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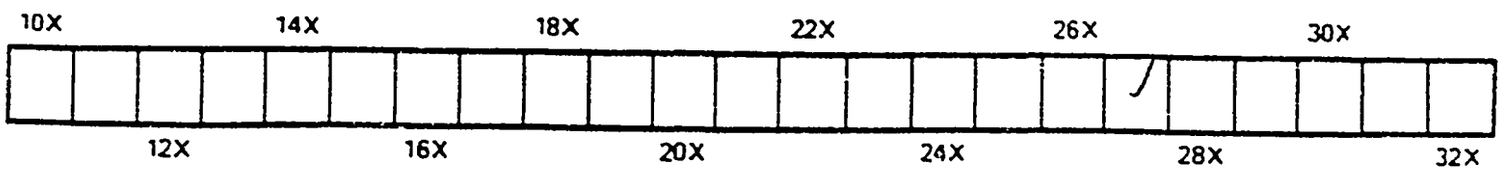

On the Influence of Drying on the Active Principles of Plants.*

BY DR. LEOPOLD SCHOONROODT,
Apothecary at Liége.

The author extended his examination to 29 plants, selected for the importance and frequently of their use in medicine. The process of examination was based upon the principles of Stas' method.

The carefully collected plants, when possible collected of wild growth, were divided into two equal parts, one of which was dried, if necessary, with artificial heat, then powdered, the loss in drying replaced by water, after maceration for 24 hours displaced with 95 per cent. alcohol, and the tincture treated like that of the fresh portion.

The other half of the fresh plant was reduced to small fragments, macerated with 95 per cent. alcohol for 24 hours, then expressed and again macerated as before. The liquids were united, filtered and distilled at a temperature of 56 to 60° C., the residue filtered and the filtrate evaporated over sulphuric acid under a bell-glass; the residue upon the filter was kept separate.

The treatment of plants, containing alkaloids was modified by adding tartaric acid to the tincture, to ensure the solubility of the alkaloid in the aqueous solution of the alcoholic extract.

Treatment of the dry extract.—1. *Plants with alkaloids.* The dry extract was mixed with its own weight of burned lime, the mixture treated with twice the weight of 95 per cent. alcohol, and after 24 hours with four parts of ether, well agitated and then decanted; the sediment was twice treated in the same manner. The liquid was evaporated spontaneously, the residue dissolved in dilute sulphuric acid, filtered, precipitated by carbonate of potassa and dissolved by absolute alcohol.

This second evaporation usually yielded the alkaloid crystallized, particularly from the fresh plants. In the case of liquid alkaloids, caustic instead of carbonate of potassa was taken, and ether in place of alcohol; after proving its identity, the quantity of the alkaloid was estimated by titration with oxalic acid.

The comparative treatment of plants with alkaloids frequently gave very exact results, particularly when the alkaloids or their salts are crystallizable; this was less frequently the case when the plants contained no alkaloids and the active principle is incompletely characterized.

2. *Plants without alkaloids.* The dry extract was treated with strong ether, and the filtrate evaporated spontaneously; the undissolved portion was treated with a mixture of 8 vol. strong ether and 2 vol. 95 per cent. alcohol, and the filtrate evaporated spontaneously. The residue was treated with cold distilled water, and the liquid evaporated over sulphuric acid.

The table on page 136 contains the results obtained by the author with the most important drugs.

The leaves of *Anemone Pulsatilla*, collected in April, yielded fresh, but not dried, anemonin, little amorphous alkaloid, and a yellow, very acrid resinous matter.

Chelidonium majus (herb), collected in July, yielded, after drying, only chelidonina, but no chelerythrina.

Nicotiana Tabacum (leaves), collected in July, yielded two grm. pure nicotina; after drying scarcely half the quantity.

Digitalis purpurea (leaves, June). The extract yielded to alcoholic ether 0·60 grm. of a straw-yellow, very bitter substance; from the dried leaves a little less and deeper yellow.

Menyanthes trifolia... (leaves, August), yielded 0·45 grm. menyanthin; from the dried leaves uncrystallizable.

Marrubium vulgare (leaves and tops, June), yielded 0·70 crystallized marrubiin; from the dried, about one-half.

Tanacetum vulgare (flowers July). Bitter principle, darker from the dried.

Absinthium vulgare (leaves and tops, cultivated, July). The dried yields less aromatic preparations, and an extract-like, bitter principle.

Ergot (July). Carefully dried and powdered; it was divided into two parts, one of which was kept under alcohol in a well-filled bottle, the other kept dry in a paper box for ten months, after which time it was macerated for fifteen days in the same quantity of alcohol. The two portions were then treated exactly alike. The ergot was exhausted with alcohol in a displacement apparatus, the tincture evaporated in a water-bath, and finally over sulphuric acid. The extract was treated with distilled water, and the filtrate concentrated at the ordinary temperature over sulphuric acid.

The extracts, exhausted by water (less about one-fourth), yielded to ether about five-sixths of their weight, and the residue, about one-eighth of the alcoholic extract, was a red granular powder—Wiggers' ergotin. The etherial solution, on evaporation, yielded fixed oil and crystallized cholesterin. The fixed oil, from the old ergot, was orange-red, that from the fresh (kept under alcohol) was thinner and orange-yellow. No other difference was thus far observed.

The concentrated aqueous solution of the alcoholic extract had separated more of Wiggers' ergotin and crystals of mycose; the clear liquid was evaporated as before to near dryness (the residue of the fresh was more granular), and, since pure ether was without effect, treated with alcoholic ether, which on evaporation yielded yellow acicular crystals, regarded as pure Bonjean's ergotine (0·25 per cent. from the fresh, 0·20 from the old). The extract treated with alcoholic ether was entirely soluble in absolute alcohol except a little mycose; on spontaneous evaporation a little more mycose was separated, and then a reddish (rather darker from old ergot) oily mass was left, consisting mainly of lactic acid.

Rhus radicans (leaves, July). The distillate from the dried leaves was without odor and acid reaction, and did not reduce the salts of silver, platinum, and gold.

Ruta graveolens (leaves, July). The tincture of the fresh leaves deprived of the alcohol by distillation separated an odorous green oil, which, removed by ether, left a yellowish granular glucoside of a bitter, somewhat acrid taste. From the dried leaves the oil was not obtained, and the glucoside merely as a brown extract.

Valeriana officinalis (root collected in September, from high dry situations). The resin of the dried root is more acrid than in the fresh; 250 grms. of the former yielded 1 grm. valerianic acid. The distillate from the fresh root was neutral, had a slight odor, but on exposure to the air in the presence of alkalies, yielded 1·5 valerianic acid.

Prunus Laurocerasus (leaves, June). Lose all their virtues by drying.

Bryonia dioica (root, October). Results alike from the fresh and dried.

Inula Helenium (root of second year's growth, October). The constituents are somewhat altered. The sugar is obtained from the fresh root in white hexagonal prisms, from the dried root granular.

Saponaria officinalis (root, October). The saponin from the fresh root is white granular, from the dried amorphous colored.

Juniperus Sabina (leaves and tops, July). The dried yields a browner, less odorous, more acrid tincture.

Aspidium Filix-mas (rhizome, September). The tincture of the dried browner and more acrid, but weaker in odor than from the fresh. The distillate from the latter has a disagreeable odor and taste, reduces the salts of the noble metals, and evaporated with potassa, leaves a soap-like residue—properties which are not observed in the distillate of the tincture from the dried rhizome.

His experiments lead the author to the following conclusions:—

1. Dried plants never represent entirely the fresh. The generation of valuable constituents during the drying process, as valerianic acid in valerian, must be regarded as exceptional.

2. The alterations produced in drying consist in the votalization of a portion of the volatile constituents and in the oxidation of most of the fixed and the remaining volatile constituents. During the drying process the water in the cells is partly replaced by air, the influence of which upon the remaining constituents is intensified by the porosity of the dry plant.

3. It is always advantageous to use fresh plants for the preparation of alkaloids and other active principles, and to employ as low a temperature as possible.

4. The composition of the fresh plants is more simple than is frequently supposed; they generally contain, besides cellulose, the saccharine, starchy and albuminous principles and the mineral salts, a volatile principle, either a carbohydrogen or aldehyde; a bitter or acrid principle, which is either an alkaloid or glucoside; a coloring principle and often fat.

5. To reduce the injurious influence of the atmosphere, it appears advisable to hasten the drying and then compress the dry plants, as is the custom in North America.

* Condensed from Wittstein's Vierteljahresschr für prakt Pharm 1869, p. 73—100, by J. M. M. American Journal of Pharmacy. The author, who died Dec. 1, 1866, was by the Société Royale des Sciences Medicales et Naturelles de Bruxelles, awarded a gold medal for this essay, which was published in Journ. de Med. de Brux. 1867 and 1868.

Tincture of Chloride of Iron.*

BY R. ROTHER.

On certain conditions an excuse would be barely admissible for obtruding with further remarks on a subject so prolific in literature, and which has supplied such a difficult theme to eminent authority as the tincture of chloride of iron. But a review of those extraordinary labors which have in time emanated from an array of talent, induces the convic-

* From the Pharmacist, July.

tion that the result is not commensurate with the reward of merit, and rather generates a sense of pain, as such deserving efforts have been so uselessly exerted. It is therefore evident, which has been too often reiterated, that an accurate and practical formula yet remains on the list of pharmaceutical *desiderata*.

As a preliminary it may be be briefly stated that no process, however simple, is more complete in every sense, than dissolving a definite quantity of the crystallized dry perchloride of iron in a measured quantity of alcohol, or mixture of water and alcohol, to conform with the requirements of the officinal product, of which every fluid ounce represents nearly one hundred grains of the dry chloride, containing twelve equivalents of water.

But as, however, this process is too indirect and expensive to meet with general approval when the dry chloride has to be prepared by the pharmaceutist, the question remains, Can this be derived from the manufacturer at a sufficiently moderate price to justify its employment? and if so, let it be transferred to the Materia Medica list, thereby, at probably a small advance on the present cost, a uniform standard is obtained of unquestioned reliability.

The old process, based upon the very indefidate and unstable sub-carbonate, is not scientific, and entirely unworthy the advanced state of pharmacy of the present day, and no especial "revelation" is requisite to elucidate the very tangible fact that it must be discarded if a reliable product is the aim of the operator.

The objectionable feature of this process is the transition property of the hydrated oxide by which it readily passes from the amorphous to the crystalline variety at slightly elevated temperatures, and even by exposure to the atmosphere when spontaneously dried. Hence this instability renders it very indefinite regarding behavior to acids, as the modified variety is either not at all or very difficulty soluble.

It has been recently ascertained that this transformation in structure is greatly augmented by the presence of sulphates, even traces, and by complete removal of these, or their exclusion altogether, invariability is secured. This may be affected by the method proposed, or perhaps to advantage by first obtaining protochloride by double decomposition between moderately dilute solutions of protosulphate of iron and chloride of calcium, washing the crystalline precipitate of sulphate of lime on a funnel by displacement or better by straining through muslin, and either precipitating the iron from the filtrate at once with carbonate of soda, or after oxidation by means of chlorate of potassa and chlorhydric acid with ammonia or carbonate of soda. The latter method yields the hydrated oxide immediately. The precipitates are best dried on porous tiles at ordinary temperature. Thus obtained, the hydrated oxide is always soluble in the necessary quantity of chlorhydric acid to form sesquichloride.

*The vague assertion that the official subcarbonate, when recently precipitated, dissolves readily enough in the prescribed quantity of acid, admits of ambiguity, and is entirely erroneous. By the term "recently precipitated" may be understood the moist, fresh precipitate of protocarbonate of iron, of which six ounces would indeed dissolve in one pint of chlorhydric acid, with yet 2831·49 grains of the acid in excess, as one pint of it weighs 8457·79 grains, and only 5626.3 grains can be neuteralized by the protocarbonate.

But the recent precipitate is not the officinal sub-carbonate which when finished has lost all or nearly all its carbonate, acid, and is therefore hydrated oxide enveloping quantities of proto-carbonate only sufficient to produce feeble effervescence in contact with the acid. But again: Six ounces of pure hydrated oxide can not dissolve in one pint of the acid, since 9989·3 grains, equal to 20 ounces, and 389·3 grains of the same will be necessary.

In regard to the present officinal process, it has been stated (through misinterpretation) that it directs to simply heat the iron with the acid to the boiling point, and then decant. This is again fallacious, as an inspection of the officinal formula will testify.

The mixture of iron and acid is directed to stand (at ordinary temperature) until effervescence has ceased. This will depend, in a great measure, on the division, and more so on the quality of the iron used, and to some extent on the concentration of the acid. The effervescence ceases when all, or nearly all, of the acid has been decomposed. This will always be the case when the mixture is permitted to stand some considerable time; otherwise the decomposition of the last portions of the acid must be hastened by the final application of heat. The action progresses most favorably when the acid is moderately diluted; this also prevents a considerable loss that is otherwise incurred by fuming.

The suggestion to heat the iron and acid until effervescence ceases, would cause the loss of much of the latter, or say nothing of the ordeal the operator would be subjected to, unless the process was conducted in the open air. No pharmaceutist can fail to see the inapplicability of such a method.

In the present officinal formula nitric acid is added to peroxidize the iron. The process throughout is elegant in theory, and beautiful in design, but exceedingly difficult and circumstantial in practice, especially when moderately large quantities are operated upon, and therefore will invariably be avoided in preference to any other less laborious and tedious.

The use of nitric acid is very objectionable, since the iron solution must first be brought to the boiling point before its addition. This gives rise to dense and disagreeable fumes of chlorhydric acid gas first, and again to equally obnoxious vapors of hyponitric acid; moreover, the subsequent boiling to expel any remaining binoxide of nitrogen is apt to produce heavy crusts of peroxide on the sides of the vessel, which are very difficult to remove.

Now, the nitric acid can be substituted to great advantage by chlorate of potassa; this does away with boiling temperatures and loss of material incurred thereby. One equivalent of iron as protochloride requires but a twelfth of one equivalent of the chlorate for peroxidation. 12 (FeCl)+6 (HCl)+KO, ClO^5=6 (Fe_2 Cl_3)+KCl+6 HO, with the employment of a very moderate heat, or none at all, if left in contact for some time previous to dilution. No effervescence occurs, and the green color of the solution changes instantly to red, as the oxidation is complete at the moment of adding the chlorate. A twelfth of an equivalent of chloride of potassium is simultaneously formed (equal to 288.84 grains in four pints of the tincture), which is in part deposited after the addition of the alcohol; but, should its presence be any objection, the chlorate of potassa could be replaced by chlorate of soda, as the chloride of sodium generated will be insoluble in alcoholic liquids, and consequently removed. The necessary amount of chlorate of potassa requisite to replace the nitric acid of the formula will be 474.44 grains with chlorate of soda 411·8 grains.

Another process equally practical, or perhaps more so, than the above modification, is based upon the method of double decomposition, or eminently adapted to pharmacy in numerous instances. Protosulphate of iron is decomposed by chloride of sodium; chlorhydric acid added to the mixture, slightly warmed and treated with chlorate of potassa or soda; alcohol is then added, and the whole allowed to stand for some time, then filtered, and the residue washed with alcohol to bring the filtrate to the required measure.

The addition of alcohol produces a voluminous precipitate in the iron solution, which is sulphate of soda, probably in combination with water. This precipitate rapidly loses its bulkiness, and a heavy granular deposit remains. This is evidently anhydrous sulphate of soda, which can be easily separated and washed. The principle of this process is founded on the following reaction:

12 (FeO, SO_3 7 HO)+11 (Na Cl)+6 (HCl) +KO, ClO^5=6 (Fe_2Cl_3)+11 (NaO, SO_3) +KO, SO_3+90 HO.

It is expected that any pharmaceutical chemist who wishes to try these processes will be sufficiently competent to calculate his own formula from this data. But for the benefit of the tyro it has been deemed advisable to submit the following formula, which when properly executed as above described, will yield a result in every respect indentical with the officinal reqirements:

Take of Crystallized protosulphate of iron,	6449·6 grains.
Chloride sodium,	2388·2 "
Chlorate potassa, 474·4 grs. or chlor. sod.	411·8 "
Chlorhydric acid, sp. gr. 1·16.	6½ Troy oz.
Alcohol	3 pints or q s
Water	10 fluid oz.

CHICAGO, *June 24th*, 1869.

Peroxide of Hydrogen, the New Remedy for Diabetis.*

BY C. GILBERT WHEELER, PH. D.

Within the last few months several notices have appeared in the medical journals of Europe, and the eastern portion of our own country, with regard to the employment of peroxide of hydogen in the treatment of diabetic patients. Remarkable success seems to have accompanied its use to such an extent as to awaken a very considerable interest among medical men with regard to this hitherto little known compound. At the recent annual meeting in this city of the State Medical Association, this remedy was brought to the notice of that body by Dr. N. S. Davis, in the able report of the committee on drugs and medicines. This report will be

* Pharmacist, vol. 1, No. 4, p 73.

* From the Pharmacist, July.

found in the *Chicago Medical Examiner* for the present month.

The circumstance, then, of its coming before the public, as thus stated, and likely soon to be an article not unfrequently prescribed, makes it appropriate that the nature and properties of the substance should be more generally and fully known, especially as our ordinary text books on chemistry and pharmacy contain very little with regard to it. Although peroxide of hydrogen has not been studied by chemists as fully as many other compounds, yet much is to be met with in chemical journals, especially those of Germany and France, which has not as yet found its way into American scientific literature.

Peroxide of hydrogen binoxide or deutoxide of hydrogen, hydric peroxide and oxygenated water, are synonyms for a compound of two atoms of hydrogen with two of oxygen, or of two parts by weight of the former with thirty-two of the latter, and having the formula, $H_2 O_2$; water being $H^2 O$, or the formula $H O_2$ according to the antiquated dualistic-nomenclature. It was discovered in 1818 by Thenard, an eminent French chemist.* Has never been prepared direct from its elements, nor obtained perfectly pure, but always in an aqueous solution, the most concentrated having a specific gravity of 1,452. According to Schoenbein, it results from various chemical reactions, but soon spontaneously decomposes. It is formed when the peroxides of barium, strontium, calcium, potassium or sodium are decomposed with acids. It forms during the electrolysis of water acidulated with sulphuric acid, also in many instances where slow oxidation is in progress, and under conditions such as give rise at the same time to the formation of ozone, as, for instance, during the oxidation of phosphorus in moist air.

Schoenbein believes, that, in this case, the oxygen of the air is transformed into ozone and antozone, its electrical opposite, and this latter then combines with the water present to form peroxide of hydogen. In the familiar method of exhibiting the formation of ozone by heating platinum in a vessel of air containing also a small quantity of water and ether, there is formed an appreciable quantity of peroxide of hydrogen along with ozone. Some chemists believe that in all cases where oxidation takes place in moist air, more or less peroxide of hydrogen is formed, as in the rusting of metals, the decay of organic substances, or the respiration of animals,† and that in these processes it plays an important part.

Notwithstanning the many possible methods of forming the peroxide, only those are practically useful, based upon the decomposition of barium peroxide by means of an acid in presence of water.

In the original method of Thenard, hydrochloric acid was employed. But the purification and concentration is, by this method, very difficult and circumstantial. Pelouze employed hydrofluoric acid, also hydrofluosilic acid. But by far the most satisfactory method is that of Balard, as modified by Duprey.‡ A very rapid current of pure carbonic acid is passed through distilled water, and peroxide of barium added in small quantities, care being taken to have the acid always in excess. After filtration, the solution is concentrated under the receiver of an air-pump. A very dilute solution of the peroxide may also be obtained in the following manner, which, for experimental purpose, is an excellent method, and admits of execution sufficiently rapid to be suited for the lecture table, a small amount of the peroxide of potassium is prepared by melting the metal in a test tube, and passing, for a few minutes, a current of oxygen through the same; the peroxide is then added, in small quantities, to an aqueous solution of tartaric acid, and the filtrate will be found to contain a sufficient quantity of the peroxide of hydrogen for the usual tests.

Peroxide of hydrogen, when in the most concentrated aqueous solution, is a colorless, transparent liquid; it has never yet been frozen, and is less volatile than water. Concentrated solutions are strongly bleaching in their action on coloring matters, have a bitter taste, act on the skin, causing it to become white and give rise to itching sensation. Such solutions rapidly decompose, especially on heating. Dilute solutions will keep for months at ordinary temperatures. The peroxide is slightly soluble in ether, and this solution is the remedy recently brought before the public as "ozonic ether," and is used in similar cases as the aqueous solution, and in doses of from 10 to 30 minims three or four times a day in water.

Peroxide of hydrogen is an active oxydising body, and doubtless its efficiency in diabetis depends on this circumstance. Dr. Richardson proposes to use it as a substitute for iodine and mercury in constitutional forms of scrofula and syphilis. The strength of the solution is such that the peroxide on decomposition should yield a volume of oxygen ten times as great as the volume of the solvent.

There are numerous good tests for the peroxide. Two of the most delicate are the following:—I. To a freshly prepared starch solution add iodide of potassium, then the peroxide, and finally a solution of sulphate of iron; a blue color at once appears. II. A slightly acid solution of permanganate of potassa is at once decolorized.

This latter may serve as the basis of a quantitative test, by using a solution of the permanganate of known strength, and thus the practical pharmacist has a means at hand of readily testing the relative strength of his solution of the peroxide from week to week, with a view to establishing the proper dose. This, for an aqueous solution of the strength above given, is one to four fluid drachms repeated three times a day.

* Annual de Chimie et Phys. [2] vol. viii, p. 300.

† See interesting article on, in Erdman's Journal, vol 80, p. 323.

‡ Compt. Rend I 55, p. 736.

Indelible Ink for marking Linen.*

BY DR. REIMANN.

The following are a number of formulæ for preparing indelible ink to be made use of in marking linen. As they have been all thoroughly well-tried and found effectual, it is to be hoped they may prove of some use to the public.

The linen is first moistened with a fluid, consisting of a mixture of, 2 parts carbonate of soda in crystals, 2 parts gum arabic, 8 parts of water, and then dried. When quite dry, it is rubbed with a glass cloth to render it as smooth as possible, so that it may be easier to write upon. The composition of the ink itself is as follows: 1⅔ pts. nitrate of silver, 16 pts. distilled water, 2 pts. gum-arabic, ¼ pt. of sap green. The nitrate of silver is first disolved in the distilled water, and the gum-arabic and sap green are subsequently added.

It is necessary to write with a quill pen, all metallic pens except gold ones, decomposing the ink. It is a good plan to trace the letters with a pencil before writing them.

Marking linen is most conveniently effected by using a pencil and a small copper plate with perforations corresponding to the letters required. This plate is laid upon the linen, and the ink is applied with a pencil to the cut-out spaces, so that these spaces, and these alone are smeared with ink.

The following ink is of service for marking linen with a pencil, when a metallic pattern-tracer is employed. 2 pts. Nitrate of silver, 4 pts. distilled water 2½ pts. gum-arabic, 3 pts. carbonate of soda crystals, 5 pts. liquid ammonia.

The best way to prepare the ink is first to dissolve the nitrate of silver in the liquid ammonia, and the gum-arabic and soda in the distilled water. The two solutions are then mixed together and slightly warmed, when the whole mixture becomes brown. A few drops of a solution of magenta, makes the ink somewhat more distinct. It is of course unnecessary in this method to previously moisten the spot with gum-arabic solution.

For very fine linen the following ink is best employed: 4 pts. Nitrate of silver, 24 pts. distilled water. To this solution liquid ammonia is added, until the precipitate which is first formed is re-dissolved. Then a little sap green, indigo, etc., are ground together, and dissolved in a solution of 4 pts. gum-arabic, and this solution and that of the nitrate or silver mixed together. The whole is then diluted until it occupies 32 parts. This ink is very limpid and easy to write with.

When dry a hot iron need only be passed over the surface of the linen, when the letters will at once make their appearance, their tint being a deep black. This ink does not injuriously affect even the finest linen.

The discovery of an aniline black has led to the employment of this coloring matter in marking linen.

This ink has the advantage of being cheaper than the ink prepared from nitrate of silver. It has also another advantage over the latter salt, viz, that it is chemically indelible. The ink made with nitrate of silver can be removed by washing the linen with a solution of hyposulphite of soda, or by moistening it with a solution of bichloride of copper and then washing with liquid ammonia. This is not the case with the aniline ink, the color of which cannot be removed by any agent whatever. Linen therefore marked with this ink can never be appropriated by any person but the rightful owner.

Such aniline ink may be prepared in the following way: 8½ grs. of Bichloride of copper are dissolved in 30 grains of distilled water, then are added 10 grains of common salt, and 9½ grains of liquid ammonia. A solution of 30 grains of hydrochlorate of aniline in 20 grains of distilled water is then added to 20 grains of a solution of gum-arabic, containing 2 pts. water, 1 pt. gum-arabic, and lastly 10 grains of glycerin. Four parts of the aniline solution thus prepared are mixed with one part of the copper solution.

*From the Scientific American.

The liquid which results has a green appearance, and may be at once employed for marking linen, since it invariably becomes black after a few days. A steel pen may be employed as well as a quill. If it is desirable not to wait so long for the appearance of the black color, a hot iron may be passed over the writing when the ink is dry, or the linen held over the flame of a spirit lamp, or over a hot plate, or hot water, when the black tint will readily appear.

It is a good plan to put the linen when marked into a tepid solution of soap, which has the effect of bringing out a fine bluish tint. The ink must be so limpid that it is able to permeate the tissue of the linen, so that the marks appear on both sides.

It is advisable to mix the solutions together, only when the ir' has to be made use of.

The ink is perfectly indelible, and so easy to write with that the finest devices may be drawn with it.

A very cheap brown marking ink may be prepared from binoxide of manganese, as follows: 4 pts. acetate of manganese dissolved in 12 pts. of water.

The place on the linen where the marks have to be made, must be previously moistened with the following solution: 1 pt. yellow prussiate of potash, ½ pt. gum-arabic, 3 pts. water. The linen having been saturated with the above solution, is then dried, and afterwards marked with the manganese solution. On the letters becoming dry, the following solution is spread over the spot with a pencil: 4 pts. carbonate of potash, 10 pts. water. The letters then become brown, and their color cannot be removed by alkalies, nor by acids, with the exception of dilute hydrochloric acid.

A purple marking ink can be prepared by employing bichloride of platinum. 1 pt. bichloride of platinum, 16 pts. distilled water.

The place where the letters have to be written, must be moistened with a solution of 3 pts. carbonate of soda, 3pts. gum.arabic, 12 pts. water. The spot is then dried and made smooth. After the letters have been written with the platinum ink and become dry, the linen is moistened with a solution of 1 pt. chloride of tin, 4 pts distilled water, when an intense and beautiful purple red makes its appearance.

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THE CANADIAN
Pharmaceutical Journal.
E. B. SHUTTLEWORTH, EDITOR.

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

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"EDITOR CANADIAN PHARMACEUTICAL JOURNAL, TORONTO."

INTRODUCTION OF THE METRICAL SYSTEM OF WEIGHTS AND MEASURES INTO PHARMACY.

Our readers have been already apprised of the discussion which has taken place, amongst English pharmacists, relative to the adoption of the metrical system of weights and measures, in pharmacy. No decisive step has yet been taken, but there seems to be an evident wish, on the part of the more intelligent class of druggists, to press the matter to an issue. It will readily be seen that a great deal of opposition will have to be overcome, owing to the strong conservatism of the English people. The old troy grain, however unscientific its derivation, and the ounce and pound, though lacking in harmony, retain a hold on the public mind which it will be difficult to supplant. The revolutionizing of a system of weights and measures, is, in every country, an operation of no small magnitude, implying, for a time, an inestimable amount of inconvenience and perplexity. Practical men are very apt to question the propriety of incurring this trouble, and are slow to recognize advantages purchased at so great a cost, especially if the system in use gives tolerable satisfaction. One of our cotemporaries goes so far as to say that the lives of Her Majesty's subjects would be materially shortened by the introduction of the metrical system, from the great amount of annoyance incident thereto. We have no fear on this score, and think that Her Majesty's lieges would be none the worse of the requsite brightening up. Of a general revolution, however, including all classes, we fear there is little hopes for many years to come. When we hear a true-born Britisher demanding his quantum of the national beverage, by asking for "five decilitres of 'arf-and-'arf," we shall be prepared to receive or believe anything.

In regard to pharmacy, the case is entirely different. The pharmacist is, or should be, an educated man, free from the prejudices which characterize the common mass, and to whom the acquirement of a new system would be an easy and pleasing task—easy, in this case, from the beautiful simplicity and harmony which characterize it—pleasing, from the conviction that a step is being taken which promises to be of permanent advantage, and which adds to the general advancement of knowledge.

The want of a satisfactory and rational system of weights and measures has long been felt in pharmacy. Witness the frequent vacillations between troy and avoirdupois—wine and imperial; all of which, have, in turn, proved unsatisfactory; the only result being a Babelistic confusion of quantities, truly perplexing. Do we wish to make a preparation from a former pharmacoœia, it becomes necessary to know the value of the quantities at the time—the ounce of to-day is not that of a few years ago, and drachms and scruples, are heard of no more.

It has been asserted that the decimal system is not perfect; that it is not as convenient as an octavial one; that the standard taken does not admit of more ready verification than with others. These are, no doubt, valid objections, but when taken with the fact that it has been tried and recommended by the greater part of the scientific men of the day, and that the civilized nations of the earth have either adopted it, or are contemplating doing so—these objections are of small weight.

The decimal system of coinage has been found of great utility, and no nation which has adopted it would now think of its abandonment. For our own part, and we know we speak the sentiments of the people of Canada, and the United States, we should be very loth to return to the days of pounds, shillings, and pence—not to mention farthings, and sundry other nondescript and various denominations. The increased facilities for keeping accounts which the new system possesses, has effected a saving of time, which, in large establishments is pecuniarily perceptable. The introduction of the metrical system of weights would be of still greater service to druggists, who, as a class, are unfortunately seldom troubled with the contemplation of large figures in their ledgers, and whose weekly profits can often be computed by the aid of a little digital enumeration.

The great difficulty in the way of the introduction of the new system appears to be the apparent trouble of associating a just idea of quantity with the new weights. Numerous expedients have been suggested; such as the making of coins to represent certain weights; the cutting of postage stamps of a size, indicative of a certain measurement. These would prove material helps, by bringing the

new quantities frequently before the observation, but we are inclined to the belief that this difficulty has been much exaggerated, and think that an hours study of the new weights, and the use of a set of French weights and measures, for even a few days, would insure, in the great majority of instances, the requisite familiarity.

We notice that the Pharmaceutical Board, of Great Britian require a knowledge of the new system, from those who come before them for examination. This may be held to imply that the next pharmacopœia will require such knowledge, and we think this more than likely. If such be the case, it is time that attention was directed to the subject, so that that when our transatlantic fathers shall command, our apprentices may be found as familiar with grammes and litres, as they now are with the common denominations of the old avoirdupois.

In another page will be found a table of the values of the more common French weights and measures, together with a series of useful rules, for the intermutation of the two systems.

THE PERCENTAGE SYSTEM.

In another column will be found a communication from an esteemed correspondent in Montreal, complaining of the injustice of a system, which, though widely prevalent, is none the less to be discountenanced—we refer to the allowing of a percentage on prescriptions. That such a system exists to a large extent throughout Canada, is an undeniable fact; that it is undignified on the part of the profession; unfair when practised by the druggist; and dishonest towards the public, is equally apparent. We shall endeavour to prove this.

In the first place we hold the physician and druggist, with their respective callings, as distinct and separate; the right of one is to prescribe, that of the other to dispense; each is, or should be, capable of performing his part without colliding with the other; and should keep to that part—in the strictest sense, "minding his own business." The recent Medical Act very sharply defines the line of demarkation, over which the druggist may not pass; by enacting that "no person shall be entitled to recover any charge in any court of law for any medical or surgical advice, or for any attendance, or for the performance of any operation, or for any medicine which he shall have both supplied and prescribed, unless he shall prove upon the trial that he is registered under this Act" (i. e. unless he be a legally qualified medicine practitioner.) If then the druggist is so effectually cut off, by medical law, from any profits he might derive from prescribing, we think the charge of "undignified" professional business may well lie at the door of the physician who tries to add to his gains by pilfering the scanty earnings of the poor apothecary.

A correspondent of the Montreal *Star*, appears to take a similar view of the subject, he says:

"Is it fair? Is it honest? Unfortunately I am a druggist, and as such I am frequently called upon by my customers to prescribe for their little ailments. Knowing that it is not lawful in the country for druggists to prescribe, I invariably refer them to the doctor, and what return do you think I get for doing so? Why, sir, in nine cases out of ten, my customer is prescribed for by the doctor, *and sent to some other store to get his prescription dispensed*; and this is an every day occurrence. Now, I should like to ask the doctor, whether the druggist has any incentive to keep within the law, and not poach on the doctors' preserves?

The only remedy which the druggists, who refuse to commit themselves to this abominable percentage system, can apply, is to open the eyes of the public to the fact, that they have a perfect right to to take their prescriptions to their own family druggist, and that for a doctor to order them not to do so, is a piece of impertinence and professional humbug, which very few families in England would submit to.

When a doctor knowingly influences his patient, to leave the drug store, where he may have dealt with satisfaction for years, in order to send him elsewhere, and that for no other reason, but because he had an underhand arrangement, whereby he gets back part of the money paid to the druggist for medicines, in addition to his regular fee, it is such a self-evident breach of medical etiquette, as well as such a mean piece of injustice to druggists generally, that it is surprising, that men who are forever pitching into quackery and humbug, and who hold positions as professors of medical colleges, should be guilty of such practices."

From a perusal of the above paragraph, the London *Chemist and Druggist* is led to to think that "the members of the medical profession, in Canada, do not appear to be immaculate." We are inclined, in some measure, to the same opinion, and rather think if druggists would ask a percentage from physicians to whom they recommend patients, the medical profession would stigmatize the interference with a stronger term than "undignified."

The charge of unfairness alleged against those giving a percentage, may be disposed of at the same time with that of dishonesty to the public.

It may be assumed as a law of fair trading that every article has a certain just value, which is regulated by certain known conditions, but which cannot be departed from, without doing injustice, either to the purchaser or the seller. The honest druggist calculates the average value of materials and labor, adds what he considers a just profit, and asks for his mixture a certain fixed price, allowing of no abatement, either to doctor or patient. The result is that his prescription book is lean and famished, while that of his rival, across the street, who allows 33 per cent. to the prescriber, literally stands out with fatness. He wonders how the thing is managed, and perhaps consoles himself with thinking that his compromising opponent is playing a losing game for the sake of custom. Perhaps he is. There is another way, however, of unravelling the mystery, of which the Montreal *Witness* has got the cue. In remarking on a similar case that journal says:

"The druggist preferred by the doctor *charged a higher price*, and, on one occasion, through a *cheap and inefficient assistant*, furnished a very dangerous substitute instead of the right medicine." Cheap drugs, incompetent assistants, and high prices, reveal the secret; either this or dead loss, for we hold that no honest trade can admit of a reduction of 33 per cent. in its profits—and this we are assured is the usual percentage. This, like all other evils, will work its own cure. The public cannot long remain blind to such a flimsy artifice, and the sooner the veil is raised, the better for honest men.

THE COMING U. S. PHARMACOPŒIA.

We notice the announcement of a meeting, to be held at Washington, on the first Wednesday in May, 1870, for the purpose of revising the U. S. Dispensatory. Delegates, not to exceed three in number, are invited from each of the incorporated Medical Societies, and Colleges, and incorporated Colleges of Pharmacy, throughout the United States.

Although, in Canada, we are not supposed to be directly interested in the revision of an authority of a different nationality, yet we are sure that the coming volume will be looked for, here, with as much anxiety as on the other side; nor do we think the wish to have the revision as complete as possible is less sincere. We have always looked upon the U. S. P. as an admirable work, not only as furnishing good, practical formula, but as conveying an incomparable amount of information on the subjects on which it treats, acceptable to both master and pupil. Were it not for our national vanity we might institute a comparison which would be quite flattering to our American cousins; but suffice it to say, that we believe the Dispensatory to be more widely disseminated throughout Canada than any other authority, and this fact speaks for itself.

We approve of the plan pursued in reference to this work; that is the combination of the formula and directions with the materia medica, and chemistry of the different preparations. It may be argued that a bulky volume is produced, which is not so good for reference. This is to some extent

true, but, we think, is more than counterbalanced by furnishing information readily, when required. Besides, where one druggist is in possession of separate works on chemistry, pharmacy and materia medica, a hundred can afford to purchase a Pharmacopœia.

It is commonly said that unasked advice is not acceptable; we should, however, like to make two suggestions in regard to the coming volume. One is the total abandonment of the estimation of quantities by measure; the other is the adoption of the metrical system of weights. These would tend much to accuracy and convenience, and, we think, are essential to a scientific completeness.

OUR LIBRARY AND MUSEUM.

DONATIONS WANTED.

The formation of a Library and Museum was one of the first objects contemplated by the society. Without these valuable auxilliaries, our association would, indeed, be incomplete. Donations have from time to time been received, and we have the promise of material help from our friends in Europe. At the annual election of officers, last July, we were appointed Librarian and Curator, in which capacity we now appeal to those interested in the welfare of the Society, for assistance in the undertaking. Specimens of natural products, chemical or pharmaceutical preparations, or other objects of interest to druggists, or likely to prove instructive to students, are solicited, and in all cases will be acknowledged in the JOURNAL.

We hope, also, by the assistance of our friends, to be able to establish a library, which, in the event of the formation of the contemplated school of Pharmacy, will be absolutely indispensible. For this end a considerable sum of money will be required, for which we must mainly depend on the generosity of those who have the advancement of the cause at heart.

Parcels directed in care of any of the wholesale druggists in town, will reach us, or may be sent directly to our address.

MONTHLY MEETING.—Whether owing to the state of the weather, and the consequent attendance required at the soda-water fountains to dispense "nectar" to a thirsty populace, or whether to be attributed to the number of druggists absent on holiday expeditions, we know not; but at all events, on the night of meeting, the attendance was so small that it was thought advisable to adjourn without the transaction of business. Now the "heated term" is over, we trust that a larger number will attend; and for the future it might be well to dispense with the meetings during the hottest summer months. Notice of motion has been given regarding the changing of the time of meeting from Wednesday until Friday evenings. This will not come into effect until the meeting after next, but it will be certainly a change for the better. Wednesday evening is, in Toronto, pre-eminently devoted to religious exercises, and from this cause a large number of druggists are prevented from being present at the meetings of the Society, duty being properly regarded before pleasure.

EDITORIAL SUMMARY.

Chuquiraga Insignis.

Mr Collins, Curator of the Museum of the Pharmaceutical Society of Great Britain, who kindly presented the Society here with a specimen of the above plant: lately sent us a reprint of his paper—"On some New or Little-known Vegetable Products"—in which the *Chuquiragua* receives the following notice:—

"This prickly plant, the leaves and young shoots of which are very highly prized at the commencement of any kind of fever by the Indians of Columbia, I noticed in London last summer, a bale of it having been sent to Messrs. Im Thurn and Co., described as "a medicinal grass from Guayaquil." It seems to have been first offered for sale in this country in 1864. This plant seems to have already attracted the attention of writers on Materia Medica. Mérat and de Lens* notice it as being "a plant of Upper Peru, employed at Payta in the form of an infusion against fevers."

Dr. J. Léon Soubeiran, in a note read before the Société de Pharmacie de Paris, after noticing its habitat, observes:—

"The Indians say that the decoction or infusion of this plant, which is very bitter, is of great power in fevers; especially such as intermittent or bilious. In the towns, alcoholic tinctures, syrups, etc., prepared from this plant, are used by the physicians. Drs. Jameson and Gandara, of Quito, have employed it in numerous cases with great success."†

The fullest account I have met with respecting this plant is in a letter by Dr. Raphael Barahona (Physician to the Medical Hospital and Professor of Physiology in the University of Quito,) quoted by Professor Jameson in a paper on the *Compositæ* of the Andes.‡ The paper is too long to repeat here, but Dr. Barahona gives, as the result of lengthened public and private practice, a very high character of the medical value of this plant. The Chuquiragua is a very abundant plant in South America, and grows up to the snow line on the Andean Mountains, its small glossy leaves of about ½ inch long, and its large, bright yellow composite flowers rendering it a pretty object, which would look well in European gardens. The whole of the plant is very bitter, but the leaves seem to be the most powerful. The plant, at all events, deserves a chemical analysis. My specimens appear to be the var. *microphylla* of *Chuquiraga insignis*.

* 'Dictionary de Matière Medicale,' tome ii. p. 276.
† 'Journal de Pharmacie et de Chimie,' Oct., '68, p. 303.
‡ Trans. Bot. Soc. Edin. vol. ix. p. 115, March, 1867.

Correspondence.

QUESTIONABLE TRADING.

To the Editor of the Pharmaceutical Journal:

SIR,—Yours being the recognized organ of the druggists of the Dominion, I beg to address you on a subject which has recently been brought before the public of this city, through the medium of the press. I allude to the undignified and, in my opinion, the dishonest practice of giving a percentage to physicians for their prescriptions.

In private conversation, I have frequently brought up the subject to my confreres, but I have never heard one of them enter into a defence of the system; in fact, one of the sinners, in this respect, assured me that his best, *i.e*, his wealthiest, customers, who are in the habit of consulting a leading physician here, were continually being influenced away from him, in order to induce them to get their prescriptions dispensed at a leading drug store, *where the physician is paid* 33⅓ *per cent. on all the prescriptions he can send.* What wonder, then, that the avarice of this physician should override all his better feelings?

I was on Great St. James Street not ten minutes since, and saw one of my best and oldest Sherbrooke Street customers go into a drug store which I know pays a percentage to her physician. The lady in question has been an *habitué* of my shop for more than eight years, and yet she never brought a single prescription to be dispensed. Notwithstanding the pressure against the druggists of Montreal who refuse to give way to this unfair and degrading system, I must say that their turn is coming, and the more publicity is given to the matter, the better it will be for the non-percentage men.

The public may be hoodwinked for a time by a designing physician and a dishonest apothecary; but depend upon it, when they see through the little game, the upright man, who asks for a fair field and no favor, will have no cause to be ashamed.

Yours truly, CHEMICUS.

MONTREAL, Aug. 20, 1860.

BOOK NOTICES.

RESEARCHES INTO THE CONSTITUTION OF THE OPIUM BASES. By AUGUSTUS MATTHIESON, F.R.S., and C. R. A. WRIGHT, B.Sc.

This pamphlet contains the substance of a paper brought before the Royal Society, announcing the discovery of a new base, which the authors propose calling *Apomorphia*. Perfectly pure morphia, supplied by the Messrs. M'Farlane, Edinburgh, was subjected to the action of hydrochloric acid (10 cubic centims, of 35 per cent. acid to one gramme morphia), in sealed tubes, and heated

to 140° to 150° for two or three hours. The product was the hydrochlorate of the new base, a substance differing greatly from morphia. In alcohol, ether, and chloroform it is soluble, and to a slight extent in water also. A table, showing the most marked reactions of apomorphia, as contrasted with morphia, is given. The physiological effects of the new system are very different from those of morphia: one quarter of a grain produces vomiting in from four to ten minutes, and no ill after-effects are realized. It will probably be introduced into medicine as a non-irritant emetic.

THE PHARMACIST AND CHEMICAL RECORD. Chicago. July.

We are glad to see that the success which has attended this journal has been such as to warrant its appearance as a monthly. It is published, as before, under the sanction of the Chicago College of Pharmacy, and is edited by Alfred E. Ebert, assisted by E. H. Sargent, the former editor. The cause of pharmacy in the West will, no doubt, be much advanced by the able efforts of this journal, and we trust it will meet with the hearty and deserved support of druggists, both in the United States and Canada.

Tinctura Iodinii Decolorata.*

BY CHAS. O. CURTMAN, M.D.,
Prof. of Chemistry in the Missouri Medical College.

A colorless tincture of iodine for external application to the face, neck and hands, has so many obvious advantages over the common officinal compounds that various efforts have been made to obtain a reliable preparation, which, while it retains the valuable properties of the iodine, does away with its objectionable features. Most prominent among these objections are the unsightly stains inseparable from the use of the common tinctures. Different formulæ have been from time to time made public for accomplishing decoloration; some of them using alkaline sulphites, hyposulphites, which convert the free iodine into an alkaline iodide, and have no preference over a simple solution of iodide of potassium or sodium. Others effect the discharge of the color by carbolic acid, which certainly gives good results, but may not always be considered a desirable addition; others again convert the free iodine of either the simple or compound tincture into ammonia compounds-by the addition of aqua ammoniæ in various proportions, and this seems to me the method de ing preference over the others on account .. the greater volatility of the resulting product, and its better adaptation to speedy absorption. The formulæ based upon the action of ammonia, however, differ widely in their proportions of iodine and of ammonia among themselves, and from the corresponding officinal preparations of the U. S. Pharmacopœia, and varying so much in strength they have, perhaps on that account, found less favor than they deserve.

Now, the Tinctura iodinii, U. S. P., contains 30 grains of iodine per ounce, all of it uncombined. The Tinctura Iodinii Composita, U. S. P., contains 38 grains of iodine, (15 grains of free iodine and 23 grains of iodine combined with potassium), As the iodine in the colorless preparation does not exist in a free state, but in that of ammonia compounds, which acts somewhat less energetically than the free metalloid, the proportions of the compound tincture, 38 grains of iodine per ounce, are probably the best, and this would require about one and one quarter ounces per pint.

To exactly convert this amount of iodine into colorless iodide of ammonium, 309 minims (about five fluid-drachms) of Aqua Ammoniæ fortior U. S. P. (spec. grav. 0·900) per pint, or about 20 minims per ounce are requisite. The published formulæ give considerably more than that, some of them recommending half a pint; some only four fluid-ounces per pint of tincture, but all of them agree in using vastly more than theory requires, and thereby make the preparation objectionable on account of irritating ammonia vapor, which though it may prove very useful in many cases, should certainly not always be present; at least its addition should be left to extemporaneous prescription. On the other hand, the employment of only the theoretical quantity results in decoloration so slowly as to be practically and virtually inapplicable.

Experiments instituted to ascertain the least amount of ammonia by which the tincture could be rendered colorless in a reasonable space of time, gave the following results. Into nine vials the ingredients for the tincture were placed in varying proportions, thus:

	I	II	III	IV	V	VI	VII	VIII	IX
Iodine, grs.	38	38	38	38	38	38	38	38	38
Alcohol ℥	8	7½	7	6½	6	5½	5	4½	4
Aq. Am. fort. ℥	½	1	1½	2	2½	3	3½	4

No special precautions were taken in regard to the regulation of light or temperature. The iodine was completely dissolved in the alcohol before the addition of ammonia, which occasioned a copious dark precipitate re-dissolving in a few hours. No. 1 was simply kept for comparison of color. Even during the first few hours a slight decoloration appeared in every vial, but was most decided in No. 9, which bleached from day to day, and on the third day retained only a deep straw color, while the others had lost their color in strict proportion to the quantity of ammonia present—No. 2 being yet very dark, though considerably lighter than No. 1.

For complete decoloration, No. 9 required 5 days; No. 8, 8 days; No. 7, 11 days; No. 6, 15 days; No. 5, 21 days; No. 4, 27 days; No. 3, 37 days; No. 2, at the expiration of six weeks, still retained considerable color, being as dark as No. 8 on the second day.

From the above data the following working formula would appear most appropriate for general application:

	For 1 pint.	For 1℥.
Iodine,	1¼ oz.	38 grains.
Alcohol,	13 f. oz.	6½f℥
Aqua Am. fort.	3 f. oz.	1½f℥

Dissolve the iodine completely in the alcohol then add the ammonia. This occasions at first a dark precipitate of iodide of nitrogen, which, however, soon re-dissolves and is entirely decomposed. Set aside for four weeks or until perfectly colorless. Occasional shaking up is advantageous. More ammonia would hasten the process of decoloration, but should be avoided. When pure materials are employed no filtration is necessary.

If, however, the presence of iodide of potassium should be deemed preferable, according to the proportions of the Tinctura Iodinii Composita, U. S. P., the amount of ammonia may be still further reduced, as over half of the whole amount of iodine present is already in combination with potassium. The following experiment was made to ascertain the best proportions—four vials were filled with:

	No. 1.	No. 2.	No. 3.	No. 4.
Iodine, grains	15	15	15	15
Iodide posassium, gr.	30	30	30	30
Alcohol, fluid-drms.	7½	7	6½	6
Aq. Am. fort. fl-dr.	½	1	1½	2

No. 4 lost color very quickly, and on the fourth day was only of a pale straw color; while No. 1 was yet very dark, though much lighter than the tincture without ammonia; the intermediate numbers were also intermediate in color. For complete decoloration, No. 4 required 6 days; No. 3, 9 days; No. 2, 27 days; No. 1, 35 days. The proportions of No. 1, therefore, would be least objectionable on account of its small quantity of ammonia, though requiring rather a long time for decoloration.

A modification of this process for a speedy preparations of colorless tincture of iodine without excess of ammonia has suggested itself to me, and upon trial given satisfactory results; I would only recommend it in cases where the shortness of time forbids the employment of the other. This consists in speedily decolorizing the solution of iodine in alcohol by a surplus of ammonia, and, after decoloration, carefully adding hydrochloric acid until the reaction remains but feebly alkaline. The hydrochloric acid forms with the free ammonia chloride of ammonium, which, being but slightly soluble in alcohol, is nearly all precipitated in the form of a white crystalline powder, while the iodide of ammonium and iodate of ammonia remain in solution. An addition of even a slight excess of acid would destroy the preparation, restoring the color of the tincture, by decomposing the ammonia compounds of iodine; the precipitate can be readily removed by filtration. Very strong alcohol should be employed in this process, as the completeness of the precipitation of chloride of ammonium is in direct proportion to the strength of the alcohol. As some of the chloride of ammonium, however, remains in all cases, and more material is required to accomplish the same object, I should give the simpler process of slow decoloration by addition of a minimum of ammonia the preference.

*From the St. Louis Medical Reporter.

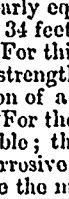
Filtration under Pressure.

Professor R. Bunsen of Heidelberg has recently devised a very excellent improvement in the tedious, but all important operation of filtration. This new method may easily be applied whenever a supply of water and a good fall of from 10 to 30 feet are at disposal. In all towns with water works and drains, it is easy to put this method into practice; the saving of time is enormous, for Bunsen finished a washing of chromium hydrate in 13 minutes, while, according to the old process, 7 hours were required, representing a saving of 97 per cent. of time. This method will evidently be of very great use to the pharmacist.

Bunsen proved that the rapidity of filtration is very nearly proportional to the pressure under which it is effected. In the old way, when filtration is performed in the atmosphere, the pressure is but very small. The new method consists in receiving the filtrate in a partial vacuum, so that filtration takes place under a pressure more or less nearly equal to that of the atmosphere—30 to 34 feet, instead of a few inches of water.

For this purpose two things are necessary, a strengthening of the filter and the production of a vacuum.

For the latter purpose air pumps are applicable; the vapor of water, and especially the corrosive vapors of acid, would soon deteriorate the machine. The vacuum is easiest produced by means of a stream of water flowing down a vertical tube ABC, which latter is connected with the receiver by a tube BD, which at an acute angle, enters the main tube ABC. If the tube BC be passed through one or two stories, and connected below with a drain, a very effective filtration under pressure will be possible. Even a fall of 8 feet is quite effective.



The receiver D consists of a strong glass vessel to receive the filtrate, closed air tight by means of a good stopper (best of rubber) through which the funnel and a glass tube pass, likewise air tight. The glass tube is connected with the tube DB by means of a stout rubber tube. In the very accurate funnel is a circular and *very thin* piece of platinum foil, slit up along one of its radii, and folded exactly like a smooth filter; this platinum-foil filter serves to enable the paper filter to sustain the pressure, but does not hinder the filtration. The circular plate of platinum is from 1 to 1½ inches in diameter.

The operation of this apparatus will now readily be understood. As soon as the water falls down the tube ABC, air is borne along between the drops (as in the old Catalonial bellows.) If the apparatus is tight, the air can only come from the receiver, which therefore rapidly will be evacuated, so that the pressure of the atmosphere being no longer balanced from inside of the receiver, will force the liquid rapidly through the filter.—GUSTAVUS HINRICKS, in the *Pharmacist*.

Sympathetic Inks.

Various chemical substances are used as sympathetic inks—a moderately dilute solution of chloride of cobalt is perhaps the most popular. Letters written with it are first scarcely perceptible, but when gently warmed they become quite visible, being at first of a rich red color, which rapidly changes to green. Advantage has been taken of this fact to produce drawings, in which the houses, branches of trees, etc., are drawn with ordinary India ink, while, for the foliage, the cobalt ink is used. So long as the pictures remain cold, they represent a cheerless winter scene; but when brought near the fire, they rapidly assume the brilliant and beautiful foliage of spring or summer. This phenomenon is mentioned in a book on alchemy, printed in the year 1705, and bearing a title which we translate, *Clue to the Cabinet of the Secret Treasury of Nature*. In 1736, a vagrant alchemist performed the trick in Paris for money; but it has now ceased to be a wonder, and is considered only as one of the many amusing plays of chemistry.

French and English Weights and Measures.

	Grains.	Av. oz. B.P.	Troy oz. P.L.
1 Centigramme =	0·154		
1 Decigramme =	1·543		
1 Gramme =	15·432		
1 Kilogramme =	15432.349	= 35.274	= 32.151

	Fl. drachm.	Fl. oz.	Pint.
1 Litre =	281·720	= 35·215	= 1·761

	Grammes.
1 grain =	0·605
1 Av. oz. =	28·349
1 Av. lb. =	453·593
1 Troy dr. P.L. =	3·888
1 Troy oz. P.L. =	31·103
1 Troy lb. P.L. =	373·242

	Litres.
1 Fluid dr.	0·0035
1 Fluid oz.	0·0284
1 Pint	0·5679
1 Gallon	4·5434

NOTE.—For all practical purposes we may regard—

The centigramme to equal 1-7th of a grain;
" decigramme " 1½ grain;
" gramme " 15½ grains;
" kilogramme " { 35 oz. Av., B.P. or 32 oz. Troy, P.L.
" litre " 35¼ fluid ounces;
" oz. Av., B.P. " 28 grammes;
" oz. Troy, P.L. " 31 grammes.

The Tables printed in the British Pharmacopœia furnish exact data for all calculations connected with Pharmaceutic weights and measures, including those involved in the intermutation of the British and French systems. But calculations made with such unwieldly numbers as 15432·348, 15 432, 3·549, and 437·5 are necessarily very troublesome, and the results obtained may easily be misinterpreted by those who have had little practice in operating with decimal fractions. To avoid the trouble of multiplying and dividing by such numbers, the following simple rules may be adopted, when absolute accuracy is not required—

TO REDUCE AVOIRDUPOIS OUNCES TO GRAINS.

Multiply by 44, *and add a cipher to the product.*

Examples:—1×44 = 44 or 440 grains.
4×44 = 176 " 1760 "
8×44 = 352 " 3520 "
16×44 = 704 " 7040 "

[The results thus obtained exceed the true equivalents by 2½ grains per ounce, and may be readily corrected when necessary by subtraction. For example, 1760 less four times 2½, or 10, equals 1750, the exact number of grains in 4 oz.]

TO CONVERT GRAINS INTO AVOIRDUPOIS OUNCES.

Multiply by 23 *and cancel four figures on the right of the product.*

Examples.—875×23 = 2,0125 or 2 oz.
4375×23 = 10,0625 " 10 "
7000×23 = 16,1000 " 16 "

[The fractional values of one-quarter, one-half, and three-quarters of an ounce, are respectively indicated by numbers approximating to 2500, 5000, and 7500 in the cancelled portion of the product. Thus 766×23 = 1,7618 or 1¾ oz.]

TO CONVERT FRENCH GRAMMES INTO ENGLISH GRAINS.

Multiply by 154 *and cancel the last figure of the product.*

Examples:—4×154 = 61,6 or 61 grs.
10×154 = 154,0 " 154 "
25×154 = 385,0 " 385 "
1000×154 = 15400,0 " 15400 "

[The results thus obtained come very near to the true equivalents. With 1000 grammes or 1 kilogramme, the difference does not amount to 33 grains.

TO CONVERT ENGLISH GRAINS INTO FRENCH GRAMMES.

Multiply by 65 *and cancel three figures on the right of the product.*

Examples:—437×65 = 28,405 or 28 gram's.
2625×65 = 170,625 " 170 "
7000×65 = 455,000 " 455 "

[The results thus obtained are sufficiently accurate for all practical purposes. The error with 7000 grains, or 1 lb. does not amount to 1½ grammes.]

TO CONVERT FRENCH CUBIC CENTIMETRES INTO FLUID DRACHMS.

Multiply by 28 *and cancel two figures on the right of the product.*

Examples.—11×28 = 3,08 or 3 fl drs.
29×28 = 8,12 " 8 "
1000×28 = 280,00 " 280 "

[The results obtained by this rule are pretty accurate. The error with 1000 cubic centimetres, or 1 litre, corresponds to about 2 drachms.]

TO CONVERT FLUID DRACHMS INTO FRENCH CUBIC CENTIMETRES.

Multiply by 35 *and cancel the last figure of the product.*

Examples.—8×35 = 28,0 or 28 cub. cent.
160×35 = 560,0 " 560 "

[The results are a little too low; however, the error with 160 fl drachms or 1 pint, does not amount to 8 cubic centrimetres.]

J. C. B.

—*From Chemists' and Druggists' Almanac*, 1868.

A New Hypnotic.

Chloral, and Trichloracetic acid, will, under certain conditions, in alkaline solutions, generate chloroform. This fact has been turned to profit by Dr. Oscar Liebreich, of Berlin. He has administered an aqueous solution of chloral, hypodermically, first to rabbits, and then to a patient. 0·1 gramme, thus administered to a young rabbit, produced an effect within ten minutes. The animal fell into a deep sleep, during which he could be moved in any way without awaking; the respiration and pulse were somewhat retarded, regularly and reflex excitability remained. An adult rabbit received 0·3 gram., and went through the same series of phenomena; finally losing reflex excitability, he lay for some hours breathing quietly, then awoke suddenly, and seemed quite well. Subsequent experiments upon a patient in the Charité Hospital seem to show that chloral, administered by the stomach or by subcutaneous injection, is a sure hypnotic, free from danger and followed by no ill results. It acted well even when large doses of opium or morphine failed. It is not yet an article of commerce, but, it is hoped, will soon be manufactured upon a large scale. [*Virhhow's Arch.*, 47 B. 1 H.]—*In Boston Med. and Surg. Journal.*

Mercurial Ointment.

M. Van der Anwermaulen suggests the addition of water to mercurial ointment, to facilitate the subdivision of the mercury. He takes, to 100 parts of mercury, 100 of lard and 5 of water, and claims to use but a few minutes for the thorough incorporation of the substances, while the ointment, after four months, yet retained its color and freshness.—*Pharmacist.*

Testing the Strength of Acetic Acid.

In attempting to determine the strength of acetic acid by means of the hydrometer, it will be remarked that certain anomalies present themselves: thus, there is no difference in the specific gravities of acids containing respectively 53 and 100 per cent of true acetic hydrate, both having precisely the same density, 1063, at 60° Fahr. (water = 1,000). The heaviest liquid acid is that containing 80 per cent., the specific gravity of which is a trifle over 1073; but from this point upwards to the acid of 99 per cent., there is no appreciable difference in the gravity. Again, a sample weighing 1037 may either represent an acid of 60 per cent., or may contain as much as 98 per cent of true acid. It is, therefore, customary to guarantee the highest degree of concentration by specifying the temperature at which the acid becomes solid, or, rather, the highest point at which the already glacial acid resists liquefaction. Another guide which may often prove serviceable in the identification of an acid which, although of a high degree of concentration, is not actually glacial, is the fact observed, we believe, independently by M. Berthelot and Mr. E. Chambers Nicholson, that such acid becomes inflammable when the temperature is raised to the boiling-point, it will be found that the vapour takes fire on applying a lighted match, and burns steadily as long as the ebullition is maintained; if, however, 10 per cent. of water be mixed with the sample there will be a great difficulty in causing inflammation, and the vapour when ignited will only burn with a lambent flame of pale blue separated cones, whilst below this strength the acid vapour is altogether uninflammable. By this test, then (avoiding a too prolonged ebullition, which increases the strength of a weak acid), we have a ready means of estimating the quality of liquid samples of a high degree of concentration without restoring to the more tedious method of acidimetry. It has only to be stated, in conclusion, that the boiling-point of the ordinary qualities of acetic acid, although higher, is so little removed from that of water that the indications of the thermometer are not much more to be relied upon than those of the hydrometer. In many respects carbolic acid imitates the deportment of acetic acid in the characters above described; it likewise becomes glacial upon separation of the last traces of water.—*Photographic Journal.*

The Manufacture of Glycerine.

Glycerine is the base of fat, as lime is the base of marble; potash, the base of saltpetre; soda, the base of Glauber's-salt, etc. The other constituent of the fat is one or more acids, as carbonic acid is that of marble; nitric acid, that of saltpetre; sulphuric acid, that of Glauber's-salt, &c. The names of these fatty acids are stearic, margaric, and oleic; they are present in different proportions in different fats. Stearic is the most solid, and is the material from which the so-called stearine candles are made; margaric acid is softer, and oleic acid is fluid, like oil.

To separate the glycerine, it was formerly supposed to be necessary to convert the fat into soap. Soap is a compound of an alkaline base with a fatty acid; potash and soda give soaps soluble in water; lime and oxide of lead give soaps insoluble in water. In the potash and soda soaps, the greater portion of the glycerine remains in solution, as glycerine is very soluble in water; also, in making a lime or lead soap, the insoluble soap separates, and leaves the glycerine alone in solution in the water; for this reason, oxide of lead was used to separate the glycerine from the fat. It was boiled with oxide of lead and water, till all the floating fat was combined and settled at the bottom, the water was then decanted, filtered, and evaporated; it left the glycerine behind, which, however, was always more or less contaminated with traces of lead.

It was proved by Perkins, in England, in 1822, that in a steam engine, which worked under very great heat and pressure, and in which the condensed steam continually returned to the boiler, the fats and oils, used for lubricating, became, by the combined action of water, heat, and pressure, decomposed into other substances, which, after analysis, were by Faraday pronounced to be identical with the fatty acids and glycerine. Although this was published at the time, the hint was not acted upon till thirty years afterward, when the use of superheated steam was introduced in Germany to decompose fats into glycerine and the fatty acids, and ten years later the original discovery was acted upon in this country, and fat was exposed to water, heat and pressure in a steam-boiler, by which, under a temperature of 370° Fahr., and a consequent pressure of twelve atmospheres, the fat was perfectly decomposed in a period of about eight hours, an essential condition being to keep the water and fat in constant circulation, so as to maintain them in the form of an emulsion, which secures an extensive contact surface of the fat and water particles. The mixture of fat and water being removed, it was found that the water has abstracted from the fat all its glycerine; the fat still floating on the top has changed its neutral nature, and has become an acid. The water being evaporated leaves an impure glycerine behind, which may be subsequently purified by filtration through animal charcoal, or by careful distilation.

It is clear that this last process of decomposing fat is only applicable on a large scale. For small quantities the old method of making an insoluble lead-soap, or its equivalent, is still the most simple.—*Manufacturer and Builder.*

Pepper.

Pepper posses this peculiarity, that, while its production is limited to a small extent of the globe, it is in universal demand both among civilized and barbarous nations. The taste for this spice is no affair of caprice or fashion, and consequently its consumption must increase in the ratio of the facility and cheapness with which the cultivator and the merchant can supply it. The quantity already produced per annum is 75,000,000 pounds—namely, from Java, Sumatra, Borneo, the Malayan Peninsula, the Moluccas, and various regions lying on the east side of the Gulf of Siam. There is, generally speaking, abundant room for improvement in the culture; what is especially required, however—and we speak particulary with reference to India—is a larger application of European capital. When the price is high, a large extent of suitable land is at once put under culture; but no sooner does the price decline, than no care is taken to replace the exhausted plants, or to enrich the impoverished soil, and the cultivation is not only neglected, but pepper districts wholly disappear. The quantity of pepper we have given as the aggregate yield may appear enormous; but the amount named, if distributed among the inhabitants of the globe, would scarcely afford to each a grain a day. Unskilled cultivation is not the only fault connected with the production of this spice. The avidity of cultivators and dealers to bring pepper to a market frequently tempts them to pluck it before it is ripe, and from this cause it turns out light, hollow and ill-flavoured. For years after the discovery of the Eastern Archipelago, pepper was the principle article of export to Europe. It is narrated that Vasco de Gama loaded two vessels with this article at the Spice Islands in twenty-four days. The first stimulus to the Eastern trade, now being, so persistently pushed by the Americans was by the success attending the fitting out of vessels form Boston to what is known as the Pepper Coast. The trade is wholly in the hands of Europeans and Americans, and, provided always labour could be relied on, we know of no branch of investment that offers more satisfactory returns.—*Grocer.*

Elixir of Cinchona with Iron.

A desideratum generally felt by the dispensing pharmacist is a uniform and practical formula for preparing these numerous so-called *Elixirs of Cinchona*—"Ferrophosphated Elixir of Calisaya Bark," "Elixir of Bark and Iron," "Elixir Calisayæ Ferratum," etc., etc.—the manufactures of these *scientific specialties* claiming unusual skill in presenting this *invaluable* combination of *tonics* to the medical profession and suffering humanity.

The following suggests itself as a practical formula, being without a complex process, easy of execution, yielding a permanent and agreeable preparation, and always uniform in strength and composition:

Take of Pyrophosphate of iron, 1024 grains.
Sulphate of cinchona, 128 grains.
Sulphate of quinia, 64 grains.
Oil of orange (fresh), one fluid drachm.
Oil of lemon, half fluid drachm.
Oil of caraway seed, ten minims.
Oil of nutmeg, ten minims.
Oil of cloves, five minims.
Oil of cinnamon, five minims.
Alcohol, twenty-four fluid ounces.
Simple syrup, four pints.
Water, two and a half pints.

Dissolve the sulphate of cinchona and the sulphate of quinia in the alcohol; add the oils and mix with simple syrup.

Dissolve the pyrophosphate of iron in the the water, and mix the solutions; filter and add sufficient water through the filter to make the elixir measure eight pints.

Caramel may be added to color if deemed advisable. Each table-spoonful contains 4 grains of pyrophosphate of iron, ½ grain of sulphate of cinchona and ¼ grain sulphate of quinia.

To this elixir of cinchona with iron, ammonio-citrate of bismuth, one grain to each half fluid ounce, when added, forms the *elixir cinchona, iron and bismuth*, and if strychnia, in the proportion of 1-50 grain to each half fluid ounce is added, it will produce the scientific and "valuable adjunct to the other constituents" under the title *elixir cinchona, iron and strychnia.* O tempora! O mores! —*Pharmacist.*

Table on the Influence of Drying on the Active Principles of Plants.

PLANTS, AND WHEN COLLECTED.	TINCTURE.	DISTILLATE.	RESIDUE ON FILTER.	EXTRACT.	TREATMENT WITH CaO AND ALCOHOLIC ETHER.
Atropa Belladonna. Leaves, June, fresh.	Dark green, bitter.	Almost inodorous and tasteless; no reaction.	Deep green, almost wholly chlorophyll.	Dark brown, faint odour, intense taste.	White, amorphous, alkaline, yields 0.53 grm.*
Dried.	Brown-yellow, bitter.	Inodorous, tasteless.	Brown, resinous, inodorous, soluble in ether.	Blackish, taste bitter and sweetish.	Crystallized with difficulty, but saturated same amount of acid.
Hyoscyamus niger Leaves, June.	Deep green, odour virous, taste acrid.	Odour and taste faint, no reaction.	Dark green, soluble in ether, apparently fat and chlorophyll.	Brownish, bitter.	White, amorphous. By SO_3 and $KOCO_2$ colorles needles—yield ·41 grm
Dried.	Deep brown, inodorous.	Inodorous, tasteless.	Black, pitch-like, soluble in ether.	Brown, inodorous, bitter.	Uncrystallizable, faint alkaline reaction.
Datura Stramonium. Herb, July.	Dark green, acrid and bitter.	Weak, disagreeable odour and taste.	Blackish, virous odour, fat, resin, and chlorophyll.	Light brown, bitter somewhat acrid.	Crystalline, bitter, acrid, yield 0·65.
Dried.	Brown, bitter.	Inodorous, tasteless.	Blackish, inodorous.	Brownish, bitter.	With difficulty crystallizable—same saturating power.
Solanum Dulcamara. Stems, late in Sept'r. The same results with the dried stalks.	Light greenish yellow, odour unpleasant, taste sweet, bitterish.	Disagreeable odour.	Dark green, slight odour.	Greenish-brown, sweet, bitter, and slightly acrid.	Amorphous; when re-precipitated from SO_3 and treated with alcohol: crystals of solania. The lime retained a yellow, amorphsus glucoside—probably piero-glycion.
Colchicum autumnale. Corms, November.	Yellowish, sweet and burning.	Acid reaction, slightly acrid.	Greenish, faint odour of benzoin.	Orange-yellow.	Alkaline needles intermixed with greenish amorphous acrid matter, acids and alkalies destroy alkaline reaction and crystalline structure.
Dried.	Darker, more bitter.	No reaction, odour, or taste.	As above.	Brownish.	White amorphous colchicia, without alkaline reaction.
Aconitum Napellus. Cultivated leaves, June.	Deep green, bitter, then acrid.	Acid reaction, burning taste; salts of Ag Au, and Pt, reduced.	Dark green, virous odour, taste slightly acrid and bitter.	?	The result treated like Dulcamara, yielded ·30 grm. needles (acouellina?) and about ·30 grm. oily aconitia, gradually becoming resinous.
Dried.	Brown, bitter acrid.	No reaction, odour, or taste.	Blackish, slightly acid and acrid.	?	Amorphous, resin-like.
Conium maculatum. Leaves, May.	Green, repulsive odour, very acrid.	Neutral, tasteless, faint, narcotic odour.	Green, oily, virous odour.	Light-brown.	0·35 grm. conia.
Dried.	Light brown, taste weaker.	Nearly inodorous.	Black, resinous, inodorous.	Brownish.	0·10 grm. conia, and products of decomposition.

* From 250 grammes of the fresh drug; the subsequent figures refer to the same weight.

MISCELLANEOUS.

Improved Preparation of Neutral Acetate of Copper.

Five kilos. of sulphate of copper are ground to a fine powder; this having been done, the powder is placed in a suitable vessel, and 7 5 kilos. liquor ammonia added thereto. After the solution is effected, 10 kilos. of acetic acid are added, and the vessel containing the copper solution placed on a water-bath; as soon as crystals are observed on the top of the liquid, the latter is strongly stirred, which promotes the formation of crystals. By this process about 4 kilos. of neutral acetate of copper are obtained from the above quantity of sulphate, while the mother liquor yields some sub-acetate of copper afterwards. —*Moniteur Scientifique.*

New Marking Ink for Linen.

M. Kuhr recommends the following preparation:—One part of hypophosphite of soda, and two parts of gum arabic, are dissolved in sixteen parts of distilled water. The tissue, linen, or cotton to be marked is thoroughly moistened with this liquid, and then left to dry. After having become well dried, the following liquid, composed of one part of nitrate of silver, and six parts of gum dissolved in six parts of distilled water, is used as marking ink, with a quill-pen. The mixtures here described are stated to yield an indelible and very deep black-colored ink.—*Comos, June,* 1869.

Color of Vermillion.

It is a fact well known to artists, that the splendidly bright color of vermilion (cinnabar, sulphide of mercury) has a tendency, especially if it has been mixed with white-lead to become blackish brown and very dark colored in a comparatively short time. This tendency of the vermilion is altogether obviated if, previous to being mixed with oil, it is thoroughly and intimately mingled with about one-eighth of its weight of flowers of sulphur.—*Chemical News.*

Brandy from Lichens.

Experiments lately made in Sweden on a large scale, upon the production of brandy from lichens, and especially from the reindeer moss, have, it is said, proved so successful as to warrant the practical application of the process.—*Chemical News.*

Alcohol from Garbage.

A company has been formed in Chicago, and will soon be in operation, for distilling alcohol and extracting soap grease from ordinary city garbage. The process is a patented one, and consists in taking the garbage just as it is hauled off in the city carts, dumping it into tight tanks, and boiling six hours at a temperature of 212 degrees. This dissolves the whole mass, which is run into fermenting tubs and worked with yeast. The soap grease and impurities rise to the top of the tubs, and are skimmed off, and the residuum is distilled in the regular way. It is estimated that each barrel of garbage will yield three pounds of soap grease and four gallons of proof spirits. The soap grease is, of course, as good as any other, but the alcohol betrays its origin by an odor which requires further processes for its removal. For many uses, however, it is as good as that derived from grain or molasses, and if its distillation is not too costly, will yield a considerable profit.—*Sun, July,* 1869.

Cocoa Nut Hair Oil.

Take of Oil Theobroma, one drachm.
Castor oil.
Alcohol 95 per cent., of each fifteen ounces.
Glycerine pure, two ounces, or a sufficient quantity.

Melt together, with a gentle heat, the oil of of theobroma and castor oil; transfer to a bottle, and gradually adding the alcohol, then the glycerine as much as it will take without becoming milky.

White Furniture Polish.

Is made by boiling ten parts of water with ten parts wax, and one part potash; afterward ten parts of water are added, and it is boiled till of a uniform thick consistency. It is therefore but a kind of soap, in which wax takes the place of fat; when dry, it becomes insoluble in cold water, which only washes the excess of potash from the surface and leaves wax, combined with a small amount of potash—a compound which, with a little friction, takes a fine polish.

Notes and Queries.

Note on Dispensing.—*J. C., St. Johns, N. B.*, communicates the following: Having been ordered by a physician to make an ointment composed of three drachms of chloride of lime, and two ounces of lard, it was thought proper to rub up the chloride with a few drops of glycerine, in order to insure thorough incorporation. No sooner was the glycerine added than a violent action took place, accompanied with hissing and the evolution of gas; the glycerine appearing as a brown crust. *J. C.* has never seen the reaction referred to, and asks our opinion.

We do not remember ever seeing any allusion to the action of chloride of lime on glycerine; but tried the experiment with a result similar observed by *J. C.* We have not pursued the subject further, from want of time, but shall endeavour to do so, reserving any remarks until we can speak with certainty. In the meantime it will be well for dispensers to bear the reaction in mind.

Chemical Stains for Wood.—*Walnut* may be imitated by applying a solution of potash permanganate. The stronger the solution the deeper will be the color. The stains of the permanganate may be removed from the hands by dilute sulphuric acid. A yellow color, from a canary to a reddish-brown, may be produced by the application of nitric acid. The color is developed and deepened by holding the woodwork near the fire. When the desired shade is attained, stop the action by the application of water. An excellent imitation of satin wood—such as is used to form the backs of hair brushes—may be thus produced.

Subscriber wants a form for Ox Marrow Pomade, "made by Mr. Marrow himself." We suppose the following will answer the indication:

Ol. Olive		
Ricini	ää	℥x.
Palmæ		℥j.
Cera alba		℥iss.
Cetaceum		ʒij.
Ol. Citronella		ʒj.

This will fill about 1 doz. 4 oz. pomades.

Preservation of Garlic.—We have received several inquiries in regard to this subject, but can offer nothing but the usual method—suspension of the garlic, contained in a net, in a cool place. This is said to be ineffectual; can any of our readers suggest anything better?

Changes.

W. T. Hunt & Co., Summerside, have dissolved partnership. The business is now carried on by Thos. McKinley, alone.

Alfred Gissing continues the business, in Princeton, formerly under the style of Gissing & Bros.

M. W. Heathfield, London, assigned.

Suicide of a Druggist's Assistant.—On the 28th of last month, an inquest was held, in this city, on the body of Charles Thomas Farnesworth, who came to his death by suicide on the day previous. The circumstances of the case are as follows: On the evening preceding his death, Mr. Farnesworth presented himself at the Monkhouse Hotel, King Street, where, after talking and chatting pleasantly with the boarders until a late hour, he retired to bed. About nine o'clock on the following morning, one of the domestics, on passing his bedroom door, was attracted by hearing him groan. She immediately ran for assistance, the door was burst in, and the young man was discovered apparently in the agonies of death. Efforts were immediately made to effect resuscitation, but in vain, for in a few minutes he breathed his last. It appears that deceased, during the day, had been trying to procure chloroform from several of the druggists, but, being refused, he prevailed on a boy to purchase for him two pennyworth of cyanide of potassium, from the effects of which he died. Mr. Farnesworth came from Chester, England, to this country, in April last. He sojourned for a short time in Ottawa and Kingston, in both places holding situations. A few months ago he came to Toronto, and engaged in one of our city stores, where he remained a short time, but ultimately had to be discharged on account of intemperate habits. Not confining himself to spirituous liquors alone, he was accustomed to use large quantities of chloroform, which he inhaled by saturating a handkerchief and laying it over his face, thus inducing stupefaction. On opening his trunk after his death, no less than six empty chloroform bottles were found. Deceased was about twenty-four years of age, and is said to have been quite clever, having acquired a knowledge of the drug business in England.

Trade Report.

The cheering accounts which have from time to time been received in regard to the promise of an abundant harvest, are now happily verified, and, as a consequence, business is beginning to show signs of increasing activity. All classes of commercial men look forward to the coming season with pleasurable anticipation, and there is every prospect that their hopes will not suffer disappointment. A good price is being realized for grain, affording encouragement to farmers to put their produce in the market, and thereby debarring a renewal of the "holding on" policy, to which the tightness of the past year may be, in great part, attributed.

There is nothing astounding to report in regard to the prices of drugs. We append, however, a few changes:

Drugs.—Alcohol has advanced, and is now held at $1.72½. Bermuda arrow root and Solazzi Licorice are slightly lower. Opium still retains a high price, but Turkey is quoted at a reduction of 25 cents per lb. Turkish Rhubarb has fallen considerably; other sorts slightly lower. E. I. Castor Oil, Oil Peppermint, and both qualities of Musk are held at lower figures.

Chemicals.—Quotations show but slight changes; the salts of Morphia, however, in sympathy with Opium, are a trifle easier. Quinine is held at an advance. Strychnine lower.

Dye Stuffs.—No change, if we except Ext. Logwood in boxes, which has fallen ½ cent per lb; and Quercitron which is now held at 3 cents to 5 cents.

Paints and Oils.—The call and prices have been about as last month, and quotations show but slight alteration. Whale Oil, refined, has gone down a trifle. Lard Oil, No. 2, is held higher.

Note.—The notes quoted in our price list are constantly varying, and are intended to show the limits within which a retail druggist should supply himself. The range of prices is caused by the difference between cash and credit, whole packages and smaller lots, and, in some cases, difference of quality.

WHOLESALE PRICES CURRENT.—SEPT., 1869.

Drugs, Medicines, &c.	$ c.	$ c.
Acid, Acetic, fort	0 12	@ 0 15
" Benzoic, pure	0 28	0 35
" Citric	0 83	0 90
" Muriatic	0 05	0 07
" Nitric	0 11½	0 15
" Oxalic do	0 26	0 32
" Sulphuric	0 04½	0 07
" Tartaric, pulv.	0 36	0 45
Ammon., carb. casks	0 17	0 19
" " jars	0 18	0 20
" Liquor, S80	0 18	0 25
" Muriate	0 12½	0 15
" Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
" Nitrous	0 22½	0 25
" Sulphuric	0 48	0 55
Antim. Crude, pulv.	0 10	0 12
" Tart. "	0 50	0 60
Alcohol, 95%	1 72½	2 00
Arrowroot, Jamaica	0 21	0 22
" Bermuda	0 45	0 65
Alum	0 02½	0 03½
Balsam, Canada	0 32	0 40
" Copaiba	0 75	0 80
" Peru	2 90	3 00
" Tolu	1 20	1 40
Bark, Bayberry, pulv.	0 20	0 25
" Canella, "	0 17	0 20
" Peruvian, yel. pulv	0 42	0 45
" " red "	1 50	1 60
" Slippery Elm, g. b.	0 18	0 20
" " flour, pkt's	0 28	0 32
" Sassafras	0 15	0 18
Berries, Cubebs, ground	0 30	0 40
" Juniper	0 06	0 10
Beans, Tonquin	0 60	1 10
" Vanilla	8 50	9 00
Bismuth, Alb.	6 00	6 40
" Carb.	6 00	6 40
Camphor, Crude	0 43	0 48
" Refined	0 60	0 68
Cantharides	0 90	1 00
" Powdered	1 00	1 10
Charcoal, Animal	0 04	0 06
" Wood, pow'd.	0 12	0 15
Chiretta	0 55	0 65
Chloroform	1 35	1 50
Cochineal, S. G.	0 90	1 15
" Black	1 30	1 75
Colocynth, Pulv.	0 50	0 80
Collodion	0 55	0 60
Elaterium oz.	4 50	5 00
Ergot	1 08	1 15
Extract, Belladonna	2 00	2 20
" Colocynth, Co.	1 25	1 75
" Gentian	0 50	0 60
" Hemlock, Aug.	1 12	1 25
" Henbane, "	2 40	2 60
" Jalap	5 00	5 50
" Mandrake	1 75	2 00
" Nux Vomic. oz	0 60	0 70
" Opium "	Variable.	
" Rhubarb	7 50	--
" Sarsap. Hon. Co	1 00	1 20
" " Jam. Co	3 25	3 70
" Taraxicum, Aug	0 70	0 80
Flowers, Arnica	0 26	0 35
" Chamomile	0 36	0 45
Gum, Aloes, Barb. extra	1 00	1 10
" " " good	0 50	0 55
" " Cape	0 15	0 20
" " " pow'd	0 25	0 30
" " Socot	0 80	0 90
" " " pulv.	0 90	1 00
" Arabic, white	0 60	0 65
" " " pow'd	0 57	0 65
" " sorts	0 34	0 37
" " " pow'd	0 50	0 60
" " com. Gedda	0 13	0 16
" Assafœtida	0 35	0 40
" British or Dextrine	0 13	0 15
" Benzoin	0 48	0 55
" Catechu	0 15	0 20
" " pow'd	0 25	0 30
" Euphorb, pulv.	0 32	0 40
" Gamboge	1 40	1 60
" Guaiacum	0 32	0 50
" Myrrh	0 48	0 60
" Sang Dracon	0 60	0 70
" Scammony, pow'd	5 60	—
" " Virg. "	14 50	—
" Shellac, Orange	29	0 32

Drugs, Medicines, &c. *Continued.*	$ c.	$ c.
Gum, Shellac, liver	0 24	@ 0 28
" Storax	0 65	0 75
" Tragacanth, flake.	0 70	1 40
" " common	0 30	0 35
Galls	0 32	0 37
Gelatine, Cox's, 6d.	1 10	1 20
Glycerine, com.	0 25	0 30
" Vienna	0 35	0 40
" Price's	0 65	0 75
Honey, Canada, best	0 16	0 20
" Lower Canada	0 12½	0 13
Iron, Carb. Precip.	0 20	0 25
" " Saccher.	0 40	0 45
" Citrate Ammon.	0 90	1 00
" " & Quinine oz.	0 43	0 48
" " & Strychnine "	0 17	0 25
" Sulphate, pure	0 08	0 10
Iodine, good	4 50	5 00
" Resublimed	5 60	6 00
Jalapin oz.	1 50	2 00
Kreosote	1 60	2 50
Leaves, Buchu	0 30	0 50
" Foxglove	0 25	0 30
" Henbane	0 35	0 40
" Senna, Alex.	0 30	0 60
" " E. I.	0 12½	0 20
" " Tinnevilly	0 20	0 30
" Uva Ursi	0 15	0 20
Lime, Carbolate brl.	5 50	—
" Chloride	0 04½	0 06
" Sulphate	0 08	0 12½
Lint, Taylor's best	1 12½	1 25
Lead, Acetate	0 14	0 17
Leptandrin oz.	0 60	—
Liq. Bismuthi	0 50	0 75
" Opii, Battley's	7 60	9 00
Lye, Concentrated	1 50	2 00
Liquorice, Solazzi	0 37	0 45
" Cassano	0 30	0 40
" Other brands	0 14	0 25
Liquorice, Refined	0 35	@ 0 45
" " Hessin's doz	2 00	
Magnesia, Carb 1 oz.	0 20	0 25
" " 4 "	0 17	0 20
" Calcined	0 65	0 75
" Citrate gran.	0 40	0 50
Mercury	0 65	0 75
" Bichlor	0 70	0 80
" Biniodid. oz.	0 25	0 35
" Chloride	0 90	1 00
" C. Chalk	0 45	0 60
" Nit. Oxyd	0 90	1 00
Morphia, Acet. } about	7 40	—
" Mur. } about	7 60	—
" Sulph. } about	—	—
Musk, Pure grain oz.	21 00	—
" Canton	1 00	1 20
Oil, Almonds, sweet	0 48	0 55
" " bitter	14 00	15 00
" Anniseed	4 00	4 50
" Bergamot, super.	6 50	7 00
" Carraway	4 00	4 20
" Cassia	3 00	3 20
" Castor, E. I.	0 16	0 20
" " Crystal	0 22	0 25
" " Italian	0 26	0 28
" Citronella	1 50	1 75
" Cloves, Aug.	1 00	1 10
" Cod Liver	1 40	1 50
" Croton	2 50	3 00
" Geranium, pure, oz.	2 00	2 20
" Juniper Wood	0 90	1 00
" " Berries	6 00	7 00
" Lavand, Aug.	21 50	22 00
" " Exot	1 40	1 60
" Lemon, super.	3 30	3 60
" " ord.	2 70	2 80
" Orange	3 00	3 20
" Origanum	0 65	0 75
" Peppermint, Aug.	15 00	17 00
" " Amer	5 00	5 50
" Rose, virgin	7 75	8 00
" " good	4 40	5 50
" Sassafras	1 30	1 40
" Wintergreen	4 90	5 50
" Wormwood, pure	5 80	50
Ointment, blue	0 65	0 70
Opium, Turkey, about	11 00	—
" " pulv.	13 40	—
Orange Peel, opt.	0 65	0 75
" " good	0 12½	0 20
Pill, Blue, Mass.	0 70	0 75

Drugs, Medicines, &c. *Continued.*	$ c.	$ c.
Potash, Bi-chrom.	0 15	@ 0 20
" Bi-tart.	0 25	0 28
" Carbonate	0 16	0 20
" Chlorate	0 40	0 45
" Nitrate	8 50	9 00
Potassium, Bromide	1 80	2 00
" Cyanide	0 70	0 75
" Iodide	3 80	4 50
" Sulphuret	0 25	0 35
Pepsin, Boudault's oz.	1 65	1 80
" Houghton's, doz	8 00	9 00
" Morson's oz.	0 82	1 10
Phosphorus	0 75	0 85
Podophyllin	0 50	0 60
Quinine, Pelletier's	1 67½	—
" Howard's	1 72½	1 80
" " 100 oz. case	1 60	—
" " 25 oz. tin	1 60	—
Root, Colomba	0 14	0 20
" Curcuma, grd.	0 12½	0 17
" Dandelion,	0 25	0 35
" Elecampane	0 14	0 17
" Gentian	0 08	0 12½
" " pulv.	0 15	0 20
" Hellebore, pulv.	0 18	0 25
" Ipecaac "	2 40	2 60
" Jalap, Vera Cruz	1 55	2 —
" " Tampico	0 90	1 —
" Liquorice, select.	0 13	0 17
" " pow'd	0 12½	0 16
" Mandrake, "	0 20	0 25
" Orris "	0 20	0 25
" Rhubarb, Turky.	4 40	5 50
" " E. I., China.	1 40	1 75
" " " pulv.	1 50	1 85
" " " 2nd	1 30	1 50
" " French	0 75	—
" Sarsap., Hond.	0 45	0 50
" " Jam.	0 75	0 80
" Squills	0 10	0 15½
" Senega	0 40	0 50
" Spigelia	0 35	0 40
Sal., Epsom	3 00	4 00
" Rochelle	0 28	0 35
" Soda	0 02	0 03
Seed, Anise	0 16	0 30
" Canary	0 05½	0 07
" Cardamon	3 00	4 00
" Fenugreek, grd.	0 10	0 15
" Hemp	0 06	0 07
" Mustard, white	0 14	0 16
Saffron, Amer.	1 25	1 50
" Spanish	14 00	16 00
Santonine	10 50	12 00
Sago	0 07½	0 09
Silver, Nitrate, cash	14 90	16 50
Soap, Castile, mottled	0 12½	0 14
Soda Ash	0 03	0 04
" Bicarb. Newcastle.	4 00	5 00
" " Howard's	0 14	0 16
" Caustic	0 04	0 05
Spirits Ammon., arom.	0 25	0 35
Strychnine, Crystals	2 30	2 75
Sulphur, Precip.	0 10	0 12½
" Sublimed	0 4	0 05
" Roll	0 03	0 04½
Tamarinds	0 15	0 20
Tapioca	0 20	0 23
Veratria oz.	0 25	0 30
Vinegar, Wine, pure	0 55	0 60
Verdigris	0 35	0 40
" Pow'd	0 45	0 50
Wax, White, pure	0 85	0 90
Zinc, Chloride oz.	0 20	0 25
" Sulphate, pure	0 10	0 15
" " com.	0 06	0 10
Dyestuffs.		
Annatto	0 40	@ 0 60
Analine, Magenta cryst	Variable.	
" " liquid	2 50	—
Argols, ground	0 15	0 25
Blue Vitriol, pure	0 08	0 10
Camwood, pure	0 06½	0 09
Copperas, green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 03	0 04
Indigo, Bengal	2 40	2 50
" Madras	1 15	1 20
" Extract	0 28	0 35
Japonica	0 05½	0 06½
Lacdye, pow'd.	0 35	0 40
Logwood	0 02½	0 03

Dyestuffs—*Continued*	$ c.	$ c.
Logwood, Camp.	0 02½	@ 02½
" Extract	0 13½	14
" " 1lb bxs	0 15	—
" " ½lb "	0 16	--
Madder, best Dutch	0 16	0 18
" 2nd quality	0 14	0 15
Quercitron	0 03	0 05
Sumac	0 06½	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
Spices.		
Allspice	0 08½	@ 0 10
Cassia	0 50	0 55
Cloves	0 15	0 16
Cayenne	0 18	0 25
Ginger, E. I.	0 12	0 14
" Jam.	0 28	0 30
Mace	0 78	0 90
Mustard, com.	0 20	0 25
" D. S.	0 40	0 45
Nutmegs	0 45	0 75
Pepper, Black	0 11½	0 12½
" White	0 20	0 22
Paints, Dry.		
Black, Lamp, com.	0 07	@ 0 08
" " refined	0 25	0 30
Blue, Celestial	0 08	0 12
" Prussian	0 65	0 75
Brown, Vandyke	0 10	0 15½
Chalk, White	0 01	0 01½
" Red	0 08	0 10
Green, Brunswick	0 07	0 10
" Chrome	0 20	0 25
" Paris	0 30	0 35
" Magnesia	0 20	0 25
Litharge	0 08	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 06½	0 08
" Venetian	0 02½	0 03½
Sienna, B. & G.	0 10	0 15
Umber, "	0 07	0 10
Vermillion, English	0 90	1 00
" American	0 25	0 35
Whiting	0 85	1 25
White Lead, dry, gen.	0 07½	0 09
" " " No. 1	0 06½	0 08
" " " No. 2	0 05½	0 07
Yellow Chrome	0 12½	0 35
" Ochre	0 02½	0 03½
Zinc White, Star	0 10	0 12
Colors, in Oil.		
Blue Paint	0 12	@ 0 15
Fire Proof Paint	0 06	0 08
Green, Paris	0 32	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1lb tins.	0 14½	0 16
Putty	0 03½	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25lb tins	2 35	—
" " No. 1 "	2 10	—
" " No. 2 "	1 90	—
" " No. 3 "	1 65	—
" " Com. "	1 30	—
White Zinc, Snow	2 75	3 25
Naval Stores.		
Black Pitch	4 50	@ 5 50
Rosin, Strained	3 75	4 50
" Clear, pale	6 50	10 00
Spirits Turpentine	0 48	0 55
Tar Wood	4 00	5 00
Oils.		
Cod	0 65	@ 0 70
Lard, extra	1 25	—
" No. 1	1 12½	—
" No. 2	1 00	—
Linseed, Raw	0 75	0 80
" Boiled	0 80	0 85
Olive, Common	1 25	—
" Salad	1 80	2 30
" " Pints, cases	4 20	4 40
" " Quarts	3 60	3 00
Seal Oil, Pale	0 80	0 85
" " Straw	0 75	0 80
Sesame Salad	1 30	1 35
Sperm, genuine	2 40	—
Whale, refined	0 85	1 00