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CANADIAN

PHARMACEUTICAL JOURNAL

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Original and Selected Papers.

ON THE REACTION OF IODINE WITH STARCH.

SCRAPS BY MONAD.

Having examined a sample of butter in which the presence of starch was suspected, I have learned that the sensibility of iodine as a test for that body may be destroyed by the presence of certain nitrogenized organic matters. Of this class is albumen; the cloudy whey drained from coagulated milk behaves like a solution of white of egg. This is proven by the following experiments :—

If albumen is added to iodide of starch suspended in water the color disappears.

If albumen is added to a solution of starch, water saturated with iodine will not produce therein any coloration, unless a very large excess be added.

The albumen acts probably by seizing upon definite proportions of iodine, either before or after the combinaton of the latter with starch; indeed when albumen is poured into an aqueous solution of iodine, the color disappears. It is scarcely necessary to add that the decolorized solution of iodine will not color starch blue. The same fact may also be shown by operating with starch triturated in a mortar; if care be taken in triturating to incorporate a little albumen, and then iodine be added in drops, each drop will produce a blue spot, which will soon disappears according as the drop, in passing over a large surface, meets with a sufficient quantity of albumen.

SPONTANEOUS ALTERATION OF ANHYDROUS HYDROCYANIC ACID.

It is known that anhydrous hydrocyanic acid frequently undergoes in a short time azulmic decomposition, whilst in other cases it may be preserved for months without alteration. The cause of the difference is in the calcium chloride employed in the drying process. If the calcium chloride is neutral (see note) the acid obtained will be pure and will keep indefinitely; if it is alkaline, as it is when it has been fused in contact with air, the acid will soon decompose spontaneously.

The theory of the amides explains this fact. Calcium cyanide is first formed by the contact of the hydrocyanic acid with the lime contained in the calcined calcium chloride; the water which comes over with the hydrocyanic acid reacts on the calcium cyanide and produces calcium formiate and ammonia. This alkali, transformed in its turn into cyanide passes into the cooled matters with the condensed acid. Then, we know, from the works of Millon, that a trace of ammonia is sufficient to determine the alteration of anhydrous hydrocyanic acid.

But there is also another cause for the alteration, which is not connected with the presence of an alkali; it is heat. If the pure acid is heated, in a sealed tube, for four or five hours, at 100°, the liquid soon burns brown, and finally becomes a black compact mass. When the tube is opened, no gas escapes. The product, heated at 50° to remove any trace of unaltered hydrocyanic acid, represents the total weight of the acid employed, and has the percentage composition of the generating acid.

As P. Boullay has already noted, in his study of azulmic acid, this substance heated in a tube closed at one end, disengages at first ammonium cyanide, then cyanogen, and leaves a hard charcoal, slightly combustible. The ammonium cyanide does not appear to be ready formed in that body, seeing it may be heated to 50° without ammonia being disengaged.

NOTE.—Neutral calcium is obtained by evaporating the solution slightly acidulated and stopping as soon as dryness is obtained.—*J. de Girard, in Comptes Rendus, tome, LXXXIII. p.* 344.

MANNA FROM THE PINE FAMILY.

A correspondent of the *Druggists' Circular*, residing in Placer County, California, sent to the editor of that journal some cuttings from cedar and pine, which were covered with a saccharine substance, known in California as "honey dew." It was stated that in some places the trees were quite covered with it, and the question naturally arose whether it was an exudation from the trees, or was deposited from the atmosphere. These queries, together with the specimens, were referred to Professor Thurber, the editor of the *American Agriculturist*, who has returned the following answer:

"I have examined with much interest the specimens from Placer County, Cal., which you kindly sent me, and though I may not be able to favor you 'with an explanation,' I may furnish a few notes of interest to some members, at least, of my former profession. The specimens consist of terminal twigs of two conifers: a pine of the section with ternate leaves (three in a cluster or sheath), but which can not be accurately identified without the cone; and the California White Cedar, *Libocedrus decurrens*. Specimens of both are freely incrusted in a stalactitic manner with a nearly pure white substance. A friend who stood by as I opened the box at once declared them to be fragments of a Christmas tree; you made a similar comparison in your note accompanying them, which shows that the resemblance of the incrustation to candle drippings at once suggests itself. The taste recalls that of manna, and if a fragment is carefully separated, that is not in direct contact with the stem or leaf, it is free from any terebinthinate flavor. It is one of the numerous saccharine exudations classed under the head of *manna*, to indicate a common method of production, rather than identity of chemical characters.

While the manna of commerce is furnished by a species of ash *(Fraxinus Ornus)*, similar exudations, more or less valued in the countries where they occur, are produced by trees of widely different families. The *Leguminosæ* and *Rosaceæ*, contain manna-bearing plants; a tamarisk, a cistus, a willow, and one or more oaks, afford similar products; even the genus Eucalyptus, of which so much is now expected, has a manna yielding species; with all these very dissimilar plants producing sugary exudations, it is not so surprising that we should find them in a family where they would be least expected, judging from its ordinary "naval store" products—the *Coniferæ* or Pine Family.

Manna from the conifers is, however, no recent thing. The Briancon manna, employed in France early in the last century, is from a conifer, the European Larch, (*Larix Europœa*), and received its name from being collected in the mountains about Briancon, where it is still gathered by the peasants for their own use, though no longer in commerce. It is found in midsummer adhering to the leaves of the

larch, and is collected early in the day, as it disappears with the heat of the sun. The old writers mention the Manna of Lebanon, which some authors say was afforded by the Cedar of Lebanon *(Cedrus Libani)*, but others assert that it was only a synonym for gum mastic.

One of the finest pines of that country of magnificent trees, our Pacific coast, is known to cultivators as Lambert's Pine (*Pinus Lambertiana*) ; this reaches the height of 200, and even 300 feet, and is useful as well as grand, its wood serving there for all the purposes that the white pine does with us. Ordinarily, this tree exudes only turpentine, and but little of that; but when the tree is injured by being partially burned, it yields a saccharine substance, formerly used by the settlers for sweetening their food, on which account the tree is known all along the coast as the 'Sugar Pine.' According to Prof. J. S. Newburry, Pacific R. R. Reports, vol. 6, Botany, p. 44, the laxative properties of this pine sugar are known to the frontiersmen, who make use of it as a medicine. He says: 'Its resemblance in taste, appearance and properties to *manna* strikes one instantly, and but for a slight terebinthine flavor it might be substituted for that drug without the knowledge of the druggist or physician, its physical and medical properties are so very alike.'

The pine, however, among the specimens in question, is not the Sugar Pine (*P. Lambertiana*), as that species belongs to the section having five leaves in a sheath; and shows that there are at least two species of our far Western pines which produce a manna. The observation as to its production by *Libocedrus* is, so far as I am aware, quite new, and adds one more to the manna yielding genera.

As to the cause of this exudation, so long as the phenomenon in the manna ash, where there has been abundant opportunity for study and observation, remains unexplained, it is hardly worth while to conjecture in the present case, in which we have only the results.

Manna is exuded from this ash spontaneously, the tree being wounded merely to increase the product. It only occurs in warm and dry countries, and is greatly affected by the character of the season. We have in these specimens, and also in the sugar produced by the sugar pine, not only an exudation, but one very unlike that usually yielded by the tree. The ordinary exudation from these trees, in common with others of the pine family, is turpentine, an oleo-resin. In these cases the character of the exudation is entirely changed, and we have a form of sugar belonging to an entirely different class of principles. In the sugar pine this appears to be effected by destroying the vitality of the tree by partial burning; in the specimens before us it is ascribed to extreme drought.

As some of the products resembling manna are due to the punctures of insects, I examined a portion of this by dissolving the sugar from a stem ; a few fragments of what appear to be remains of *aphides* were found in the solution, but none attached to the twig. I have not been able to make any examination of the optical or other properties of the sugar."

THE KEEPING AND DISPENSING OF EXTRACTS.*

BY J. C. WHARTON.

Among the disagreeable things connected with pharmacy, scarcely any give more annoyance than solid extracts, and it is with a view of lessening the unpleasant features of this large class of our preparations that I offer the following suggestions. I cannot claim that the method herewith presented will be always practicable, but from sufficient experience can confidently recommend it as worth a trial. Before stating the proposition, however, I would prefer to give a passing notice of some of the defects in the manufacturers' part in putting up their extracts for general sale.

A very common fault is in the *consistency*. Solid extracts when first opened are not often too hard unless old, but quite frequently they are entirely too soft. Some, indeed, with a little more dilution would make passably good fluid extracts. To such an extent is this true that oftentimes a newly purchased lot of extracts will be received in such a condition externally that the label is defaced and almost if not altogether illegible from the running out of the extract at the imperfectly covered top of the jar. To obviate this difficulty some manufacturers resort to a plan which dispensers, I am sure, would pronounce very objectionable in more than one respect, should their opinion be asked about it. The plan alluded to is that of placing *tin-foil* over the tops of the jars, between the cover and the extract. If the tin-foil were pure tin, one objection to this could not be urged; but as it usually contains a considerable proportion of lead, it must be objectionable on that account, if not dangerous to use for the purpose. However, even if harmless, it is a source of inconvenience and also loss to the dispenser, as it often gets so badly mixed with the contents of the jar as to be not easily removed, and if removed at all, occasions loss from adhering extract. Some manufacturers place a circular piece of bladder, or some sort of animal tissue, over the extracts, with much better judgment, it seems to me.

But to briefly state the point had in mind at the outset: I have found that a number of solid extracts can be kept in very good condition, and more conveniently for dispensing than in any other way I know of or have yet heard of, by simply making pills of certain sizes, ½ grains, 1, 2, 3, 5, 10, 20 grains, or any suitable weights, accurately made, and keeping them in the usual white earthen jar, covered with an *abundance of lycopodium*

The convenience of this method will be appreciated when once tried. Its advantages are: its readiness for dispensing; its neatness for handling and the cleanliness of the jar and label externally; its economy, compared with the usual mode of weighing small

*American Journal of Pharmacy.

quantities as wanted, and thereby losing what sticks to the spatulas; its uniformity of strength (not being affected by subsequent drying or deliquescence, as usual); the full weight is given, whereas by the usual method of weighing on paper some is lost, not being removable.

To this last I would add a suggestion; instead of weighing solid extracts on paper, a better plan is to dust lycopodium over it on taking it from the jar, and to roll it between the fingers, dusted over with the same powder. The little ball may then be weighed, as any other solid, in the dish of the scale without sticking to it. The lycopodium would not add materially to the weight, as it may all be blown off except a very thin film. Should perfect accuracy be demanded, both pans of the scale may be dusted over with lycopodium and balanced with it; then the extract may be placed in the pan, on the powder, and weighed.

The main disadvantage that appears to present itself in the matter of keeping the weighed mass is the possibility of the extract becoming so dry as to be worked up in prescriptions with difficulty. This might be prevented by a proper addition of glycerin; and I am of opinion that, even should the extract become dry, it might be softened by placing a moistened sponge in the jar with the pills, in such a manner as not to wet them, but supply a moist atmosphere, and let the pills absorb moisture without altering their shape. I have not had occasion, however, to try this plan, and cannot speak positively about its successful application.

In conclusion, it may be stated yet that the pills may be put into different jars, or several sizes may be kept in the same jar, by making partitions, or by making such great difference in the sizes or shapes of the masses as to identify them.

Nashville, Tenn., Jan. 31, 1877.

CONTRIBUTIONS TO THE CHEMICAL KNOWLEDGE OF CULINARY PLANTS.*

BY DAHLEN.

The following analytical results are taken from Dahlen's investigations on pot-herbs (*Landwirthschaftliche Jahrbucher*, 1875, pp. 613–723).

Sprouts.—The young suckers of sprouts and of asparagus can be regarded only as luxuries.

Culinary and Potage Herbs.—The various kinds of cabbages form an excellent nutrient rich in albumin and phosphoric acid. The most proteinaceous are the small heads of the rose cabbage, which

* From the *Journal of the Chemical Society*, in Pharm. Jour. & Trans.

approach most nearly to the undeveloped heads of cauliflowers. The leaves of white cabbages also form an excellent nutriment. The same may be said of the leaves of spinach, which contain much albumin and mineral nutrients.

Salad Herbs.—These, like the various kinds of cabbage, are very rich in nitrogen, ash, and phosphoric acid. In the fresh state they contain about 94 per cent. of water and 2 per cent. of nitrogenous bodies.

Roots, Tubers, and Tuberous Root-stocks are generally characterized by their small amount of nitrogen and phosphoric acid. They contain, with but little crude fibre, a large quantity of extractives free from nitrogen; also about 84–94 per cent. of water.

Onions contain a sulphurized, readily volatile, strongly smelling oil.

Fruits and Seeds are the most valuable part of the vegetable nutrients, as they contain a large quantity of protein substances. Cucurbitaceous plants form two classes, one comparatively rich, the other comparatively poor in protein. The cucumbers belong to the former class of plants, and form in a certain stage of development a nutrient very rich in albumin, phosphoric acid, and potash. Proportion of nutrient, 1 : 1·5. They also contain much grape-sugar.

Melons contain phosphoric acid, also 1·3 per cent. of a liquid orange-coloured fat, and in the fresh state about 95 per cent. of water.

Gourds are poor in protein and phosphoric acid. Proportion of nutrient 1 : 6 to 1 : 8.

The fruits of the tomato (a solanaceous plant) rich in fat and grape sugar, contain much protein.

Legumes contain the largest quantities of protein, starch, potash and phosphoric acid. The legumin forms the main ingredient of the albuminous bodies contained therein. The increase of seeds also increases the contents of nutrients. As the seeds ripen the sugar is replaced by starch, and the quantities of fat, woody fibre and water are decreased.

Juicy Fruits and Berries form non-albuminous eatables, which are valued only on account of their agreeable taste.

ON SOLUTION OF CITRATE OF MAGNESIUM.*

BY JOHN W. WATTS.

The formula for preparing solution of citrate of magnesium, as aid down in the "U. S. Pharmacopœia," is liable to a series of

*Am. Jour. Pharm.

objections, in regard to preparation and preservation; the latter objection I do not think can be overcome by the present formula without seriously altering its composition; the objections to the former are twofold, first as to the length of time consumed in dissolving the magnesia in the solution of citric acid with water, and secondly the necessity of filtering it after it is dissolved. These two objections may be admirably overcome by simply substituting boiling water in place of the cold, as prescribed, making the formula read thus:

Take of Citric acid	450	grains;
Calcined magnesia	120	"
Bicarbonate of potassium	40	"
Syrup of citric acid	2	fl. oz.;
Boiling water	4	"

Dissolve the citric acid in the boiling water in a suitable vessel, and while hot add the magnesia, constantly stirring until dissolved; decant the clear liquid from any gritty sediment that may remain; then add the syrup and a sufficient quantity of cold water to fill a 12oz. bottle, lastly add the bicarbonate of potassium, and cork.

It is very important that the acid should be dissolved before adding the magnesia, for if the two be added together, and then the boiling water, it will form a tough gummy mass, which will be very difficult to dissolve, if at all. By this method it will not take longer than three or four minutes at the outside to prepare one or more bottles as required, whilst the officinal formula will require at least twenty minutes to complete one bottle. This saving of time is decidedly an advantage to those pharmacists who desire to dispense an article that is always fresh and pleasant to the taste; it can very readily be prepared with but little inconvenience while the customer is waiting at the counter, and I am sure that nine persons out of every ten would prefer waiting a few moments than be compelled to swallow an almost rotten preparation that has been kept any length of time

Baltimore, January, 1877.

CLARIFIED HONEY.*

BY A. F. W. NEYNABER.

The U. S. Pharmacopœa directs to melt the honey by means of a water bath, and then remove the scum. By means of this process a good preparation will be obtained under certain circumstances, while in many cases the strained honey will be cloudy instead of clear. Many methods of clarifying honey have been recommended,

*From the Druggists' Circular.

have been tried, and found not producing a good preparation. Formulas have been tried directing the honey to be diluted with water in certain proportions, stated in weight or measure, to be evaporated when clarified, by filtering through paper, flannel, felt, etc.

The honey, diluted with water, has been mixed with animal charcoal (boneblack), willow charcoal, or with a pulp made by mixing filtering paper with water.

All these formulas have given clear preparations in some cases, while in others they would fail to give the same result. The writer would draw attention to the following facts :

1. Animal or vegetable charcoal should not be used ; it may produce a preparation being clear, but destitute of the flavor of honey.

2. The addition of water should not be made according to stated weights or measures ; the honey must be diluted according to the judgment of the pharmaceutist on considering the thickness of the honey, and the lower or higher temperature to which the diluted honey will be exposed before and during the process of straining or filtering.

The honey must be diluted to the point that wax and other impurities will separate ; if not diluted sufficiently, the impurities will not be so easily separated, the heavier floating in the liquid instead of sinking to the bottom of the vessel ; and if diluted too much, certain light impurities will not rise to the surface.

The honey should be diluted to a consistence somewhat lighter than a simple syrup, and when so diluted, it should be exposed in a tinned, covered vessel, to a heat of 112° F. for eight or twelve hours (during one night), when the scum is removed by means of a skimmer, and the honey (temperature 112° F.) drained through flannel.

In the process of straining, the diluted honey will lose so much of water that when cooled off to the ordinary temperature it will be of proper consistence. By this process, less troublesome than any other proposed or tried method, will always be obtained a clear preparation of fine flavor if the pharmaceutist will be able to find the proper point in diluting the honey with water ; and this point can be found if the water is added in small quantities until the liquid resembles a thin syrup, as stated above ; no pulp of filtering paper, albumen or gelatine being required.

VEGETABLE DIGESTION.*

The proposition that certain plants have the power to exercise special digestive functions has excited much interest and elicited

*From the Pharm. Jour. & Trans.

diverse opinions. In our own journal the statement of Mr. Druce that *Saxifraga tridactylites* must be added to the list of "carnivorous plants" called forth a protest from a respected correspondent, and we have reason for believing that more than one eminent British pharmacist is at present engaged in making observations on the subject. It may therefore be of interest to lay before them and others some recent results obtained by foreign investigators.

Since the discovery of the remarkable phenomena connected with the absorption of their food by so-called "carnivorous plants," the view has been rapidly gaining ground that there is in reality but little essential difference between the processes of the assimilation of food by plants and by animals. Professor Calderon, of the Institute of Las Palmas, Canary Isles, has lately propounded the idea that plants do not, as is usually supposed, derive their nitrogen entirely from the nitrates and ammoniacal salts dissolved in the soil, but to a considerable extent also from the nitrogenous organic matter which is always floating in the air in a solid form. The purpose of the viscid hairs or glutinous secretion with which so many plants are provided, he believes to be the detention of this floating organic matter. To prove the importance of the solid particles floating in the air to the life of the plant, he deprived air of all its organic matter in the way described by Professor Tyndall, and subjected some lichens to the access only of this filtered air and of distilled water, when he found all their physiological functions to be suddenly suspended. Professor Calderon divides the nutrition of plants into three classes:—(1) *necrophagous*, the absorption of dead organic matter in various stages of decomposition; (2) *plasmophagous*, the assimilation of living organic matter, without elimination or distinction of any kind between useful and useless substances, such as the nutrition of parasites; and (3) *biophagous*, the absorption of living organisms, such as that known in the case of insectivorous plants.

Professor Ed. Morren, of Liége, has contributed an important paper on vegetable digestion to the proceedings of the Royal Academy of Belgium. He commences by the assertion that digestion is not a function peculiar to "carnivorous plants," but that it is common to all living beings, vegetable as well as animal. Animal digestion is, he states, according to the most recent observations, a fermentation consisting essentially in a hydration, or transformation of colloids into crystalloids, this change being a necessary preliminary to absorption. It is caused by the action of certain substances known as ferments, which are especially abundant in particular secretions, such as the saliva, gastric juice, and pancreatic juice. In the same manner all plants digest, and the process is precisely analagous to that of animals, being in this case also essential before assimilation is possible. Such a transformation of a colloid into a crystalloid is illustrated in the ordinary change of starch into glucose, which takes place so commonly in plants; the active

ferment in this case being diastase, which has been detected in barley, as also in the potato. But, for the fermentation or digestion of albuminoids and other nitrogenous substances, a different ferment is required, and this we have in pepsine, which has been detected by Riess and Will, and other observers, in the viscid secretion of *Nepenthes*, *Drosera*, and other insectivorous plants. A similar substance has been observed in the latex of *Carica Papaya*, and elsewhere in the vegetable kingdom. It seems probable, in fact, digestion is as widely diffused as phenomenon, and as various in its forms, among plants as among animals. It consists essentially in the transformation of the raw insoluble food-material (a colloid such as starch) into soluble crystalloids capable of assimilation. The process takes place chiefly in the reservoirs of reserve-material, such as seeds, bulbs, tubers, roots, the pith, and the bark. The nutrition of plants is, therefore, made up of three successive processes:—(1) elaboration, or the production out of its elements of carbohydrates, which can take place only under the influence of light; (2) digestion, consisting essentially in a hydration, such as the conversion of starch into glucose, associated commonly with evolution of carbonic acid, and accompanied by a molecular change which renders the product soluble and diffusible; and (3) assimilation, the absorption into the tissue of the substances thus prepared, accompanied usually by a loss of water, and the reversion of glucose to the condition of cellulose, a substance isomeric but not isomorphic with starch, and the consequent production of the cell-wall. Intussusception is, therefore, a process which can only succeed digestion. No essential difference can, in fact, be maintained, between the manner in which animals and plants digest their food.

ON THE PURITY OF CHLORAL HYDRATE.*

A few months ago some French and English journals contained complaints about certain impurities in commercial chloral hydrate. One of these complaints referred to the supposed presence of free hydrochloric acid, which was said to contaminate it, "because white fumes became visible on approaching to it a glass rod moistened with ammonia." Mr. C. Anneessens criticises this statement, and maintains, very correctly, that such a test is no proof of the presence of hydrochloric acid. Indeed, perfectly pure chloral hydrate, at any but very low temperatures, always fumes when brought near ammonia, and the presence of hydrochloric acid can only be demonstrated by means of silver nitrate. The white cloud which is formed from the fumes of ammonia and the volatilized vapor of chloral

* Jour. de Pharm. d'Anvers in New Remedies.

hydrate, is due to the formation of ammonium formiate. This may easily be proved by absorbing the vapor of chloral with a piece of blotting-paper saturated with ammonia; an abundant white cloud is produced. The paper is washed with distilled water, the excess of ammonia is evaporated, solution of silver nitrate is added, and the whole heated. The mixture immediately becomes cloudy, then blackens, and deposits upon the sides and bottom of the vessel a fine mirror of metallic silver.

It is, however, possible that hydrochloric acid be present; in this case silver nitrate will give the characteristic precipitate. But the following reaction may be used in confirmation: Add to the solution of chloral a solution of sodium sulphide. If the chloral was pure, the mixture turns yellow, then becomes cloudy, and gradually darker in color, changing to rose or brick red, according to the quantities of the ingredients, but always to the last named tint if heated. If the chloral was contaminated with hydrochloric acid, however, the same reagent, under the same circumstances, produces a deposit of sulphur, and a disengagement of sulphuretted hydrogen.

Chloral hydrate is volatile at ordinary temperature, like iodine and camphor. It may be considered pure if it has no acid [or, at least, only a very faintly acid] reaction upon moistened litmus paper, does not stain paper, is not affected by silver nitrate, gives off no reddish vapors with nitric acid, and yields 72.2 per cent. of chloroform when decomposed by caustic potassa.

TINCTURE OF CATECHU.*

BY LOUIS GENOIS.

Some difficulty being experienced almost daily by pharmacists in preparing the above tincture so that it will not gelatinize, the appended modification of the official formula is hereby offered:

Take of Catechu free from dirt, &c., and in small pieces, 3 troyounces;
Cinnamon, in moderately coarse powder, - 2 troyounces;
Water,
Alcohol, of each, - - - - sufficient quantity.

Digest the Catechu in one pint of water at a temperature of about 100° F., until reduced to a thin cream-like consistence; let cool, add a pint of alcohol, let stand for twelve hours, filter; then, with the filtrate, percolate the cinnamon, previously mixed with an equal bulk of clean sand, and moderately packed in a conical glass percolator, and when the menstruum has just disappeared from the

*American Jour. Pharm.

surface, pour on sufficient diluted alcohol to make the product measure two pints. Prepared in this way, tincture of catechu is very clear, of a rich dark color, and will not deposit insoluble matter nor gelatinize inside of a year at least.

New Orleans, January 18th, 1877.

NOTE.—This is essentially the tincture of the B. P.—ED. *Can. Pharm. Jour.*

BROMIDE OF ETHYL AS AN ANÆSTHETIC.

BY M. RABUTEAU.

At a recent meeting of the Academy of Sciences* M. Rabuteau gave some details of an investigation of the physiological properties and mode of elimination of bromide of ethyl.

Bromide of ethyl (C_2H_5Br), or "hydrobromic ether," in a colorless liquid, with an agreeable odour; it boils at about 40° C., has a density of 1.43, and burns with difficulty. The boiling point and density are therefore intermediate between those of chloroform and sulphuric ether.

Bromide of ethyl absorbed by the respiratory passages produces absolute anæsthesia as rapidly, or even more rapidly, than chloroform. This result has been established with frogs, rabbits, dogs, etc. After five minutes, sometimes after two minutes, inhalation, by means of a sponge saturated in bromide of ethyl, dogs are completely æsthetized. The animals recover more rapidly than when chloroform is used.

When a solution of hydrochlorate of narceia or hydrochlorate of morphia was injected under the skin of dogs, before inducing anæsthesia, an action was observed analagous but perhaps inferior to the simultaneous action of narceia, or morphia, and chloroform.

Bromide of ethyl is not caustic, nor even irritant, compared to chloroform. It can be ingested without difficulty, and applied without danger, not only subcutaneously, but to the external auditory meatus and to the mucous membrane. In this respect it is preferable to chloroform, which is very caustic, and to sulphuric ether of which the ingestion is nearly impossible. Introduced into the human stomach in doses of 1 to 2 grams, bromide of ethyl does not produce anæsthesia as when absorbed in sufficient quantity by the respiratory passages. It soothes pain and does not disturb the appetite.

This anæsthetic is nearly insoluble in water. Nevertheless water shaken with it acquires a pleasant taste and odour. Frogs placed in water so saturated undergo anæsthesia in ten or fifteen minutes.

*Comptes Rendus, vol. lxxxiii., p. 1294, in Pharm. Jour. & Trans.

Bromide of ethyl is eliminated nearly entirely, if not completely, by the respiratory passages, whatever may have been the mode of absorption. At most only traces of it are found in the urine when it has been introduced into the stomach, and an extremely small quantity can be detected in that liquid when it has been inhaled. The author finds that bromide of ethyl does not decompose in the organism to form an alkaline bromide, such as bromide of sodium, a salt that is easily eliminated by the renal passages.

From his experiments the author concludes that bromide of ethyl is an anæsthetic agent possessing properties intermediate between those of chloroform, bromoform, and ether.

LUTING FOR CHEMICAL APPARATUS.

At a meeting of the Newcastle-upon-Tyne Chemical Society, Professor Barnard S. Proctor gave the following details regarding the preparation of luting for ether, sulphide of carbon, or other volatile liquids:

No. 1.		No. 3	
Clay	30	Clay	5
Water	3	Gelatine	2
Glycerine	8	Water	2
		Glycerine	6
No. 2.		**No. 4.**	
Clay	30	Felt.	
Gum Tragacanth	1	Gelatine	2
Water	3	Water	2
Glycerine	8	Glycerine	6

Where a clay luting is required to retain its impervious character for a length of time, the addition of glycerine by preventing its drying imparts that character; but if glycerine and clay alone are used, the mass becomes softer by exposure, from the absorption of moisture. In the luting No. 1 the glycerine and water are present in such proportion as to give it little tendency to become either harder or softer.

A joint made with No. 1, if not kept rigid, ceases to be tight; but No. 2 will allow of a little motion, especially if rather more moist. No. 3 gives more flexibility, but requires to be applied warm, and of course will not resist heat—even a gentle heat—in use.

The presence of the clay makes the gelatine less fluid while warm, and consequently more convenient in application. Fluidity is still more completely got rid of in the following. No. 4 takes the form of a washer, and may be applied warm to delicate apparatus,

or cold where mechanical pressure can be used freely. It appears to be quite impervious to the vapor of ether. The felt is simply soaked on the melted gelatine and glycerine, and the superfluous quantity presssd or drained out. Corks and bungs may be saturated with the same compound by being boiled in it for half an hour, and kept submerged till the temperature has fallen considerably. If then drained, and the superfluous jelly rubbed off the outside, they are in a condition suitable for stopping vessels of ether, sulphite of carbon, or benzine.

Glass stoppers may be lubricated with this glycerine jelly in some cases where oily lubricants would be objectionable.

Probably casks might advantageously be lined with a similar compound before being used for petroleum or coal oils.

CASES OF POISONING IN ENGLAND.

In publishing a resumé of the events of the past year the *Pharmaceutical Journal* of London, says that the particulars of eighty cases of fatal poisoning have been reported, the number of deaths due to each poisonous agent being as follows:—aconite, 2; annatto, 1; antimony, 1; carbolic acid, 6; chloral hydrate, 8; chlorodyne (Towle's), 1; cordials for chiidren, 5; cyanide of potassium 6; "fly oil," 1; hydrochloric acid, 3; laudanum, 11, liniments, 3; liquor potassæ, 1; lotion, 1; mixtures, 5; morphia, 2; œnanthe crocata, 2; opium, 3; oxalic acid, 2; paraffin, 1; phosphorus, 1; prussic acid, 6; strychnia, 2; vermin killer, 4; white hellebore, 1; yew leaves, 1. This list shows a considerable increase upon those recorded in the previous two years, in each of which the number of cases was only 46. But how far this is due to an actual increase in the number of cases of poisoning in this country or to the increased vigilance of our friends in keeping us informed of the inquests we are unable to say; we are inclined to attribute it chiefly to the latter cause. Still in considering what may be termed the more notable cases of last year such as have probably been recorded almost without exception in other years, there is much that is very suggestive. Five deaths have resulted from mistakes in connection with the dispensing counter: two of them (one in a surgery and one in a chemist's shop) arose from confusion of the bottles upon the counter after making up; two (one in a surgery and one in a dispensary) were mistakes in dispensing, and one the selling by a chemist of a poisonous for a non-poisonous substance, apparantly part of unexamined old stock. Of the eight deaths from chloral hydrate seven were the results of overdose taken by persons in the habit of using this compouud as a narcotic. The comparative frequency of similar occurrences has led the medical press almost without exccp-

tion to suggest that chloral hydrate should be included in the schedule of poisons, and the same recommendation has been made by the juries at three inquests held during the year. Similar recommendations have been made with respect to narcotic cordials for infants, which have caused five deaths. Of the eleven deaths from laudanum at least eight have been suicides. The four recorded deaths from vermin killer were all suicides. A singular fatality has attended the use of carbolic acid: twice it has been mistaken for wine (once in a hospital), once for a cough mixture, and once (in a prison infirmary) for a diarrhœa mixture. Hydrochloric acid also was drunk for whiskey! On one occasion a jury attributed a death to the size of a spoon used for measuring the medicine, an incident that lends weight to a discussion that has been going on as to the variations in this household measure. Besides the foregoing it is worth mentioning that cases of poisoning by tincture of pellitory and Virginia creeper, in which the patients recovered, have been recorded."

FORMULÆ FOR TREATMENT OF ACNE.

M. Rodet, of Lyons, prescribes the following treatment in acne. Friction is to be made every evening over the acne papules with the following:

℞ Adipis .....ʒ v.
Sulphuris,
Acid. Tannici..... .....āā gr. viij. ad xv.
M.

In the morning the face is to be bathed with warm water, to which a little bay rum has been added, the proportion being increased from day to day until it amounts to one-third. M. Doyen, of Lyons, recommends bathing with the following:

℞ Hydrarg. bichloridi..... .....gr. xxx.
Tinct. lavandulæ..... .. f. ʒ ijss.
Aquæ distillatæ ..... . f. ʒ x.
M.

M. Hardy uses this formula:

℞ Potassii sulphureti,
Tinct. benzoini... . ..... āā ʒ ijss.
Aquæ .... f. ʒ x.
M.

Two teaspoonfuls in a glass of warm water, to be used externally.—*Med. Times, from La France Méd.*

FORMULÆ FOR PERFUMES.

A paper, containing numerous formulæ for the preparation of perfumes, was presented to the American Pharmaceutical Association, by Mr. W. Saunders, and appears in the recently issued *Proceedings*. The object of the paper is sufficiently set forth by the author, who says: "My purpose is to place within the reach of every one of our members such information as will enable him, with a little attention, to equal the finest productions of a Lubin, an Atkinson, or a Rimmell. I have now before me samples of twenty different extracts, any one of which will, I think, compare favourably with the best of those imported." The author insists on the necessity of the use of the best pure spirits, and the oils should be strictly pure and of the finest quality. The benzoic acid used should be made from gum benzoin. The extract of orris is made by percolating seven pounds of finely ground orris with pure spirits until one gallon of extract is obtained. Ext. vanilla contains 4 ounces of beans; ext. tonka, one pound; and ext. styrax 4 ounces to the gallon. The ext. musk is thus prepared:

Take of pure grain musk, of the first quality, two drachms. Mix half an ounce of liquor potassæ with four ounces of proof spirit, and triturate the musk with this mixture until it is thoroughly softened, and reduced to a creamy state; add enough proof spirit to make up about one pint; stir well, then allow the coarser particles to subside, and pour off the supernatant fluid. Rub the coarser portions again with a fresh portion of spirit, proceeding as before, and repeat the process until the musk is entirely reduced, and the quantity of extract measures three pints. Allow this to stand for a fortnight, with occasional shaking, when it will be ready for use.

JOCKEY CLUB.

Ext.	Jasmin	5 ounces.
"	Orris	20 "
"	Musk	7 "
"	Vanilla	1½ "
Otto	Rose, Virgin	1½ drachms.
"	Santal Flav	1½ "
"	Bergamot	2½ "
"	Neroli Super	40 minims.
Benzoic Acid		2 drachms.

Pure spirits sufficient to make four pints.

In this, as well as all the following extracts, before adding the last portion of the spirit, replace as much of it with water as the perfume will bear without becoming milky, which will vary from two to eight ounces or more. This addition will make the perfume softer.

MOSS ROSE.

Otto	Rose Virgin	2 drachms.
"	Santal Flav.	2 "
Ext.	Musk	12 ounces.
"	Vanilla	4 "
"	Orris	2 "
"	Jasmin	4 "
Benzoic Acid		1 drachm.

Pure spirit sufficient to make four pints.

WHITE ROSE.

Otto	Rose, Virgin	2 drachms.
"	Red Cedar Wood, *true*	6 minims.
"	Patchouly	4 "
"	Orange, *fresh*	½ drachm.
Ext.	Tuberose	2 ounces.
"	Orris	2 "
"	Jasmin	2 "
"	Musk	2 "
Benzoic Acid		1 drachm.

Pure Spirit (to which four ounces of rose-water has been added), sufficient to make four pints.

VICTORIA.

Otto	Rose, Virgin	2 drachms.
"	Neroli Super	2 "
"	Bergamot	4 "
"	Coriander	16 minims.
"	Pimento	24 "
"	Lavender (English)	16 "
Ext.	Jasmin	2 ounces.
"	Orris	16 "
"	Musk	2 "
Benzoic Acid		2 drachms.

Pure Spirit, sufficient to make four pints.

ESS. BOQUET.

Ext.	Musk	4 ounces.
"	Tuberose	2 "
Otto	Rose, Virgin	1 drachm.
"	Bergamot	1½ "
"	Neroli Super	1½ "
"	Verbena, *true*	8 minims.
"	Pimento	10 "
"	Patchouly	3 "
"	Red Cedar Wood, *true*	½ drachm.
"	Lavender (English)	12 minims.

Pure Spirit, sufficient to make four pints.

MUSK.

Ext.	Musk	1 pint.
"	Orris	6 ounces.
"	Vanilla	2 "
"	Styrax	2 drachms.
Otto	Santal Flav	1 "
"	Bergamot	2 "
"	Neroli Super	10 minims.
"	Patchouly	12 "
"	Lavender (English)	15 "
"	Cinnamon, *true*	6 "

Pure Spirit, sufficient to make four pints.

PATCHOULY.

Otto	Patchouly	2 drachms.
"	Santal Flav	40 minims.
"	Rose, Virgin	40 "
Ext.	Musk	8 ounces.
"	Orris	8 "
"	Vanilla	4 "
"	Styrax	2 drachms.

Pure Spirit, sufficient to make four pints.

MILLEFLEUR.

Otto	Rose, Virgin	1 drachm.
"	Red Cedar Wood, *true*	1 "
"	Orange, *new*	1 "
"	Pimento	20 minims.
Ext.	Orris	6 ounces.
"	Jasmin	2 "
"	Styrax	1 ounce.
"	Tonka	4 ounces.

Pure Spirit, sufficient to make four pints.

YLANG YLANG.

Ext.	Tonka	3 ounces.
"	Musk	4 "
"	Tuberose	4 "
"	Cassia	4 "
"	Orris	8 "
Otto	Orange, *new*	2 drachms.
"	Neroli Super	½ "

Pure Spirit, sufficient to make four pints.

TUBEROSE.

Ext.	Tuberose	24 ounces.
"	Musk	4 "

"	Jasmin	1 "
Otto	Rose, Virgin	1 drachm.
"	Neroli Super	10 minims.
Benzoic Acid		2 drachms.

Pure Spirit, sufficient to make four pints.

SPRING FLOWERS.

Ext.	Orris	4 ounces.
"	Jasmin	4 "
"	Musk	4 "
Otto	Bergamot	2 drachms.
"	Neroli Super	½ "
"	Verbena, *true*	10 minims.
"	Red Cedar Wood, *true*	1 drachm.
Benzoic Acid		1 "

Pure Spirit, sufficient to make four pints.

WOOD VIOLET,

Ext.	Orris	12 ounces.
"	Tuberose	2 "
"	Jasmin	1 "
"	Musk	4 "
Otto	Bergamot	2 drachms.
"	Lavender, English	1 drachm.
"	Verbena, *true*	10 minims.
"	Amygd. Amar	12 "
"	Coriander	6 "
"	Sweet Flag	4 "
"	Bay Leaves	4 "
Benzoic Acid		1½ dr'ms.

Pure Spirit, sufficient to make four pints.

WEST END.

Ext.	Orris	12 ounces.
"	Jasmin	4 "
"	Musk	8 "
"	Cassia	4 "
"	Styrax	1 "
Otto	Bergamot	3 drachms.
"	Verbena, *true*	15 minims.
"	Neroli Super	½ drachm.
"	Rose, Virgin	1 "
"	Red Cedar Wood, *true*	1 "
Benzoic Acid		1 "

Pure Spirit, sufficient to make four pints.

STEPHANOTIS.

Ext.	Cassia	4 ounces.

"	Tuberose	4	"
"	Jasmin	2	"
"	Musk	8	"
"	Orris	8	"
"	Tonka	3	"
Otto	Rose, Virgin	1	drachm.
"	Neroli Super	½	"
Benzoic Acid		1	"

Pure Spirit, sufficient to make four pints.

RONDELETIA.

Otto	Lavender, English	1	ounce.
"	Cloves	½	"
"	Bergamot	½	"
"	Rose Geranium, *Turkey*	2	drachms.
"	Cinnamon, *true*	20	minims.
"	Rose, Virgin	10	"
"	Santal Flav	1	drachm.
Ext.	Musk	2	ounces.
"	Orris	4	"
"	Vanilla	2	"
Benzoic Acid		1	drachm.

Pure Spirit, sufficient to make four pints.

NEW-MOWN HAY.

Ext.	Tonka	25	ounces.
"	Musk	6	"
"	Orris	8	"
"	Vanilla	1	"
"	Styrax	1	"
Otto	Bergamot	1	drachm.
"	Neroli, Super	15	minims.
"	Rose, Virgin	10	"
"	Cloves	6	"
"	Lavender, English	10	"
"	Patchouly	10	"
"	Santal Flav	1	drachm.
Benzoic Acid		1½	"

Pure Spirit, sufficient to make four pints.

FRANGIPANNI.

Ext.	Orris	4	ounces.
"	Tuberose	2	"
"	Musk	4	"
"	Vanilla	2	"
"	Jasmin	1	"
"	Styrax	1	"

Otto	Neroli, Super	1 drachm.
"	Rose, Virgin	½ "
"	Santal Flav	1 "
"	Red Cedar Wood, *true*	1 "
"	Pimento	½ "
"	Cassia	20 minims.
"	Bergamot	½ drachm.
"	Ginger	4 drops.
"	Lavender, English	6 "
Benzoic Acid		2 drachms.

Pure Spirits, sufficient to make four pints.

CLOVE PINK.

Ext.	Jasmin	12 ounces.
"	Orris	12 ounces.
"	Musk	8 "
Otto	Rose, Virgin	1 drachm.
"	Cloves	2 drachms.
"	Neroli, Super	1 drachm.
"	Pimento	10 minims.
"	Patchouly	20 "
"	Santal Flav	2 drachms.
Benzoic Acid		1 drachm,

Pure Spirit, sufficient to make four pints.

VIOLET.

Ext.	Orris	2 pints.
"	Tuberose	4 ounces.
"	Vanilla	3 "
"	Musk	3 "
"	Tonka	2 "
Otto	Rose, Virgin	1 drachm.
"	Neroli, Super	40 minims.
"	Pimento	12 "
"	Bergamot	1 drachm.
Benzoic Acid		1 "

Pure Spirit, sufficient to make four pints.

MIGNONETTE.

Ext.	Orris	12 ounces.
"	Tuberose	4 "
"	Vanilla	4 "
"	Musk	2 "
Otto	Rose, Virgin	1 drachm.
"	Neroli, Super	1½ "
"	Pimento	12 minims.
Benzoic Acid		1 drachm.

Pure Spirit, sufficient to make four pints.

CHLORAL WITH SOLID FATS.*

As a therapeutic agent chloral has become so popular that its range of application is as diversified as any drug or chemical of a century's standing; but its nature has not been sufficiently studied to construct formulæ readily that furnish preparations easily dispensed and always praiseworthy; on the contrary, formulæ are written which furnish not only inelegant but almost incompatible preparations. A case in point is its combination with solid fats. It is a matter oftentimes overlooked, if not entirely unknown, that chloral hydrate is a solvent for fats, so much so that solid fats become liquefied by contact. Hence it is not advisable to prescribe, for instance, chloral with lard, simple ointment, or even with simple cerate, in a very large proportion. With oleum theobroma it forms an unctuous mass, which furnishes a very creditable preparation dispensed as an ointment; but to make from this combination a suppository is almost an impossibility. Still less possible is it to make a suppository containing with chloral, one of the solid extracts, which must previously be moistened with a little water to make miscible with the solid fat, as a drop of water increases enormously the fluidity of the oleaginous mixture.

The writer has made a number of experiments as to the best excipients, and finds that equal parts of spermaceti and oleum theobroma have the advantage over any other. In a suppository containing ten to twelve grains of chloral this is about the proper proportion. Deviating from this strength, the proportion of spermaceti must be increased or diminished accordingly. Vaselin and paraffin, using three of the former to two of the latter, make a very good base, but it does not melt as nicely into an unctuous mass as does the former.

*Phila. Med. & Surg. Rep.

DANGERS FROM SANTONINE.

In using santonine, it is well to bear in mind that comparatively small doses have produced convulsions of a somewhat grave character. A German paper lately reported a case in which poisonous effects were produced in a child two years old by the ingestion of so small a dose as a grain and a half. Convulsions commenced in the face and extended to the extremities, while the respiratory action was greatly impeded. Under warm baths, enemata, and artificial respiration, the patient recovered. The physician in charge of the case then instituted a series of experiments on the lower animals, and found that chloral and ether inhalatious controlled the convulsions produced by santonine. He naturally argues that the same treatment should be pursued in the human subject when a poisonous dose is taken.—*Druggists' Circular.*

Editorial.

THE LAW RESPECTING THE SALE OF LIQUOR BY DRUGGISTS.

Since our last number the new License Act has not only passed the House, but has been carried into active operation. As will be seen, from a report in another page, there has already been a case of prosecution of one of our city druggists for alleged illegal sale of liquor, and, from conversation with parties connected with the License Commission, we learn that, after the issue of this Journal, it is the intention to carry out the law with the utmost rigor. Our readers may accept this as an intimation coming from head-quarters, and we hope that, in future, the Inspector's visits may be unattended by disagreeable consequences.

The law is, perhaps a little irksome, and doubtless in many cases altogether unnecessary, but, taking everything into consideration, we consider it a measure which is calculated to do much good, and we believe that every right-minded druggist will cheerfully comply with the new regulations.

The statute now reads thus:

"37 Vic., Cap. 32., Sec. 27. The said sections numbered 24 and 25 of this Act shall not prevent any chemist or druggist duly registered as such under and by virtue of the *Pharmacy Act of* 1871 from keeping, having, or selling liquors for strictly medicinal purposes, and then only in packages of not more than 12 oz. at any one time, except under certificate from a registered medical practitioner." 40 Vic., No. 83, sec. 12. But it shall be the duty of such chemists or druggists to record in a book, to be open to the inspection of the License Commissioner or Inspector, every sale or other disposal by him of liquor, and such record shall show as to every such sale or disposal, the time when, the person to whom, and the quantity sold, and the certificate, if any, of what medical practitioner, and in default of such sale or disposal being so placed on record, every such sale or disposal shall *prima facie* be held in contravention of the provisions contained in the said 24th and 25th sections of the said Act."

The wording of the law appears to be liable to misinterpretation by some persons, and some inspectors, acting without proper instructions, have already misconstrued the last section to mean that sales of liquor can only be made on a physician's certificate. It is evident that such meaning cannot legitimately be forced from the text, nor was it intended that such meaning should be conveyed.

Putting the law in concise form we find that liquors sold by druggists can only be sold by those duly registered as chemists and druggists as provided by law; for *bona fide* medicinal purposes; in quantities of twelve ounces and under—except when a physician's certificate requiring larger quantities is produced—that there must be recorded in a book the date of every sale, the purchaser's name, and the quantity sold, and if a greater quantity than twelve ounces be disposed of, the physician's certificate for the sale must be appended.

The particular form of this record is not set forth by the Act or any of its schedules, so we would suggest that the Poison Books, (our teetotal friends will not find fault with the title), be used for this purpose. The page on the left hand contains the necessary headings, while on the right might be pasted the certificates of physicians for sales over the stipulated quantity.

PROSECUTION OF A DRUGGIST FOR ALLEGED ILLEGAL SALE OF LIQUOR.

Mr. Josiah Green, chemist and druggist, 604 Queen street, west, and 304 Spadina Avenue, was summoned to appear at the Police Court, March 12th, to answer a charge of having sold liquor in contravention of the newly passed Act respecting licences. Mr. Fenton, Crown Attorney, instructed by Mr. Dexter, License Inspector, prosecuted, and Mr. Green conducted his own defence. It appeared that on March 3rd, defendant sold eight ounces of whiskey and bottle, and a quantity of Epsom salts, to one Walter Gibbs, a person known by defendant to be respectably connected. It was represented that the liquor was required for medicinal purposes. A day or two after the sale, it transpired that said Gibbs was a whiskey informer, and defendant waited on the License Inspector in order to know the interpretation which was put upon the law, when he was informed that there was a very clear case against him, and that a summons

would be at once taken out against him, as also every druggist who could be detected selling liquor without the certificate of a physician.

Defendant admitted selling the liquor without having received a doctor's certificate, but had taken the precaution to make a record of the sale in his daily journal, which was produced in court. He called the Magistrate's attention to the opinion of the Hon. O. Mowat, published in the *Pharmaceutical Journal*, and also to the opinion of Hon. A. Crooks in the JOURNAL for July, 1876, p. 437. He also adduced evidence of his having paid his fees to the College and of his being duly registered as a Chemist and Druggist. He also called His Worship's attention to an editorial which appeared in last month's JOURNAL in which it was pointed out that at the time the article was published the Act had not passed the Legislature, but that as soon as possible after it became law, the druggists of the province would be notified as to their obligations in the case. He argued that the Inspector had not allowed druggists to become acquainted with the law as only a few days had elapsed since the Act received assent. He also maintained that acting up to the spirit of the law he had duly entered the sale of liquor referred to, but not, perhaps, in regular legal form.

After Mr. Green's defence—which was very ably conducted—the Crown Attorney consulted with the Inspector and it was thereupon decided that the case should be withdrawn.

PROSECUTION OF A DOCTOR FOR ILLEGAL SALE OF POISON.

William Duckett, M.D., a chemist and druggist doing business in St. Joseph street, Montreal, was lately summoned to appear at the Police Court of that city, in order to answer certain charges, made at the instance of the Pharmaceutical Society of the Province of Quebec, through their prosecutor, Mr. John Goddard. It appears that said Duckett had little reverence for Pharmaceutical Councils, and held their laws in scorn. Falling back on the ancient rights and privileges of a Doctor of Medicine to disseminate poisons without let or hindrance, he took as his assistant one Philemon Duquette, a medical student, and a true follower of his master, who held himself above the rank of the "certified clerk or apprentice,"

which the law allows to common pharmacists. However, with all the assumption of titles, and though backed by all the ancient rights and privileges, Philemon and his master had to succumb to the wily Goddard, who purchased a package of emetic tartar, on which the word "Poison" did not appear, and then, armed with the Pharmacy Act, did dare them to test their strength by law. To this intent did they employ as counsel Mr. Delorimier, but this gentleman soon found that he had espoused a hopeless cause, and to make a long story short, the defendants were glad to take advantage of the leniency of the plaintiffs who offered to withdraw the suit, on condition that Philemon should register as a "certified clerk," and that all costs and legal expenses should be borne by defendants.

STRANGE MISTAKE MADE BY A DOCTOR.

The substitution of corrosive sublimate for chloral hydrate in mixtures compounded from improperly written prescriptions is not altogether unfrequent, though any cases which we can call to mind have occurred through the ignorance of unqualified apprentices. The abbreviation *Hyd. Chlor.*, should, of course never be employed; but, after all, one can scarcely conceive that anyone laying claim to be a doctor, or even a druggist, could be so ignorant or careless as to mistake it for a synonym of the chloride, much less the per-chloride of mercury. It appears, however, that such persons are to found, and, strangely enough in the ranks of those who set a high value on their education. The following paragraph, taken from an Amherstburg paper, describes the attempt of one legally qualified medical practitioner to dispense the prescription of another legally qualified medical practitioner. With such distinguished attentions, and between so much learning, the poor patient became

"ALMOST A CASE FOR THE CORONER."

"A week or two ago, Dr. W. B. Quarry, proprietor of the Medical Hall in this town, dispensed a prescription written by Dr. Lundy for Miss Jane Bernard. The mixture caused such alarming symptoms of poisoning that the young lady's father took the bottle to Mr. Whyte for examination, who, upon analysis, discovered that corrosive sublimate—a most virulent and deadly poison—had been

given the patient instead of Chloral Hydrate which had been ordered in the prescription. Fortunately, Miss Bernard vomited each of the two doses she took, yet their effects were such as to cause grave fears for the patient's safety, but we are happy to say the lady is now recovering."

THE AMENDMENTS TO THE PHARMACY ACT.

We have again to announce the fact that the Pharmacy Act, together with a large number of measures which the government did not deem of pressing importance, have been laid over until next session. The Bill as read a first time was discussed in detail at the last meeting of the Council and amendments were made to many of the clauses. In order that possible defects may be remedied, or further improvements suggested, we print the Bill as it now stands in the hands of Mr. Striker, who affirms that it shall be introduced at the very commencement of next session, so that it can be put through before the inevitable press of business at the close. We hope that members of the College will take an interest in the matter and consider carefully and in a friendly spirit the various details of a measure which was designed solely and entirely in their interest, and for the general benefit of the trade.

Editorial Summary.

ADMIXTURE OF WHITE HELLEBORE WITH VALERIAN ROOT.—At a meeting of the British Pharmaceutical Society a paper relating to this subject was read by Professor Bentley. He had made an examination of a parcel of Valerian root which had been sent to him by a druggist who had found an infusion of the root to produce symptoms of poisoning. The sample weighed forty-two ounces, of which thirty-four were true valerian and the remaining eight ounces the rhizome of the white hellebore. Professor Bentley thought that the admixture was accidental, and that the roots had been gathered by persons ignorant of their different natures, and had thus been imported in a mixed condition from the continent of Europe. It was also suggested that bales of veratrum and valerian might have been broken at the docks, and on being repacked their contents had

been mixed. The slight difference in price almost precludes the idea that the admixture was intentional. The valerian communicates its odor to the veratrum, so the detection of the latter is not so easy as might at first be supposed. The principal differences of the roots may be thus enumerated: (1.) Hellebore rhizomes are generally crowned with a conical bud of unexpanded leaves, or with the fibrous remains of former leaves; in valerian these are generally absent, and if present may be distinguished by the arrangement, which is opposite, while in hellebore the leaves are arranged in concentric rings. (2.) The hellebore rhizomes are much larger and darker in color than valerian. (3.) A section of the rhizome presents an entirely different appearance. (4.) The roots which arise from the hellebore rhizome are generally paler, larger, and more shrivelled than those of valerian. (5.) The taste is dissimilar. (6.) The odor is different, and, in the mixed roots, feebler in the hellebore. (7.) If to a cut section of valerain rhizome sulphuric acid be applied, the natural color of the drug is simply heightened; with hellebore, a deep orange yellowish-red color is at once developed, changing, in time, to dark blood-red.

Detection of Adulteration in Cacao-butter.—In answer to a query proposed by the American Pharmaceutical Association, Mr. G. Ramsperger *(Proc. Am. Pharm. Assoc.)*, alluded to the various processes which have been proposed for the detection of adulteration in oil of theobroma, and states as the result of his experience that none of the tests given are infallible, but several of them, taken together, would form a tolerably sure indication of purity or adulteration. Ether was found to be the best test. It indicated all admixtures, with the exception of ox-marrow; either directly, by the turbidity of the solution of one part of the adulterated butter in two parts of ether—as in the case of admixture with tallow, paraffin, beeswax, and bayberry wax—or, if not immediately after solution, then by becoming turbid after some time, and by forming little crystals and grains by spontaneous evaporation, which crystals are not again soluble in two parts of ether, at ordinary temperatures. Mr. Ramsperger agrees with Mr. H. W. Lincoln, a former writer on the subject; that, to those having experience in the matter, the taste of the butter affords fairly reliable indications of purity. If the author's conclusions in regard to the specimens of butter to be found in the market be taken as correct, there is no great need to complain of adulteration. An example of twelve samples showed only one to be "not quite pure," but several of them were more or less rancid. The melting point ranged from 30° to 35° C, and the specific gravity from ·850 to ·979.

A DEFENCE OF SUGAR-COATED PILLS.—In the last number of our esteemed contemporary, the *American Journal of Pharmacy*, there appears a paper, extending over nearly twenty-three pages, in which the writer, Mr. J. B. Moore, reviews the question of the solubility or non-solubility of the sugar-coating of pills while passing through the stomach or intestinal canal. Mr. Moore is evidently a very firm believer in his subject, and allows his enthusiasm to move him to greater lengths than we would have believed possible of a simple pill. In testing the merits of the case he would discard artificial gastric juice, and tumblers and test tubes would only mislead. "What we want" says he "for this important purpose are living human alimentary canals." Then is he ready for the crucial, or rather the intestinal test, which, if unattended by honor or renown, might not be altogether without profit, for Mr. Moore proposes a reward of merit, in the pleasing though commonplace form of a twenty-five dollar bill, to be presented to any chemist, physician, or pharmacist in the United States, who by the ordinary sugar-coatings used by manufacturers, can produce a pill, of given composition, which shall prove insoluble and inoperative. This, as our friends say "is talking business," and it is probable that the champions of gelatine-coated pills; compressed pills, wafers, cachets, and what not, will at once enter for the tournament, with what result we shall duly apprise our readers.

SOLUBILITY OF ETHER IN VARIOUS LIQUIDS.—In a paper read before the Pharmaceutical Sociey of Ireland, by Mr. H. Napier Draper, it was stated that 100 volumes of hydrochloric acid, sp. gr. 1·196, dissolve at — 16° C 185 volumes of ether, sp. gr. 0·725; at 10° C, 167 volumes; at 16° C, 162·5 volumes; at 38° C, (100° F.), 135 volumes. There are but few instances of liquids showing such wide differences between the relation of solubility to temperature. At zero, C, the capacity for ether is nearly one-third greater than at 100° F. In addition to the experiments on hydrochloric acid, which the author stated in considerable detail, some particulars of the solubility of ether in other liquids were given. Thus, in regard to water, it was found that 100 volumes, at 11° C, would dissolve 10 volumes of ether; and 100 volumes of ether, at 12° C, dissolve 2 volumes of water. In saturated solution of calcium chloride ether appears quite insoluble. The absence of water in the ether used for the experiments was ensured by testing with bibulous paper, previously saturated with alcoholic cobalt chloride and dried. This remained blue after twenty-four hours' contact, a trace of water would have developed a red color.

UTILIZATION OF WASTE OIL FROM THE LIQUORS OF WOOL FACTORIES.—E. Schwamborn (*Jour. de l'Eclair au Gaz. in Jour. of App. Chem.*, March) describes a method for the utilization of wool washings for the manufacture of gas. He does not take into account any processess which have been proposed and used for the recovery of the oil by means of acid, as one of the prime objects of the investigation was that of rendering innocuous the waste waters often discharged into rivers, etc. The quantity of oil and soap thus thrown away is enormous, amounting to quite thirty per cent. of the weight of wool operated upon in the process of fulling. The author's method consists in treating the washings with milk of lime, which precipitates the oil as a calcareous soap. This is used for the manufacture of gas, which is found to be of great illuminating power. Taking this property into account, it is estimated that 100 pounds of calcareous soap will give as much light as 578 pounds of the best gas coal. The cost of the plant and expenses of the process are also much in favor of the soap.

FAILURE OF THE SO-CALLED NEW REMEDY FOR HYDROPHOBIA.—From a notice in the editorial columns of the *Pharmaceutical Journal & Transactions* we learn that from some experiments made in the chemical school at Alfort (recorded in the *Archives Veterinaires*) that the *Xanthium spinosum* has not realized the hopes that were entertained in regard to its efficacy in hydrophobia. Eleven dogs were innoculated with saliva from a rabid animal, and to six of these were administered repeated doses of xanthium. On the thirteenth day, the first dog—one which had taken 125 grams of the powder—showed symptoms of madness, and died the next day. During the next fifty days seven more dogs died, but without presenting marked hydrophobic symptoms. On the eightieth day, a dog to which xanthium had been administered daily for a long time, died with all the symptoms of the disease, and this dog had also been bitten by the animal first mentioned. From these experiments the conclusion is arrived at that the new remedy "has not the power of curing hydrophobia or preventing its development after either artificial or natural innoculation.

NEW SUBSTITUTE FOR WHITE LEAD.—In a lecture delivered recently before the Society of Arts, London, Professor Barff described a new white pigment, discovered by Mr. T. Griffiths, of the Silicate Paint Company, Liverpool, and designed to take the place of white lead. Its advantages over white lead are that it does not become discolored by foul air containing sulphuretted compounds; it does not

exert a poisonous influence on those whose who work with it; and paint made with it does not lose body or become semi-transparent from saponfication of the oil, as is asserted of paint made from carbonate and oxide of lead. Its covering power, or body, is almost if not quite equal to that of white lead. It is prepared by precipitating a solution of sulphate of zinc by sulphide of sodium: adding chloride of barium, and collecting, washing, and calcining the precipitate. A small proportion of magnesia is also added during the process, and this ensures the "kindly" working of the resulting paint. The new pigment is now being manufactured on a large scale.

ACTION OF DILUTE NITRIC ACID ON BRUCIA.—Professor Sonnenschein asserted that by treatment of brucia by warm dilute nitric acid, strychnia, and other bodies were produced. Mr. Cownley denied this, and in the *Pharm. Jour. and Trans.* for April, 1876, gave an account of his experiments, which in no case gave evidence of the production of strychnia. Mr. Shenstone has lately gone over the same ground, and in an exhaustive paper in the *Pharm. Jour. and Trans.*, Feb., 1877, gives the result of his experiments, which are at variance with those of Prof. Sonnenschein, and confirm those of Mr. Cownley. He also describes a process for the purification of brucia, for the particulars of which we refer our readers to the original paper.

PREPARED GLYCERINE.—After experience with thirteen different methods or formulas for this preparation, Mr. T. J. Covell, *(Druggists' Circular)*, strongly recommends the following, which produces an article similar to that known as "camphor ice with glycerine," or "prepared glycerine." Pressed lard, twenty-four ounces; white wax, twenty ounces; spermaceti, ten ounces; camphor, six ounces. Melt the wax and spermaceti together, by means of a water bath; add the lard and camphor, and when the latter is nearly all dissolved pour into suitable moulds or pots. This should be done at as low a temperature as possible. One drachm of essential oil of almonds to each pound of the compound will be found an agreeable perfume. The pressed lard above mentioned is that which remains after the lard oil has been separated by the manufacturers.

PROTECTION OF IRON FROM RUST.—In a lecture elsewhere alluded to as having been delivered by Professor Barff, a new process for the protection of iron surfaces was described. This consists

in keeping the iron—already made into such forms as may be required—for six or seven hours in an atmosphere of steam, superheated to about 500° F. The effect is to produce on each article a superficial coating of black oxide of iron, which is said to effectually protect the metal underneath, and also to render the surface harder. It is proposed to take advantage of this method in order to preserve bolts and stays in buildings, railings, screws, hinges, tanks, nipples for gas burners, and other articles subject to rust.

DEODORIZATION OF PETROLEUM.—Another method besides that of M. Masson, published in our last number, has been proposed by Mr. S. E. Johnson, of England. To the oil, contained in a cask or other receptacle, there is added chloride of lime in the proportion of three ounces to each gallon. The mixture is agitated, and, if a more vigorous action be desired, a little hydrochloric acid may be added. The oil is then poured into another closed vessel, and well agitated with a small quantity of slacked lime, which takes up adhering chlorine, and is said to leave the oil free from disagreeable odor.

PREPARATION OF TARTRATE OF POTASSIUM.—The ordinary commercial salt generally contains tartrate of lime, and, if dissolved for medicinal use, will not give a clear solution. Mr. A. F. W. Neynaber, (*Druggists' Circular*), says that by dissolving the impure salt in ten times its weight in water, setting aside the solution for several days, and then filtering, evaporating and crystallizing, a salt may be obtained, which, though not absolutely free from tartrate of lime, will yield a bright solution free from deposit.

COSMOLIN CREAM.—Mr. E. J. Davidson, (*Am. Jour. Pharm.*), proposes as a substitute for cold cream a preparation of cosmolin which may be thus prepared: Take of cosmolin, twenty four ounces; white wax and spermaceti, of each twelve ounces; glycerine, three fluid ounces; oil of rose-geranium, one fluid drachm. Melt the wax and spermaceti; add the cosmolin; stir until nearly cold; add the glycerine and stir until cold.

PRESERVATION OF MEAT BY BORACIC ACID.—M. Herzen, (*Jour. de Pharm.*), alludes to the use of boracic acid as a preservative, and

says that meat treated with this agent, together with a little borax, common salt and saltpetre, has been found to retain comparative freshness during the continuance of a long voyage to and from regions situate beyond the equator. At the conclusion of the voyage the meat was still fit for the table.

NEW VARIETY OF CATECHU.—Dr. Walker Smith exhibited at a meeting of the Pharmaceutical Society of Ireland a specimen of a new variety of catechu which has, of late, been largely imported into London. It was described as being porous, light in color, and in small rectangular prisms about half an inch long. Analysis gave about 60 per cent. insoluble matter, and only 9.71 available tannin. The proportion of the latter generally present in pale catechu is about 25 per cent.

NEW SOLUTION OF ATROPIA.—Professor Tichborne, of Dublin, proposes to substitute the present official solution—which is open to several objections—by a solution of salicylate of atropia, prepared by dissolving 2·7 grains of atropia and 1·3 grains of crystallised salicylic acid in one ounce of water. The solution may be preserved without difficulty, is not liable to mould, does not produce the conjuctival irritation often attendant on the solution, and is generally satisfactory.

EXTRACT OF LOGWOOD AS A DISINFECTANT.—A writer in *New Remedies* speaks very enthusiastically of the power of extract. hemætoxyli as a deodorizer in cases of fetid discharges, as from cancer or other sores. An ointment compounded of equal parts of the powdered extract and lard is said to be most effectual for the purpose indicated. The ointment has, of course, a marked effect in diminishing the quantity of the discharge.

CAUTION REGARDING "A NEW DISINFECTANT."—A powder containing permanganate of potash, oxalic acid and oxide of manganese, recommended by a contemporary, and noticed in "Varieties" of our last number, cannot be safely prepared, or preserved, as it is liable to explosion by a reaction between the permanganate and the organic acid, by which carbonic acid is produced with such rapidity as to give rise to the effect stated.

PRESERVATION OF ERGOT.—In order to preserve ergot from deterioration, Professor Dragendorff suggests that it be powdered, deprived of its oil, and again dried. It is assumed that the oxidation of the fat or oil present in ergot is the prime cause of deterioration, and in this particular Professor Dragendorff confirms the view advanced by Hirschberg.

NIGROSINE INK.—A correspondent of the *Druggists' Circular* sends a formula for a black ink which is not spoiled by being frozen, having no corrosive effect on steel pens, flowing freely, little liable to clog, and, when dry, not affected by water. It is composed of nigrosine, ten grains; alcohol, two drachms; water, two ounces. Mix, let stand for two days, and filter.

MISTURA ALBA.—According to the *Pharm. Jour. and Trans.* the *Mist. Alba* of the King's College Hospital Pharmacopœia is composed of magnes. carb., ten grains; magnes. sulph., sixty grains; aq. menth. pip., one fluid ounce.

SUBSTITUTE FOR THE SAND-BATH FOR LOW TEMPERATURES.—The *Manufacturer and Builder* says that by employing a bath composed of a solution of chloride of calcium in glycerine a temperature of 572° to 626° F. may be maintained.

AN ACT TO AMEND "THE PHARMACY ACT OF 1871."

Whereas, it is expedient to amend the Act passed in the thirty-fourth year of Her Majesty's reign, chaptered thirty-four, and intituled "The Pharmacy Act of 1871."

Therefore, Her Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:

1. Section five of the said Act is hereby repealed.

3. From and after the ffrst day of May, in the year of Our Lord one thousand eight hundred and seventy-seven, it shall be unlawful far any Pharmaceutical Chemist to employ any person as assistant in his business until such person shall have been duly enrolled as an Associate, as provided by this Act.

3. The term of apprenticeship of every apprentice to a Pharmaceutical Chemist, or qualified medical practitioner, where such practitioner keeps open shop as a Chemist and Druggist, shall be four years, and every such apprentice must be bound by contract in writing to serve the said term: Every such contract, or copy of such contract, shall within six months from the execution thereof, be filed with the Registrar of the Ontario College of Pharmacy, together with an affidavit in which shall be specified the names of the Pharmaceutical Chemist and of the person so bound, and their places of abode respectively, together with the day on which the contract was actually executed.

4. Section thirteen of the said Act is hereby repealed, and the following substituted in lieu thereof:

13. Every person desirous of being examined touching his qualifications to act in the capacity of Assistant or Pharmaceutical Chemist, and who may have served his apprenticeship in any place other than the Province of Ontario, shall, at least two weeks before any examination held under the auspices of said college, pay to the Registrar the required fees and give notice in writing of his intention to present himself for examination, and file a certificate of a regular Pharmaceutical Chemist, that he has served for three years as an apprentice and two years as assistant to a regularly qualified Pharmaceutical Chemist.

5. Every registered assistant shall pay yearly, on or before the first day of May, a fee of two dollars.

6. No apprentice shall be entitled to be enrolled as an associate, or as a Pharmaceutical Chemist, unless

1. He has during the term specified in his contract of apprenticeship, duly served thereunder, and has during the whole of such term been actually employed in the proper business of the Pharmaceutical Chemist to whom he has been bound, nor unless

2. Within six months of the expiration of such term, he has passed a satisfactory examination before the Board of Examiners appointed by the said college, touching his fitness and capacity for a Pharmaceutical Chemist, nor unless

3. A least fourteen days before the sittings of the council of the said college, he has filed with the Registrar an affidavit of due service under his contract of apprenticeship, and given notice of intention to present himself for examination, and paid a fee not exceeding ten dollars.

7. Every person who prior to the passing of this Act, was engaged as assistant to a registered Pharmaceutical Chemist, may be enrolled as an associate, upon paying the fee of two dollars, and upon the completion of four years service to be computed from the commencement of his service; and upon filing with the Registrar, an affidavit of such service; but no associate enrolled under the

provisions of this section, shall be entitled to be registered as a Pharmaceutical Chemist, until he shall have complied with the requirements of sub-sections two and three of section six of this Act.

8. Section ten of the said Act is amended, by substituting the word "Thursday," for "Wednesday," in the second line thereof, and by adding thereto the following, "and all such persons shall be eligible for election as members of such council."

9. Section eleven of the said Act is amended by adding thereto the following, "but until such first meeting, the retiring council shall continue in office.

10. Section twelve of the said Act is hereby amended, by striking out the word "Wednesday," when it occurs in the second line thereof, and substituting the word "Thursday," in lieu thereof.

11. Section fourteen of the said Act is amended, by striking out the words "of the majority" in the second line thereof, and adding to the said section the following, "and such examiners shall hold office during the term of office of the Council by which they were elected, and in case any examiner shall be absent or unable to attend said examination, the other examiners may appoint a fit and proper person to act in his stead."

12. Section twenty of the said Act is amended by striking out the words "his employee or employees" in the fourth line thereof, and substituting the words "a registerered associate or an apprentice who has served at least two years, and then only under the direct personal supervision of a registered Pharmaceutical Chemist or a registered Associate," in lieu thereof.

13. Section twenty-eight of the said Act is hereby amended by striking out the words "without registration under the provisions of this Act" in the twenty-fourth line thereof, and substituting the words "without examination, provided such member of the College of Physicians and Surgeons, is registered as a Chemist and Druggist under this Act" in lieu thereof.

14. All persons holding diplomas, by examination, granted by the Pharmaceutical Society of Great Britain, or the Pharmaceutical Society of the Province of Quebee, or the Philadelphia College of Pharmacy, or such other authorized College approved by the Council of the said Ontario College of Pharmacy, shall on payment of the usual fees be entitled to registration as Members of the Ontario College of Pharmacy, without undergoing examination.

15. It shall be competent for any registered Pharmaceutical Chemist to take into partnership as silent partner any unqualified person, provided notice of such partnership is filed with the Registrar within thirty days of the date of contract, but such silent partner shall not be allowed to dispense the prescriptions of legally qualified medical practitioners, or to sell any of the poisons enumerated in Schedule A of the Pharmacy Act, and when the term of said

partnership has expired a notice of such dissolution must be filed with the Registrar within thirty days of the date thereof, and the unqualified partner shall enjoy no further privileges under this Act or the Act hereby amended.

16. Every person registered under this Act or the Act hereby amended shall, on retiring from the business of a Chemist and Druggist, file with the Registrar within three months of such discontinuance of business a notice of the same, or shall otherwise be held liable for the annual fee.

17. Any person contravening any of the provisions of this Act shall be subject to the same fines and penalties as are named in section twenty-five of the Act hereby amended.

18. All the provisions of this Act hereby amended inconsistent with the provisions of this Act are hereby repealed, and this Act shall be read as part of the Act hereby amended.

ALLEGED FAILURE OF SALICYLIC ACID.—At the meeting of the Societe de Therapeutique, October 11, 1876, Dr. Martineau reported that neither in typhoid fever nor in articular rheumatism did he obtain any influence, either upon the temperature or the pulse, by the use of salicylic acid. This was confirmed by M. Dujardin-Beaumetz, who thought, however, that it calmed the articular pains.—*New Remedies.*

LARGE DOSES OF ERGOT.—At the meeting of the American Gynæcological Society, Dr. Drysdale, of Philadelphia, in speaking of the employment of large doses of ergot in the treatment of uterine fibroids, stated that he had given half-ounce doses of Squibb's fluid extract three times a day for more than a year without producing any injurious effects. When the pain caused by the uterine contractions became too severe, the drug was discontinued until the pain subsided.—*New Remedies.*

Registrar's Notice.

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

All communications and remittances to be sent and made payable to

GEORGE HODGETTS, Registrar.

P. O. Box 1133, Toronto.

DRUGS, MEDICINES, &c.	$ c.	$ c.
Acid, Acetic, fort	0 13 @	0 14
Benzoic, pure	0 22	0 27
Citric	0 90	1 00
Muriatic	0 03½	0 05
Nitric	0 10	0 13
Oxalic	0 15	0 17
Sulphuric	0 03	0 05
Tartaric, pulv.	0 44	0 47
Ammon, carb. casks	0 18	0 20
" jars	0 18	0 20
Liquor, 880	0 20	0 22
Muriate	0 14	0 15
Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
Nitrous	0 25	0 38
Sulphuric	0 45	0 50
Antim. Crude, pulv.	0 15	0 17
Tart "	0 50	0 55
Alcohol, 95 per ct. Cash	2 13	0 00
Arrowroot, Jamaica	0 18	0 22
Bermuda	0 50	0 65
Alum	0 02¾	0 03½
Balsam, Canada	0 33	0 38
Copaiba	0 65	0 70
Peru	2 10	2 20
Tolu	4 00	4 25
Bark, Bayberry, pulv.	0 18	0 20
Canella	0 17	0 20
Peruvian, yel. pulv.	0 35	0 50
" red "	1 60	1 70
Slippery Elm, g. b.	0 18	0 20
" flour, packets	0 28	0 32
Sassafras	0 12	0 15
Berries, Cubebs, ground	0 20	0 25
Juniper	0 06	0 10
Beans, Tonquin	1 00	1 20
Vanilla	18 00	24 00
Bismuth, Alb	2 25	2 50
Carb.	2 40	2 65
Camphor, Crude	0 33	0 35
Refined	0 38	0 40
Cantharides	1 50	1 60
Powdered	1 60	1 70
Charcoal, Animal	0 04	0 06
Wood, powdered	0 10	0 15
Chiretta	0 23	0 30
Chloroform	0 90	1 55
Cochineal, S. G.	0 90	0 85
Black	95	1 00
Colocynth, pulv.	0 60	0 65
Collodion	0 70	0 80
Elaterium oz	3 20	4 00
Ergot	1 10	1 20
Extract Belladonna	1 65	1 80
Colocynth, Co	1 25	1 75
Gentian	0 50	0 60
Hemlock, Ang	0 60	0 95
Henbane, "	2 50	2 60
Jalap	4 50	5 00
Mandrake	1 75	2 00
Nux Vomic oz	0 40	0 50
Opium oz	1 25	
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 22	0 25
Chamomile	0 30	0 35
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	0 75
" " pulv	1 00	0 00
Arabic, White	0 31	0 58
" powdered	0 60	0 75
" sorts	0 19	0 24
" " powdered	0 42	0 50
" com. Gedda	0 13	0 16
Assafœtida	0 15	0 20
British or Dextrine	0 13	0 15
Benzoin	0 35	0 75
Catechu	0 12	0 15
" powdered	0 25	0 30
Euphorb, pulv	0 40	0 45
Gamboge	1 00	1 20
Guaiacum	0 35	1 00
Myrrh	0 50	0 80

DRUGS, MEDICINES, &c.—*Contd*	$ c.	$ c.
Sang Dracon	0 60	
Scammony, powdered	5 50	6 00
" Virg. "	14 50	—
Shellac, Orange	0 40	0 42
Gum, Shellac, liver	0 31	0 32
Storax	0 40	0 45
Tragacanth, flake	1 10	1 75
" common	0 53	0 65
Galls	0 22	0 30
Gelatine, Cox's 6d.	1 15	1 20
Glycerine, common	0 25	0 28
Vienna	0 30	0 32
Prices	0 60	0 75
Honey, Canada, best	0 16	0 17
Lower Canada	0 10	0 12
Iron, Carb. Precip.	0 16	0 20
" Sacchar.	0 40	0 55
Citrate Ammon.	1 10	1 20
" & Quinine, oz.	0 40	0 85
" & Strychine	0 17	0 20
Sulphate, pure	0 05	0 07
Iodine, good	3 75	4 00
Resubiimed	4 40	4 50
Jalapin	1 25	1 50
Kreosote	2 50	2 60
Leaves, Buchu	0 22	0 32
Foxglove	0 25	0 30
Henbane	0 35	0 40
Senna, Alex	0 27	0 60
" E. I.	0 14	0 20
" Tinnevilly	0 20	0 30
Uva Ursi	0 15	0 17
Lime, Carbolate brl	5 50	—
Chloride	0 05	0 06
Sulphate	0 08	0 12½
Lead, Acetate	0 13	0 14½
Leptandrin oz.	0 60	—
Liq. Bismuth	0 45	0 55
Lye, Concentrated	1 30	1 50
Liquorice, Solazzi	0 50	0 55
Cassano	0 23	0 40
Other brands	0 14	0 25
Liquorice, Refined	0 35	0 45
Magnesia, Carb. 1 oz.	0 20	0 25
" 4 oz.	0 19	0 20
Calcined	0 60	0 65
Citrate gran.	0 60	0 75
Mercury	0 80	0 85
Bichlor	0 68	0 70
Chloride	1 00	1 05
C. Chalk	0 68	0 55
Nit. Oxyd	1 15	1 20
Morphia Acet	3 15	3 25
Mur.	3 15	3 25
Sulph.	3 30	3 40
Musk, pure grain oz	25 00	.....
Canton	0 60	0 70
Oil, Almonds, sweet	0 55	0 60
" bitter	8 00	8 50
Aniseed	2 75	3 00
Bergamot, super	5 75	6 00
Caraway	3 20	3 50
Cassia	1 40	1 60
Castor, E. I	0 13½	0 15
Crystal	0 22	0 25
Italian	0 24	0 26
Citronella	1 00	1 10
Cloves, Ang.	3 50	3 60
Cod Liver, Imp. Gal	2 00	2 10
Croton	1 40	1 50
Juniper Wood	0 80	1 00
Berries	2 75	3 00
Lavand, Ang. oz.	0 00	1 00
Exotic	1 25	1 50
Lemon, super	3 50	3 75
ord.	0 00	0 00
Orange	2 40	2 60
Origanum	0 65	0 75
Peppermint Ang.	14 00	15 00
" Amer.	4 00	5 00
Rose, Virgin	8 25	8 50
" good	6 00	6 25
Sassafras	0 80	0 90
Wintergreen	4 00	4 25
Wormwood, pure	5 00	6 00
Ointment, blue	0 70	0 80
Opium, Turkey	6 90	7 15
pulv.	9 00	9 25

DRUGS, MEDICINES, &c.—*Cont'd*	$ c.	$ c
Orange Peel, opt.	0 35	0 36
" good	0 15	0 20
Pill, Blue, Mass	0 56	0 60
Potash, Bi-chrom	0 14	0 16
Bi-tart	0 30	0 32
Carbonate	0 13	0 15
Chlorate	0 27	0 30
Nitrate	8 00	9 00
Potassium, Bromide	85	0 90
Cyanide	0 55	0 60
Iodide	4 25	4 50
Sulphuret	0 25	0 35
Pepsin, Boudault's oz	1 25	—
Houghton's doz.	8 00	9 00
Morson's oz.	0 85	1 10
Phosphorus	1 10	1 20
Podonhyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	4 25	—
" 100 oz. case.	4 25	—
" 25 oz. tin..	4 2)	—
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 25	0 00
Ipecac, "	1 90	2 00
Jalap, Vera Cruz	90	1 15
" Tampico	0 70	1 00
Liquorice, select	0 12	0 13
" powdered	0 15	0 20
Mandrake "	0 20	0 25
Orris, "	0 20	0 25
Rhubarb, Turkey	2 10	2 25
" E. I	1 00	1 10
" " pulv	1 10	1 20
" " 2nd	0 60	0 70
" French	0 75	—
Sarsap., Hond	0 38	0 50
" Jam	0 95	1 00
Squills	0 10	0 15½
Senega	0 90	0 95
Spigelia	0 30	0 34
Sal., Epsom	2 0	2 50
Rochelle	0 30	0 32
Soda	0 01½	0 02
Seed, Anise	0 13	0 16
Canary	0 07½	0 08
Cardamon	1 60	1 70
Fenugreek, g'd	0 08	0 09
Hemp	0 06½	—
Mustard, white	0 16	0 17
Saffron, American	0 50	0 60
Spanish	10 00	11 00
Santonine	2 00	22 00
Sago	0 08	0 09
Silver, Nitrate Cash	14 90	16 00
Soap, Castile, mottled	0 11	0 14
Soda, Ash	0 03¾	0 05
Bicarb. Newcastle	4 00	4 25
" Howard's	0 14	0 16
Caustic	0 03¾	0 04
Spirits Ammon., arom	0 38	0 4
Strychnine, Crystals	1 70	1 80
Sulphur. Precip	0 12	0 13
Sublimed	0 03½	0 05
Roll	0 03	0 04½
Vinegar Wine, pure	0 55	0 60
Verdigris	0 35	0 40
Wax, White, pure	0 70	0 80
Zinc. Chloride oz	0 10	0 15
Sulphate pure	0 10	0 15
" " common	0 06	0 10
DYESTUFFS.		
Annatto	0 35 @	0 60
Aniline, Magenta, cryst	2 00	2 60
" liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitro, pure	0 07½	0 09
Camwood	0 07	0 08
Copperas, Green	0 01½	0 02
Cudbear	0 16	0 25
Fustic, Cuban	0 03	0 04
Indigo, Bengal	2 40	2 50
Madras	0 90	0 95
Extract	0 26	0 30

DYESTUFFS—*Continued.*		
Japonica	0 06½	0 07
Lacdye, powdered	0 33	0 38
Logwood	0 02½	0 03
Logwood, Camp	0 02⅝	0 03
Extract	0 12	0 13
" 1 lb. bxs	0 15	—
" ½ lb. "	0 16	—
Madder, best Dutch	0 09	0 10
2nd quality	0 08	0 09
Quercitron	0 03	0 05
Sumac	0 06	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
SPICES.		
Allspice	0 13 @	0 14
Cassia	0 25	0 28
Cloves	0 48	0 50
Cayenne	0 17	0 20
Ginger, E. I.	0 14	0 15
Jam	0 25	0 30
Mace	1 10	1 10
Mustard, com	0 20	0 25
Nutmegs	1 00	1 05
Pepper, Black	0 15	0 16
White	0 26	0 28
PAINTS, DRY.		
Black, Lamp, com	0 09 @	0 10
" refined	0 25	0 30
Blue, Celestial	0 08	0 12
Prussian	0 65	0 75
Brown, Vandyke	0 10	0 12½
Chalk, White	0 01	0 01½
Green, Brunswick	0 07	0 10
Chrome	0 16	0 25
Paris	0 26	0 28
Magnesia	0 20	0 25
Litharge	0 07	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 06¾	0 08
Venetian	0 02½	0 03
Sienna, B. & G.	0 07	0 08
Umber	0 07	0 10
Vermillion, English	0 85	0 90
American	0 25	0 35
Whiting	0 85	1 00
White Lead, dry, gen	0 08½	0 09
" " No. 1	0 07	0 08
" " No. 2	0 05	0 07
Yellow Chrome	0 09	0 15
" Ochre	0 02½	0 03½
Zinc White, Star	0 09	0 11
COLORS, IN OIL.		
Blue Paint	0 12 @	0 15
Fire Proof Paint	0 06	0 08
Green, Paris	0 30	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1 lb tins	0 10	0 12
Putty	0 03¾	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25 lb. tins	2 20	—
" No. 1	1 5	—
" No. 2	1 70	—
" No. 3	1 45	—
" com	1 30	—
White Zinc, Snow	2 50	2 75
NAVAL STORES.		
Black Pitch	3 00 @	3 25
Rosin, Strained	3 75	4 00
Clear, pale	4 50	6 00
Spirits Turpentine Imp. Gall	0 55	0 67
Tar Wood	4 50	4 75
OILS.		
Cod Imp. Gall	0 84 @	0 86
Lard, extra "	1 25	1 27
No. 1 "	1 14	1 16
No. 2 "	1 02	1 05
Linseed, Raw per 7½ lbs	0 61	0 63
Boiled "	0 65	0 67
Olive, Common Imp. Gall	1 26	1 30
Salad "	2 01	2 10
" Pints, cases	4 00	4 20
" Quarts	3 25	3 50
Seal Oil, Pale Imp. Gall	0 96	1 00
Straw "	0 90	0 95
Sesame Salad "	1 56	1 60
Sperm, genuine "	2 70	2 75
Whale refined	0 00	0 00