœias of the present day have ceased to describe or to prescribe the methods of preparing medicinal chemicals and confine themselves to concise descriptions of the characteristics of medicinal substances, and of the modes of establishing their identity and ascertaining by approved tests their quality and purity.

The consequence of these changes in the province and drift of pharmacy is the obvious fact that analytical chemistry and pharmacognosy, and the application of the microscope, have taken a foremost rank among the necessary attainments of the pharmaceutist, and have also largely engaged the interests of the druggist, so that the test-tube and the microscope are becoming more and more indispensable implements in every well conducted pharmacy and druggist's establishment.

While chemical analysis is particularly adapted to the examination of the products of chemical industry, and to the estimation of the value of the drugs, the microscope renders great service in the investigation and identification of all organized substances. We ascertain by chemical tests the value of cinchona barks, of opium, of nux vomica ; they furnish a sure evidence of the presence and the proportion of the alkaloids in those drugs, and of organic acids, of sugar and the various vegetable principles in other drugs, but they fail to disclose their nature and structure. Now it is precisely in this branch of investigation that the microscope affords much aid, and the advantage of prompt application and speedy results ; it discloses at once the anatomical structure of a drug, the peculiarity of any kind of starch, and thereby the plant from which it was derived ; it indicates directly if the bark which is offered to the manufacturer of quinine is really cinchona bark, and, consequently, if it is worth the trouble of a chemical assay for the percentage of alkaloids. It decides promptly the derivation and genuineness of sarsaparilla, of ipecac, of jalap, and of most barks, roots and vegetable drugs, and the quality of all those powdered substances which are liable to adulteration with starchy flours. The microscope, therefore, is an invaluable aid in their examination and in the discovery of adulterations, and, as indicated with the cinchona barks, it may also frequently be made to serve as an auxiliary to chemical researches. While chemicals are always uniform and the same in composition and properties, many of the crude drugs greatly vary not only in appearance and form, but also in their qualities, resulting from their derivation, from the modes of their gathering and preparation for preservation, and other natural or incidental causes.

These few remarks will be sufficient to introduce to you the true significance and the value of the microscope ; they will at the same time indicate the important influence which this instrument has exercised upon the progress of pharmaceutical materia medica, and to what an extent it has contributed to a better knowledge of crude drugs and to correcter methods in their discrimination. The more or less vague, empirical criteria of mere external appearances, in their recognition and estimation, have lost ground by the microscopical methods of investigation, and in their stead the nature and relation of the internal structure and constitution have furnished a rational and scientific foundation for the classification of drugs and

for the science of pharmacognosy, which stands to materia medica about in the same relation that chemical analysis bears to general chemistry.

OZONE—A NEW AND CORRECT METHOD OF SUPPLY*.

The use of ozone as a disinfectant in hospital wards and public buildings has amply demonstrated its virtue as a purifier of air exhausted by breathing or poisoned with emanations from corrupt or decaying organic matter. The only bar to its more extended use has been the lack of a simple and trustworthy means of generating it, safely and continuously, by a process not involving scientific skill or costly materials.

The latest means suggested certainly bears the palm for simplicity, cheapness, and accessibility to all. It consists simply in the exposure to atmospheric action of common phosphorus matches moistened by water, the alleged result being the production of nitrite of ammonia and ozone—both active purifiers of air.

Knowing the efficiency of moistened phosphorus as a generator of ozone, the author of the match method, Mr. Sigismund Beer, of this city, set out one day to procure a quantity of that substance to use in sweetening the atmosphere of a room whose musty smell had successfully resisted the power of ordinary disinfectants. Failing to find any phosphorus at the drug stores in his neighbourhood, it occurred to Mr. Beer that possibly lucifer matches might furnish the needed element in a condition suited to his purpose. He tried them, dipping them into warm water for a few moments, then suspending them in the obnoxious room. Their effect was prompt and salutary; and thereafter, by continuing their use, he was able to enjoy "the luxury of pure and refreshing air," notwithstanding the room was in the basement of an old cellarless house on made land, the air of which was further tainted by a quantity of mouldy books and papers. In a paper lately read before the Polytechnic branch of the American Institute, Mr. Beer narrates a number of subsequent experiments with the same simple materials, the success of which convinced him that he had made a veritable discovery of great importance.

Touching the safety of the method he proposes, Mr. Beer is confident that no overcharging of the air with ozone or other injurious matter may be apprehended from the use of matches in the manner he describes. Both the ozone and the nitrite of ammonia are generated slowly, and their force is swiftly spent by combination with the impurities they are intended to remove. It is obvious that the supply of the purifying agents can be easily regulated by increas-

* From the Scientific American.

ing or diminishing the number of active matches. In the room above mentioned, six bundles of matches were kept active—some near the ceiling, others near the floor—by daily watering.

In another instance a single bunch is mentioned as having sufficed for quickly purifying the air of a room in which several adults and children were lying sick, but in this case the air was fanned against the matches while they were carried about the room, thus heightening their activity. How long a match retains its ozonizing power, Mr. Beer does not say. In conclusion, Mr. Beer claims that, whatever may be said of his theory of match action, the fact is indisputable that, the use of matches as he suggests, we have a handy, wholesome, and inexpensive means of freeing our houses from noxious exhalations and the long train of evils attendant on the prevalence of bad air. The matter is easily tested and certainly well worth trying.

SUBSTITUTION OF CHICORY FOR DANDELION ROOT.

In a communication to the *Pharmacist*, Mr. C. B. Allaire remarks on the frequent substitution of chicory for dandelion, more especially in the manufacture of the solid and fluid extract of taraxacum. He says: "This article is also largely sold in pressed form for dandelion root. The reasons given for this substitution of one root for another in manufacturing, is it that yields full twice as much solid extract as the true root, and consequently a denser fluid extract. Parties offering us this root, told us that they supplied it to nearly all of the prominent manufacturers of fluid and solid extracts and that they used it for dandelion. In proof of this assertion, not one of the manufacturers mentioned to us offers an extract of chicory on their lists.

Now we do not wish to enter into the merits of chicory as a substitute for dandelion. It may be better in every respect than the drug it conterfeits.

The substitution of it is nevertheless a fraud on the profession; it is not a new idea, for the adulteration of dandelion is spoken of in nearly all works treating on the subject, but it is a custom of trade that has been allowed to grow to such an extent, that the writer firmly believes that four-fifths of the dandelion used in this country of late years is chicory. This custom has prevailed because no harm has been known by it, and because no great objection has been made to it. Here is a chance for some enthusiastic student to investigate and publish a test by which preparations of chicory, labelled dandelion, may be detected by simple means. For the benefit of persons having occasion to buy the root, I would suggest the following

points to be observed in examining samples: Chicory generally appears much finer-looking in point of size and color, being in larger pieces and whiter; if broken up into pieces the size of a pea, they will be found irregular in size and shape, and white on all sides, while it sometimes occurs one and one half inches in diameter, and about one-fourth to one-half nch thick, showing that it is a section of a large root.

The degree of bitterness and the taste are very similar in both dandelion and chicory. The most conclusive difference will be found in the rootlets. If a rootlet be about one-fourth of an inch in diameter be broken at right angles, if of chicory, the medullary rays will be noticed plainly radiating from the pith, while of dandelion, the pith will be found surrounded with many very fine rings, so close together as to be almost invisible to the naked eye, and if the specimen be very dry, it will be noticed to have a pearly lustre, and have the appearance of a section of a clam-shell, and medullary rays are not noticeable. I hope this subject will receive the attention it demands. We are opposed to dishonest pharmacy, even if the consumer is benefited by it; but as a rule, the profit will always be found at the other end of the transaction."

Editorial.

ADULTERATION OF WINES AND LIQUORS IN CANADA.

Many of our readers will have seen Professor Croft's report on the spirits and liquors of Canada, and we doubt not but the result stated has occasioned no little surprise. We have all been taught to believe that our spirituous beverages were of a quality but mildly described by the term indifferent. Our standard production, which, from its powers of penetration, and deadly effects has been likened to the backwoodsman's rifle, and has gained for itself the designation of " forty rod," is now demonstrated to be a liquid of the mildest and most innocuous character. It is thus officially described :— " *Canadian Whiskey*.—Color, bright yellow ; taste, good ; specific gravity of liquor, 0.9538 ; specific gravity of product, 0.9487 ; absolute alcohol per cent. 35.0 ; sulphuric acid or sulphates, trace ; solid contents per cent. 0.3. Good, and of proper strength." Here we have a liquor particularly characterized as " good," and answering to all the requirements of purity. What a consolation will a knowledge of this be to those who, while enjoying the social glass, had still a lingering suspicion that poison lurked therein. We can well imagine the triumph of the toper at seeing one of the best legs of the teetotal platform thus ruthlessly swept away. No more may the temperance lecturer dilate on the mysteries of adulteration ; his poisons are an illusion now happily dispelled by the torch of science.

While speaking thus lightly on a subject which appears to demand more serious thought, we think we are not putting the question in a false light. We sincerely believe that the published result of this Governmental examination is calculated to do a great deal of harm. Even if correct, its publication is injudicious, and though we entertain the highest opinion of Professor Croft's ability to conduct examinations of this kind and desire to pay every deference to one whom all regard with respect, we cannot forbear to state our belief that the general conclusions he arrives at are so stated as to mislead those unacquainted with the subject. For instance, we are told " that, as a general rule, the liquors of Canada are not adulterated, except by the addition of water, and the beers seldom, unless

by the retail dealers in low groggeries, and these principally by the addition of salt."

Most persons who read the above quotation would conclude that the liquors sold in Canada are pure because unadulterated. This is, however, not a strict interpretation. The commoner grades of Canadian whiskey are loaded with amylic compounds, representing all the fusel oil produced in the process of manufacture, besides containing the more volatile products of unknown, but undoubtedly poisonous character, which pass over at the commencement of distillation. These compounds cannot be regarded in the light of adulterations, but as impurities, which the manufacturer would gladly get rid of if their separation did not entail the trouble and expense of removal, and a diminution of the product. We are well acquainted with the practical details of this manufacture, as actually carried on throughout this country, and can confidently state that the lower grades of Canadian whiskey are, generally, of this description. As, in the particulars of analysis, Professor Croft makes no mention of these amylic and etherial products, we may assume that he disregarded their presence, as adulterants, and confined his attention to substances which could be legitimately regarded in this light. In justice to the better kinds of Canadian whiskey—such as are to be found in the more respectable houses in our cities and larger towns—we would say that we believe them to furnish the purest form of alcohol existing in any beverage with which we are acquainted.

In regard to brandy it is stated :—" It is well known that brandies are often manufactured from high wines, coloring matter and the so-called oil of cognac. But these substances cannot properly be denominated poisons, and if consumers are willing to accept such compounds as pure cognac, it does not appear that the dealers can be called poisoners." That the so-called oil of cognac is not poisonous would be a matter which few persons would care to test by experiment upon themselves. What oil of cognac really is has never been very satisfactorily made out, at least in printed records. Authorities generally agree that it is pelargonic or œnanthic ether collected by repeated distillations of the lees of wine. That an oil of cognac may be so collected we do not doubt, but that such is the source we are sure is not the case. These flavouring liquids, including oil of cognac, grape, rye and rum, of which immense quan-

tities are annually consumed, originate with a few chemical manufacturers, chiefly located in New York and Germany. The details of their manufacture are kept inviolably secret. But one thing is certain; that no product of the grape enters into their composition. As far as our experience goes they are mostly compounds of amyl with various acids; hydrocyanic acid, probably as ol. amygdalæ amaræ, enters largely into some of them. As we are, therefore, uncertain as to what oil of cognac really is, we cannot tell its properties, whether poisonous or not, without actual experiment, and this few are disposed to try.

Professor Croft is disposed to think that most of the samples of brandy he examined were genuine; that is, having their origin in the fruit of the grape. His only reason for arriving at this conclusion is that these samples exhibited no striking differences when compared with a specimen of so-called pure brandy, procured from a noted liquor dealer of Toronto. Whether such premises will warrant this conclusion, we leave our readers to determine.

In regard to port wine, the analyst very frankly says:—"It is impossible to say from chemical tests whether port wines are genuine or manufactured; a good wine-taster could give a better opinion." "There is no chemical test by which fictitious coloring matter in port can be detected." This agrees with Griffin (*Chemical Testing of Wines and Spirits*), who says: "I can give no chemical tests for these matters;" but does not correspond with the statements of some other authorities. It does not appear, however, that chemical tests are to be implicitly relied upon; but, according to Sorby (*Quarterly Journal of Microscopical Science*, vol., ix., p. 338; and *Chemical News*, Feb. 1870), the spectroscope may be employed advantageously in these examinations. The coloring matter of the grape gives no absorption bands, and thus differs from many of the substances used to give a color to fictitious port. (Phipson, *Journal of Chemical Society*, Feb. 1870). It is to be regretted that the spectroscope was not thus employed by Professor Croft, for we regard the presence of foreign coloring matter as the best possible proof of the spurious character of the wine.

There are some facts relating to the alcoholic strength of liquors which are stated in the report alluded to which may prove useful for reference. Of seven samples of brandy examined, the percentage of absolute alcohol ranged from 44.8 to 31.0 per cent.;

of nine samples of whiskey, 39.5 to 26.9; three samples of rum, 41.0 to 38.0; five of gin, 42.5 to 23.50; four of port wine, 18.00 to 12.15; five of beer and ale, 9.0 to 3.5 per cent.

We are at present engaged in researches covering some of the ground embraced by the report, and hope next month to resume the subject.

PHARMACY IN IRELAND.

Since the year 1792, when the Apothecaries' Hall Company was created by Act of Parliament, the Irish pharmacists, or, more properly, apothecaries, have had the sole control of their own affairs. The Pharmacy Act, passed in 1868, does not apply to Ireland, but is confined to Great Britain proper; so that in pharmaceutical matters, at least, the Emerald Isle has been favored with the much-talked-of "Home Rule."

It appears, however, that the regulations of the Apothecaries' Hall are not suited for these progressive times. The diplomas which are granted not only confer on the recipient the right to compound and dispense, but also to practice medicine. The standard of qualification is, necessarily, high, and, as a consequence, the number of persons who obtain diplomas is comparatively small. Those who are successful naturally lean to the most lucrative side, and become attached to the medical profession. The result of this is, that the dearth of properly qualified dispensers of medicine is now so great as to be a source of public inconvenience. It is stated, on good authority, that there are between twenty and thirty of the most important market towns in Ireland, with populations varying from 10,000 to 50,000, where there is neither apothecary nor other person competent to dispense medicine. This is more particularly true of the counties of Tyrone, Armagh, and other large and populous districts or counties of the North.

Compared with Canada, what a pharmaceutical paradise Ireland must be! Here we have scarcely a village or hamlet without its qualified chemist; and the idea of a town having even 1,000 inhabitants, and not containing a drug store, would be too temptingly preposterous.

However, it appears that the Irish apothecaries—as repre-

presented by the Apothecaries' Hall, and also the Chemists' and Druggists' Association—are discontented with this state of things, and have taken steps in the direction of a new arrangement. During the early part of the year, deputations from each of the above mentioned organizations waited upon the Marquis of Hartington, Chief Secretary for Ireland, and stated their grievances, asking for an alteration of the law so as to make it conformable to that in force in England. It was proposed that the Apothecaries' Hall assume a position similar to that of the Pharmaceutical Society of Great Britain, and have the power of granting certificates in pharmacy to those who might pass a suitable examination. This would be simply modifying or extending the powers of the Hall, so that it might embrace pharmacists as well as apothecaries.

The deputation appears to have been favorably received, and the Chief Secretary promised to bring the matter at once before the Medical Department of the Privy Council in London.

How the recent changes in political matters in England will ultimately affect this question we cannot say, but we presume that for the present it will have to rest in abeyance.

FATE OF THE MEDICAL BILLS.

As most of our readers will have learned, the amendments to the Medical Act received the sanction of the Legislature, while the Homœopathic Bill was thrown out at its first reading. There is much discontent on both sides, and it is questionable whether the matter will rest here. To judge by the correspondence with which the daily papers have been crowded, the medical profession is, of all others, the most insatiable in its demands, and the most difficult to satisfy.

Editorial Summary.

Glycerate of Sucrate of Lime, and its Employment as an Application to Burns, &c.—M. Latour (*Repert. de Pharm.*) gives some interesting details regarding the preparation of sucrate of lime, and also of a solution of that substance in glycerin. The latter preparation, when mixed with oil, has been highly recommended as an application to severe burns, erythema, erysipelas, variolic eruptions, chilblains, and other cases where the skin is the seat of more or less inflammatory action. In the treatment of burns, the liniment has been extensively tested, and has been found to work very satisfactorily. It efficaciously protects the injured surface from contact with air; does not adhere to the wound; modifies the suppuration, and controls the cicatrization. Its application is not attended with pain. In the preparation of the glycerin solution of sucrate of lime, it is not essential to have recourse to the dry sucrate. A nearly saturated solution may be obtained by adopting the following formula:—Slaked lime 2 parts, powdered sugar 4 parts, water 20 parts, glycerin 4 parts. Mix the sugar and lime thoroughly in a mortar; add the water in small portions, so as to obtain a clear pulp without lumps. Put the mixture into a stoppered flask. After contact for twenty-four hours, filter, and add the glycerin to the solution, then evaporate until it is reduced to one litre. It is essential not to add the glycerin until after the filtration of the solution of sucrate of lime or the filtration will be retarded. Applied to the skin, this glycerate of sucrate of lime forms a kind of varnish, which, under the influence of transpiration, is detached in the form of lumps; upon inflamed surfaces it produces a feeling of coolness and comfort. More decided drying qualities may be imparted to it by dissolving in it, with heat, about 3 per cent. of gelatine. For the preparation of chalk liniment with the glycerate of sucrate of lime, it is preferable to use a dilute solution, such as exists before the mixture is concentrated, as directed in a preceding paragraph. The formula for the liniment of the glycerate of sucrate of lime is as follows:—Ground-nut oil 2 parts, dilute glycerate of sucrate of lime 1 part. Mix in a vessel having a large mouth. By substituting oil of sweet almonds, a mixture is obtained that is a little less solid. In certain cases, where it is desired to combat the odor which is given off from the profuse suppuration of severe and extensive burns, the simple oil may be replaced by camphorated oil.

Analysis of Ricinus Communis.—Prof. E. S. Wayne *(Am. Jour. Pharm.)* having noticed in the fluid extract of the plant a crystalline deposit was desirous of ascertaining its composition. Examination showed the crystals to be nitrate of potassium. Subsequently, these crystals were noticed in several other specimens of the fluid extract, and it became evident that the salt existed in the leaves of the plant in large quantity. It was also noticed that the dried leaves, when burnt, were consumed with scintillation and decrepitation almost like nitre paper. Becoming more interested in the subject, the author was tempted to extend his researches, and, ultimately, made a careful analysis of the leaves with a view of determining the character of the active principle present. In this he was successful, a proximate principle, crystallizing in square prisms and tables, but not possessing the properties of an alkaloid, was obtained. Subjected to a number of tests, this principle turned out to be identical with ricinin, a substance discovered in castor seeds, by Prof. Tuson. This substance has no action on litmus paper, and is not precipitated by iodohydrargyrate of potassium, but still appears to contain nitrogen. This principle exists in all parts of the plant. Analysis of the ash of the leaves showed large amounts of alkalies and phosphoric acid, and may be tabulated as follows:—

Lime	33.40
Magnesia	6.20
Potash	27.15
Soda	2.12
Peroxide of iron	.70
Phosphoric acid	6.68
Sulphuric acid	2.90
Chlorine	1.63
Carbonic acid	16.20
Silica and sand	2.41
Loss	.61
	100.00

Syrup of Iodide of Iron and Manganese.—Mr. J. U. Lloyd (*Am. Jour. Pharm.*) has tried the following formula for preparing this syrup, and, during a number of years, has found it to yield a very satisfactory product. The materials required are—Sulphate of maganese 240 gr., iodide of potassium 288 gr., iodine 744 gr., iron wire 240 gr., sugar 17 ounces avoir. The directions are to place the iodine, three ounces of distilled water, and the iron wire cut into small pieces, in a thin glass flask or a porcelain dish, shake or stir occasionally until the reaction ceases, and the solution has acquired a clear greenish color, without a tinge of yellow. Having introduced the sugar into a porcelain dish, filter the solu-

tion of iodide of iron upon it. Wash the filter by pouring into it two ounces of distilled water, allowing the same to filter into the sugar. Dissolve the sulphate of maganese and iodide of potassium separately in one-half an ounce of cold distilled water by trituration in a mortar; mix the two solutions together, and allow the sulphate of potash to precipitate, then carefully remove the mixture into a moistened filter-paper within a glass funnel, and allow the solution of iodide of maganese to filter upon the sugar. When well drained, wash the precipitate within the funnel with one-half an ounce of cold distilled water, allowing it to filter into the sugar. Finally, finish the operation by adding to the above enough distilled water to make the whole measure twenty-fluid ounces; stir occasionally until dissolved, and filter.

Parrish's Syrup of the Phosphates.—A correspondent of the *Druggists' Circular* proposes a modification of the original formula for this preparation. This consists in the substitution of syrup of phosphoric acid, sp. gr. 1.500 for an equivalent quantity of glacial acid. It is claimed that the uncertain stability of the syrup, as prepared by the old formula, is, in great part, to be attributed to the use of glaical acid. The acid employed should form a perfect solution, without precipitate, when mixed with an equal bulk of tincture of perchloride of iron. It is also stated that the syrupy acid is superior to the diluted acid of the Pharmacopœia on account of its greater solvent power. It may either be obtained directly from phosphorus, or by evaporation of the diluted acid. The formula recommended is as follows:—

Freshly precipitated phosphate of iron - - -	128 grains.
" " phosphate of lime - -	256 "
Phosphate of soda - - - - - - - - - -	128 "
Syrupy phosphoric acid s. g. 1.5 - - - - -	12 fluid drachms
Boiling water - - - - - - - - - - - -	4 ounces.
Syrup - - - - - - - - - - - - - - -	q. s.

The salts of soda, lime, and ammonia, are, with half the phosphoric acid, dissolved in the boiling water. The remainder of the acid is mixed with one ounce of syrup and triturated with the iron salt. The two solutions are then mixed and syrup added to the bulk of sixteen ounces.

Improvement in the Preparation of Phosphorated Resin.—Mr. A. C. Abraham, *(Pharm. Jour. and Trans.)* alludes to certain objections to the mode of preparation proposed by Mr. Gerrard, (see *Can. Pharm. Jour. Feb. p.* 233). The process involves the ap-

plication of a strong heat, giving rise to danger and inconvenience as well as having the effect of deteriorating the product by the oxidation of the phosphorus, or by its conversion into the amorphous form. To obviate these disadvantages the writer proposes to use some resin fusible below the boiling point of water, and also sufficiently heavy to sink in that liquid. Balsam of tolu is suggested as answering both requirements, and by its use the combination can be effected entirely under water. Experiment has shown that four grains of phosphorus are perfectly dissolved by ninety-six grains of washed tolu, if melted together under water and well stirred. The preparation so made, when examined microscopically, does not show any particles of undissolved phosphorus, and when seen in the dark, and rubbed between the fingers, it gives a perfectly *equally distributed* light. This preparation, may therefore, be formed into pills, with every confidence in the equal distribution and activity of the phosphorus.

Curious Formation of Crystals.—A correspondent of the *Druggists' Circular* communicates an idea which might perhaps be turned to good account in the production of objects for shop-window ornamentation. If a lump of granulated pure chloride of ammonium be carefully introduced into a solution of nitrate of lead, best in a wide-mouthed bottle, there will soon appear pillars of crystals resembling in some respects the amorpho-crystalline appearance of commercial starch, or more accurately angular snowbanks. The result is very beautiful, but besides, affords an excellent opportunity to notice the mode of formation. The minute crystals of chloride of lead will be seen to rise from all sides at the base of the forming pillars, and, ascending above their summits, will describe an inward curve and fall on top. This process being continued, the pillars will rise rapidly. I attempt no explanation of the currents so plainly visible, but think the fact is not void of interest from its bearing on the causes of crystalline form. If commercial fibrous chlorides of ammonium be used instead of that described, the result is extremely remarkable from an artistic point of view, but does not show the currents so distinctly.

Cotton Seed Oil—It is said that in the United States over 150,000 tons of cotton seed are used, annually, for the manufacture of oil. The greater portion of this product goes to the olive growing districts of Europe, from whence, after certain manipulations, it is returned as olive oil.

Medicated Candles.—One of the latest novelties is that of medicated candles, which, while burning, diffuse the odor of various balsamic substances used in their manufacture. Benzoin and storax have been so employed ; these, as well as many other drugs, may, when thus used, prove beneficial in cases of bronchial and asthmatic affections.

Are Pepsin and Pancreatine Incompatible ?—This question is answered by Mr. George Luis (*Pharmacist and Chemical Record*), who, as a result of several experiments, states it as his belief that these substances can be used in combination, provided the mixture is not rendered strongly acid.

Color of Oil of Cajuput.—M. Histed (*Neues Jahrb. f. Pharm.* in *Pharmacist and Chemical Record*) confirms the conclusions of Wiggers that the green coloration of cajaput oil is due to traces of copper derived formerly from the copper vessels in which the oil was transported ; but, now the oil is shipped in glass bottles, the coloration must be intentional.

Prevention of Explosions in the Generation of Hydrogen.—In the authority named in the preceding paragraph is a note by R. Fresenius to the effect that accidental explosions of hydrogen, of which most students have some experience, may be prevented by inserting, at the exit of the wash-bottle, a small tube containing small discs of wire netting pressed between cotton.

Adulteration of Carrageen Moss.—J. Dalmon (*Phar. Jour. and Trans.* from *Repert. de Pharm.*) reports the adulteration of carragen, *Fucus crispus* by *gigartina acicularis*, some samples showing an admixture of forty per cent of the latter. The *gigartina* may be distinguished by its cylindrical, cartilaginous, subdichotomous, flexuous fronds, with acuminate most frequently bifurcated branches, sending our lateral, horizontal spiniform branchlets. A light brown tint is retained by the pedicels which gives to the mass a less uniform color than that ordinarily exhibited by carrageen. The jelly yielded by the *gigartina* is much inferior to that from carrageen.

Students' Department.

BOTANICAL TALKS AND RAMBLES WITH CANADIAN STUDENTS.

I.

The object of this series of papers is not so much that of teaching botany as of exciting the interest of students, and of directing or aiding them in the prosecution of this delightful study. To call the study of botany delightful, is, perhaps, as trite and commonplace an observation as could possibly be made. Every writer dilates on the pleasure to be derived from the subject, but, unfortunately, there are few who can be induced to become its votaries. Many persons make the attempt, but are met at the outset with such an array of seemingly unintelligible and outlandish terms that, after a short assay, they turn from the subject in disgust. Others, by reason of their utilitarian views, are deterred from even making an attempt. With this class, however, we have nothing to do, as pharmaceutical students must be aware of the practical importance of knowledge of this kind, and even should they have any doubts in regard to its general utility, they are compelled to recognize its claims as an essential of pharmaceutical education as at present constituted.

In the examinations which have been held under the auspices of the College of Pharmacy, the deficiency of botanical knowledge evinced by the candidates was very marked. In the last examination, the questions given were of the simplest possible character, but, despite this, the answers were, in general, few, meagre and imperfect—several of the candidates being even unable to answer even one question. It is certain that a considerable proportion of those who succeeded in passing these examinations would, undoubtedly, have failed to do so if their deficiency in botany had not been made up by their proficiency in other branches. It is probable that, in subsequent examinations, candidates will be required to obtain a stated percentage of marks in each subject, and that failure in one branch will affect disastrously the entire result. In this case, our young friends had better apply themselves diligently to the study of each of the required branches, and if there is any subject to which they are indifferent, and perhaps even regard with

dislike, let them of all things devote to such extra attention. They will then find that not only will they gain mental power and manliness by the effort, but that the object of dislike will be changed to one of love, and that which was viewed with indifference will be contemplated with pleasure.

By thus urging necessity as the chief incentive to study we have caused the subject to assume its meanest and narrowest aspect. We have purposely put the worst side outwards, so that we may reach the worst and most dissaffected cases. We trust and believe that such cases are few, and that the majority of our readers are willing and anxious to tread with us the pleasant fields which will by and by open to our view.

We have said that this series of articles will not take the form of consecutive lessons, in which the subject is treated in a legitimately systematic manner, but rather that of conversational instruction, where the writer and his readers may together go over the same ground, whether such be the pages of our text book, or the flowers and plants of the current month.

The student should at once obtain a copy of Gray's *Lessons in Botany*, or some other strictly elementary work; and Gray's *Manual of Botany of the Northern United States*. The price of the first named work is $1; the last $2.25. If any student cannot conveniently procure either, we will obtain them for him.

The first twelve chapters of the *Lessons* should be at first thoroughly understood; but it will not be absolutely necessary to commit to memory the many technical terms with which this part of the book abounds. If the student studies well the substance of the lessons, he will remember many of the terms connected therewith, and the practical application of the knowledge thus acquired, together with the references we shall make to the subjects treated, will fix indelibly in his mind this seemingly difficult matter of nomenclature.

By pursuing the course indicated, the student will have a superabundance of work for this month, and the promised flowers of May will give us plenty of work for that succeeding.

Toronto, March 25th.

Answers to Correspondents.

Druggist.—SALE OF SPIRITUOUS LIQUORS.—For the sake of other readers the enquiries of this correspondent are given in full: "1st. Can a druggist sell wine or liquors for medicinal purposes without a certificate or prescription from a doctor, when the druggist is perfectly satisfied that the liquor is intended for such purposes? 2nd. Can a druggist sell alcohol for use in the arts—as to photographers, jewellers, etc.—without an order from a medical man? 3rd. Is a druggist liable to fine if he sells alcohol, wine, or spirituous liquor of any kind, when such is mixed with drugs—as quinine, camphor, guaiac or aloes? In answer to those questions we may say that by the *Act to amend the Acts respecting Tavern and Shop Licenses*, passed during the early part of last year, druggists are exempted from any of the restrictions and penalties named, as it is specially stated that the licensing clause does not apply "to any chemist and druggist, duly registered as such, under and by virtue of the *Pharmacy Act of* 1871, who keeps or has such liquors for medicinal purposes only." This covers the first and third questions. In regard to the second we cannot quote for you the exact law but we are under the impression that the sale of alcohol for use in the arts is legally permitted. In any case it has been an established custom for druggists to sell such without any restriction whatever. It is obvious that in such instances a physician would not be qualified to give a certificate as he could not be supposed to have any knowledge of the use of alcohol except as far it relates to medicine.

Blue Pill.—PASTE FOR LABELS ON TIN.—See page 306 of present number. This correspondent sends the following formulæ:

DECOLORIZED TINCTURE OF IODINE.

Tinct. Iodinii	1 ounce.
Acid. carbolic cryst.	4 drops.
Liq. ammon. fort	12 drops.

WHITE ROSE COLOGNE.

Tinct. orris (8 oz. to 1 pint. pure spirit)	4 ounces.
Ol. Neroli	6 minims.
" Patchouli	6 "
" Rosæ	8 "
Ext. white rose	2 ounces.
" Musk	½ ounce.
Pure Spirit	1½ pints.
Rose Water	8 ounces.

It would be better to make the tincture of orris of a strength of 4 oz. to 1¾ pints, using this instead of the pure spirit in the formula.—ED.

A Druggist.—HAMILTON.—The case to which you refer was brought up at the last meeting of the Council, and the Registrar was instructed to take legal proceedings against these persistent offenders.

Student, Barrie.—You need not necessarily study the classification of Linnæus, but it would be of advantage were you acquainted with it. The Natural System is now generally adopted, and probably it is on this that your knowledge would be tested by the Board of Examiners. The text books you should obtain are Gray's *Lessons on Elementary Botany*, and Gray's *Manual of Botany of the Northern States*. The price of the latter is $2.25; that of the former about one dollar.

Transactions of Pharmaceutical Colleges and Societies.

MONTREAL COLLEGE OF PHARMACY.

The regular monthly meeting of this College was held on Thursday evening, the 5th inst., in the lecture room of the Pharmaceutical Association of the Province of Quebec. Mr. Henry R. Gray, President, in the chair. After the Secretary, Mr. James Mattinson, had read the minutes, and the usual routine business had been attended to, Dr. J. Baker Edwards delivered a very instructive lecture on the blow-pipe, microscope, and spectroscope, as aids to qualitative analysis, each of which he described very minutely, especially dwelling upon the beauties and uses of a splendid compound acromatic miscroscope which he had before him. The conclusion of the lecture was illustrated with the spectroscope. The spectra of lithium, sodium, strontium, &c., being shown by Dr. Shaw, who kindly assisted the lecturer.

A vote of thanks was proposed by Mr. C. Hoffman, and seconded by Mr. R. J. Devins, and the meeting adjourned.

Practical Formulæ

Styptic Collodium.—The Dublin *Medical Press and Circular* gives the following formula:

Tannic Acid	2 ounces.
Alcohol	4 fluid ounces.
Ether	12 fluid ounces.
Canada Balsam	1 drachm.
Pyroxylin	1 drachm, 2 scruples.

Dissolve the tannin in one ounce of the alcohol, mix the Canada balsam in the ether, add the remaining alcohol and in the mixture dissolve the soluble cotton.

Cacao Cream.—

℞.	Oleum theobromæ	16 ounces.
	" ricini	96 ounces.
	" bergamii	6 drachms.
	" limonis	1½ ounces.
	" citronellæ	1½ drachms.
	" lavandulæ	4 drachms.
	Spts. coloniensis, 95 per cent	64 ounces.

Melt the oil of theobroma, warm the castor oil and mix. Dissolve the essential oils in the cologne spirit. Fill the bottles two-thirds full with the first mixture, and fill balance of bottle with the perfumed spirit. This forms an elegant mixture for dressing the hair, and is quite popular with many. In very cold weather it becomes quite hard, but a little heat soon renders it fluid.—T. S. Glenn in *Am. Jour. Pharm.*

A Remedy for Chilblains.—One ounce of tannic acid is to be dissolved in about a pint of water, and four scruples of iodine in a sufficiency of concentrated alcohol. The two solutions are then mixed together, and enough water is added to make up two pints of fluid. The best time for using the remedy is on going to bed. The solution is placed on a slow fire in an earthen or china vessel; the part affected with chilblains is then introduced into the fluid, and it is to be kept there until the liquid becomes too hot to be borne. The part is then to be withdrawn, and to be dried by being kept near the fire. When the chilblains are ulcerated it is best to diminish the quantity of iodine.—*Repertoire de Pharmacie.*

Marrow Pomade.—

Butter of cacoa	4½ ounces.
Pure white lard	22½ "
Melt over a gentle fire, and add oil of mace	2 "
Strain, and add while warm, rose-water	4 "
Tincture of cantharides	½ ounce.
Agitate until cool, and finally add oil jasmin	1½ drachms.
Oil bergamot	3 "
" lemon,	
" Engl. lavender aa	1 drachm.
" cloves	2 scruples.
" rose	36 drops.
" neroli	30 "
" cinnamon	10 "
" bitter almonds	4 "
Tincture musk	24 "

M.

Finally, dissolve ext. rhatany ..... 36 grains, in suf. q. of alcohol dil., and tincture of Spanish saffron, to color. —*Correspondent of Druggists' Circular.*

Varieties.

PLANTS IN SLEEPING ROOMS.—In a recent number of the *St. Louis Medical and Surgical Journal* is a letter from Mr. Kedzie, in which he quotes a paragraph from Professor Johnson's "How Crops Feed," in which it is stated very correctly that the quantity of carbonic acid absorbed by day by plants in direct light is vastly greater than than that exhaled during the night. According to Corenwinder's experiment, fifteen to twenty minutes of direct sunlight enable the colza, the pea, the bean, the raspberry, and sunflower to absorb as much carbonic acid as they exhale during a whole night. Boussingault found as the average of a number of experiments that a square meter of oleander leaves decomposed in sunlight 1·108 litres of carbonic acid per hour; in the dark the same surface of leaf exhaled ·07 litre (each litre is equal to about two pints and one-eight) of this gas. From this it would appear that the balance is likely to be in favour of their utility in purifying the air, especially as during the day they eliminate oxygen. In order, however, to determine the point, Mr. Kedzie collected air from the college green-house, in which there were more than 6,000 plants, before sunrise, and after the room had been closed more than twelve hours. The average of five analyses showed that there were 3·94 parts of carbonic acid in 10,000 of air, and it thus appears that the air in the greenhouse was better than "pure country air," which contains four parts in 10,000. To ascertain whether the air in the green-

house had more carbonic acid by night than by day Mr. Kedzie analysed two specimens at 2 p.m. These gave 1·40 and 1·38 parts, showing that the night air contained more carbonic acid than did the air of the day. On the whole, it may be safely concluded that the presence of one or two dozen plants in a room will not exhale enough carbonic acid by night to injure the sleepers.—*Lancet.*

A LEAD AND ZINC BATTERY.—A new form of galvanic battery invented by Pierlot is thus described in *Comptes Rendus :* In a suitable glass or earthenware vessel is placed about a pound of chloride of lead, into which is inserted a plate of lead with a varnished lead wire attached. In the other part of the vessel is inserted an amalgamated zinc plate about nine millimeters thick, covered with a bag of parchment paper. Every two or three months water is added. The current is said to be strong and constant.—*Journal of Applied Chemistry.*

Registrar's Notices.

☞ Don't forget to pay your annual fee of four dollars on or before the first day of May.

The Registrar begs to draw the attention of members to the following extract from Section 17 of the Pharmacy Act :—

"And there shall be payable to the Registrar of the said College, for the uses of the College, on the first day of May of each year, by every person registerd and carrying on business as a Pharmaceutical Chemist, the sum of four dollars."

It is hoped that every druggist in the province will not delay in complylng with the above, and remit the amount to the Registrar.

GEORGE HODGETTS, Registrar.

The Registrar would remind those druggists who have not furnished themselves with the Sale of Poisons Book, that they can have one sent to their address by remitting the sum of sixty cents. The book contains, besides the Pharmacy Act, a great deal of useful information to druggists; it is ruled, in accordance with Schedule "B," for the entry of the sales of poison, to the number of 3,000. The book can also be had from Messrs. Lyman, Bro. & Co., Messrs. Elliot & Co., Toronto; Messrs. T. Bickle & Son, Hamilton.

Drugs, Medicines, &c.	$ c.	$ c.
Acid, Acetic, fort.	0 14 @	0 15
Benzoic, pure	0 23	0 30
Citric	1 40	1 50
Muriatic	0 05	0 06
Nitric	0 11½	0 15
Oxalic	0 22	0 26
Sulphuric	0 03¾	0 07
Tartaric, pulv.	0 50	0 50
Ammon, carb. casks	0 23	0 24
" jars	0 23	0 24
Liquor, 880	0 25	0 28
Muriate	0 14	0 15
Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
Nitrous	0 35	0 37
Sulphuric	0 50	0 50
Antim. Crude, pulv.	0 15	0 17
Tart "	0 55	0 65
Alcohol, 95 per ct.....Cash	1 65	1 72
Arrowroot, Jamaica	0 18	0 22
Bermuda	0 50	0 65
Alum	0 02¾	0 03½
Balsam, Canada	0 50	0 50
Copaiba	0 95	1 00
Peru	3 75	4 00
Tolu	0 90	1 00
Bark, Bayberry, pulv.	0 20	0 22
Canella	0 17	0 20
Peruvian, yel. pulv.	0 42	0 50
" red "	2 10	2 20
Slippery Elm, g. b.	0 15	0 20
" flour, packets	0 28	0 32
Sassafras	0 17	0 20
Berries, Cubebs, ground	0 20	0 25
Juniper	0 06	0 10
Beans, Tonquin	0 62	1 10
Vanilla	30 00	30 00
Bismuth, Alb	3 30	4 00
Carb.	3 50	4 00
Camphor, Crude	0 38	0 40
Refined	0 45	0 50
Cantharides	2 50	2 60
Powdered	2 60	2 70
Charcoal, Animal	0 04	0 06
Wood, powdered	0 10	0 15
Chiretta	0 20	0 30
Chloroform	1 10	1 65
Cochineal, S. G.	0 75	0 90
Black	1 10	1 20
Colocynth, pulv.	0 60	0 65
Collodion	0 70	0 80
Elaterium.....oz	3 20	4 00
Ergot	0 35	0 45
Extract Belladonna	1 50	1 60
Colocynth, Co.	1 25	1 75
Gentian	0 50	0 60
Hemlock, Ang	0 85	0 95
Henbane, "	1 50	1 60
Jalap	5 00	5 50
Mandrake	1 75	2 00
Nux Vomic.....oz	0 40	0 50
Opium.....oz	1 50	
Rhubarb	5 00	5 50
Sarsap. Hon. Co.	1 00	1 20
" Jam. Co.	3 50	4 00
Taraxacum, Ang	0 70	0 80
Flowers, Arnica	0 17	0 25
Chamomile	0 32	0 40
Gum, Aloes, Barb. extra	0 70	0 80
" " good	0 40	0 50
" Cape	0 16	0 20
" " powdered	0 20	0 30
Socot	0 50	1 35
" " pulv	1 00	0 00
Arabic, White	0 70	0 75
" powdered	0 60	0 75
" sorts	0 24	0 30
" " powdered	0 42	0 50
" com. Gedda	0 13	0 16
Assafœtida	0 40	0 42
British or Dextrine	0 13	0 15
Benzoin	0 35	0 75
Catechu	0 12	0 15
" powdered	0 25	0 30
Euphorb, pulv.	0 35	0 40
Gamboge	1 40	1 50
Guaiacum	0 90	1 00
Myrrh	0 50	0 70

Drugs, Medicines, &c.—*Contd.*	$ c.	$ c.
Sang Dracon	0 60	0 70
Scammony, powdered	6 00	6 50
" Virg. "	14 50	—
Shellac, Orange	0 80	0 85
Gum, Shellac, liver	0 75	0 80
Storax	0 40	0 45
Tragacanth, flake	1 10	1 40
" common	0 53	0 65
Galls	0 28	0 32
Gelatine, Cox's 6d.	1 15	1 20
Glycerine, common	0 25	0 30
Vienna	0 29	0 30
Prices	0 60	0 75
Honey, Canada, best	0 15	0 17
Lower Canada	0 14	0 16
Iron, Carb. Precip.	0 20	0 25
" Sacchar.	0 40	0 55
Citrate Ammon	1 65	1 70
" & Quinine, oz.	0 55	0 58
" & Strychine	0 20	0 25
Sulphate, pure	0 08	0 10
Iodine, good	6 75	7 00
Resublimed	7 50	8 00
Jalapin	1 25	1 50
Kreosote	2 40	2 50
Leaves, Buchu	0 22	0 30
Foxglove	0 25	0 30
Henbane	0 35	0 40
Senna, Alex	0 27	0 60
" E. I.	0 14	0 20
" Tinnevilly	0 20	0 30
Uva Ursi	0 15	0 17
Lime, Carbolate.....brl	5 50	—
Chloride	0 05	0 06
Sulphate	0 08	0 12
Lead, Acetate	0 15	0 16½
Leptandrin.....oz.	0 60	—
Liq. Bismuth	0 50	0 75
Lye, Concentrated	1 75	2 00
Liquorice, Solazzi	0 50	0 55
Cassano	0 23	0 40
Other brands	0 14	0 25
Liquorice, Refined	0 35	0 45
Magnesia, Carb. 1 oz.	0 20	0 25
" 4 oz.	0 17	0 20
Calcined	0 65	0 75
Citrate.....gran.	0 63	0 75
Mercury	1 85	1 90
Bichlor	1 70	1 75
Chloride	1 80	1 90
C. Chalk	0 75	80
Nit. Oxyd	1 90	2 00
Morphia Acet	4 45	4 60
Mur.	4 45	4 60
Sulph	4 60	4 75
Musk, pure grain.....oz	25 00	—
Canton	0 90	1 20
Oil, Amonds, sweet	0 40	0 45
" bitter	14 00	15 00
Aniseed	4 00	4 25
Bergamot, super	6 50	6 50
Caraway	3 20	3 50
Cassia	2 25	2 50
Castor, E. I	0 14	0 15
Crystal	0 22	0 25
Italian	0 26	0 28
Citronella	1 25	1 35
Cloves, Ang	3 00	3 00
Cod Liver	1 5	1 50
Croton	1 75	2 00
Juniper Wood	0 80	1 00
Berries	6 00	7 00
Lavand, Ang.....oz.	0 90	1 00
Exotic	1 40	1 60
Lemon, super	4 60	5 75
ord	3 20	3 40
Orange	3 00	3 25
Origanum	0 65	0 75
Peppermint Ang	15 00	16 00
" Amer.	5 00	5 50
Rose, Virgin	8 50	8 75
" good	6 80	7 00
Sassafras	0 75	1 90
Wintergreen	6 00	6 50
Wormwood, pure	4 00	6 50
Ointment, blue	1 30	1 40
Opium, Turkey	8 25	8 50
pulv.	10 00	10 50

DRUGS, MEDICINES, &c.—*Cont'd*	$ c.	$ c
Orange Peel, opt.	0 30	0 36
" good	0 12½	0 20
Pill, Blue, Mass	1 30	1 40
Potash, Bi.chrom	0 23	0 27
Bi-tart	0 33	0 35
Carbonate	0 14	0 20
Chlorate	0 50	0 55
Nitrate	10 50	11 00
Potassium, Bromide	1 00	1 10
Cyanide	0 60	0 65
Iodide	5 75	6 25
Sulphuret	0 25	0 35
Pepsin, Boudault's...oz	1 40	—
Houghton's..... doz.	8 00	9 00
Morson's.....oz.	0 85	1 10
Phosphorous	0 95	1 00
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	2 40	—
" 100 oz. case.	2 35	—
" 25 oz. tin..	2 35	—
Root, Colombo	0 13	0 20
Curcuma, grd	0 12½	0 17
Dandelion	0 17	0 20
Elecampane	0 16	0 17
Gentian	0 08	0 10
" pulv	0 15	0 20
Hellebore, pulv	0 17	0 20
Ipecac, "	1 50	1 60
Jalap, Vera Cruz	90	1 15
" Tampico	0 70	1 00
Liquorice, select	0 12	0 13
" powdered	0 15	0 20
Mandrake "	0 20	0 25
Orris, "	0 20	0 25
Rhubarb, Turkey	2 50	2 75
" E. I	1 10	1 20
" " pulv	1 20	1 30
" " 2nd	0 90	1 00
" French	0 75	—
Sarsap., Hond	0 40	0 45
" Jam	0 88	0 90
Squills	0 10	0 15½
Senega	1 10	1 20
Spigelia	0 25	0 30
Sal., Epsom	2 25	3 00
Rochelle	0 32	0 35
Soda	0 02½	0 03
Seed, Anise	0 13	0 16
Canary	0 05	0 06
Cardamon	2 25	2 50
Fenugreek, g'd	0 09	0 10
Hemp	0 06½	—
Mustard, white	0 14	0 16
Saffron, American	1 00	1 10
Spanish	12 00	13 00
Santonine	7 50	8 00
Sago	0 08	0 09
Silver, Nitrate.....Cash	14 85	16 50
Soap Castile, mottled	0 11	0 14
Soda Ash	0 04	0 05
Bicarb. Newcastle	—	6 50
" Howard's	0 14	0 16
Caustic	0 05½	0 05¾
Spirits Ammon., arom	0 35	0 35
Strychnine, Crystals	2 25	2 50
Sulphur. Precip	0 10	0 12½
Sublimed	0 03½	0 05
Roll	0 03	0 04½
Vinegar, Wine, pure	0 55	0 60
Verdigris	0 35	0 40
Wax, White, pure	0 75	0 80
Zinc. Chloride.....oz	0 10	0 15
Sulphate, pure	0 10	0 15
" common	0 06	0 10
DYESTUFFS.		
Annatto	0 35 @	0 60
Aniline, Magenta, cryst	2 50	2 80
" liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitrol, pure	0 10	0 10
Camwood	0 06	0 09
Copperas, Green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 02½	0 04
Indigo, Bengal	2 40	2 50
Madras	0 90	0 95
Extract	0 30	0 35

DYESTUFFS—*Continued.*		
Japonica	0 07¾	0 08
Lacdye, powdered	0 33	0 38
Logwood	0 02½	0 03
Logwood, Camp	0 02¾	0 3½
Extract	0 10	0 14
" 1 lb. bxs	0 13	—
" ½ lb. "	0 14	—
Madder, best Dutch	0 13	0 15
2nd quality	0 12	0 14
Quercitron	0 03	0 05
Sumac	0 06	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
SPICES.		
Allspice	0 11½@	0 12
Cassia	0 39	0 40
Cloves	0 46	0 48
Cayenne	0 28	0 30
Ginger, E. I	0 19	0 20
Jam	0 26	0 30
Mace	1 65	1 75
Mustard, com	0 20	0 25
Nutmegs	1 15	1 20
Pepper, Black	0 22½	0 23
White	0 48	0 50
PAINTS, DRY.		
Black, Lamp, com	0 07 @	0 08
" refined	0 25	0 30
Blue, Celestial	0 08	0 12
Prussian	0 65	0 75
Brown, Vandyke	0 10	0 12½
Chalk, White	0 01	0 01½
Green, Brunswick	0 07	0 10
Chrome	0 16	0 25
Paris	0 30	0 35
Magnesia	0 20	0 25
Litharge	0 07	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 07½	0 08
Venetian	0 02½	0 03½
Sienna, B. & G	0 07	0 08
Umber	0 07	0 10
Vermillion, English	1 85	1 90
American	0 25	0 35
Whiting	0 85	0 90
White Lead, dry, gen	0 08½	0 09
" " No. 1	0 07	0 08
" " No. 2	0 05	0 07
Yellow Chrome	0 12½	0 35
" Ochre	0 02½	0 03½
Zinc White, Star	0 10	0 12
COLORS, IN OIL.		
Blue Paint	0 12 @	0 15
Fire Proof Paint	0 06	0 08
Green, Paris	0 30	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1 lb tins	0 11	0 12
Putty	0 03¾	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25 lb. tins	2 50	—
" No. 1	2 25	—
" No, 2	2 00	—
" No. 3	1 75	—
" com	1 30	—
White Zinc, Snow	2 75	3 25
NAVAL STORES.		
Black Pitch	5 00 @	5 25
Rosin, Strained	4 50	—
Clear, pale	7 80	—
Spirits Turpentine	0 60	0 62
Tar Wood	5 50	5 75
OILS.		
Cod	0 63 @	0 70
Lard, extra	0 85	0 90
No. 1	0 75	0 80
No. 2	0 72	0 75
Linseed, Raw	0 75	0 80
Boiled	0 80	0 85
Olive, Common	1 10	1 20
Salad	1 80	2 30
" Pints, cases	4 20	4 40
" Quarts	3 25	3 50
Seal Oil, Pale	0 70	0 70
Straw	0 68	0 70
Sesame Salad	1 30	1 35
Sperm, genuine	2 30	2 40
Whale refined	0 90	0 95