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Original and Selected Papers.

NOTES ON SOME CANADIAN WATERS.

BY HENRY CROFT.
Professor of Chemistry, University College, Toronto.

On a trip this summer round Georgian Bay and Lake Superior, the writer collected specimens of water from both, when at a great distance from land. The result of an examination into their purity may not be without interest, but as it was not convenient to carry any large quantity, and as they are so remarkably pure that to make a complete analysis would require the evaporation of several gallons, attention was paid merely to the total solid contents and the freedom from organic matters.

In the water of Superior no trace of sulphates, or chlorides, could be detected; but the portion to which nitrate of silver had been added, exhibited an almost imperceptible browning, after exposure, showing the presence of a very minute trace of organic matter. Oxalate of ammonia produced a turbidity after a considerable time, and the oxalate of lime was not deposited at the end of a week. No precipitate was formed on boiling 4,000 grains. On evaporating a weighed quantity, 1,000 grains, it was found that a residue remained of 0.0154 grains, equal to 1.08 grains in a gallon of 70,000 grains.

The residue, when heated, scarcely changed color at all, and the loss was inappreciable. It was found to be essentially carbonate of lime, which, as is well known, is soluble in about 10,000 parts of water, while 10,000 of the water examined contained only 0,154 of a grain.

The water from Georgian Bay contained rather more solid contents, viz: 2.48 grains in a gallon; but in sulphates, or chlorides; it contained, however, a little more organic matter than the Superior water. The residue was again carbonate of lime, and was not deposited on boiling, as 10,000 of the water would contain only 0.354.

Lake water is almost always purer than rain water, but that of Lake Superior is quite remarkable. The writer knows of none that can compare with it, except that of Loka, in Sweden, which is said to contain only one-twentieth of a grain in a gallon. Lakes, in primitive formations, are, usually, very pure: some in Scotland contain 4 to 5 grains; some lakes contain a considerable quantity of earthy matter—the Geneva water contains 10.5 in a gallon.

An examination was then made of the Ontario Lake water, taken from a point south of the light-house: several analyses were made and the mean gave the following numbers:

In a gallon 7.814 grains of impurity, of which 5.369 is essentially carbonate of lime, and 2.443 organic matter. No precipitate is formed in boiling, but the water is not quite so clear, after some concentration, as the quantity of carbonate is nearly as much as it can hold in solution, and it soon begins to precipitate. No chlorides or sulphates could be detected. The great difference between Ontario and Superior is very noticeable

Water taken from the middle of the bay was then examined, and the mean of several analyses gave, in one gallon, 9.656 total residue, of which 5.502 is mineral, and 4.154 organic. It will be noticed that the quantity of the latter is largely increased, but otherwise, the water is very pure. In a second paper the writer proposes to give an account of some experiments on the waters of other lakes, and on specimens taken from various parts of the Toronto Bay, and from the Water Works, and to compare the water supplied to Toronto with that used in some English towns.

ON HYPOPHOSHOROUS ACID AND THE HYPOPHOSPHITES.

BY E. B. SHUTTLEWORTH.

As the discussion appointed for this evening is in regard to the so-called syrups of the hypoposphites, the writer has prepared a few notes on hypophosphorous acid and its salts, trusting that in thus suggesting a groundwork for discussion, he will in no wise interfere with or anticipate the subject on hand.

Nearly half a century has elapsed since the discovery of hypophosphorous acid by Dulong, but it was not until ten or twelve years ago that the hypophosphites can be said to have occupied a place in medicine. Their introduction is to be attributed to Dr. Churchill, who suggested their employment as a source for the supply of phosphorus in tuberculosis and other diseases. "The proximate cause," says Dr. C., "or at all events, an essential condition of tubercular diathesis, is the decrease in the system of the phosphorus which it contains in an oxygenizable state, and that the specific remedy of the disease consists in the use of a preparation of phosphorus, uniting the two conditions of being in such a state that it may be directly assimilated, and, at the same time, at the lowest possible degree of oxidation." These conditions are said to be fulfilled by the hypophosphites, which "seem to possess, in the highest degree, all the therapeutical properties formerly attributed, by different observers, to phosphorous itself, without any of the danger which attends the use of that substance, and which has caused it to be almost forgotten as a medicinal agent." Whether Dr. Churchill's idea in regard to the cause of consumption, or the decrease of nerve power, be correct or not, is not the province of the pharmaceutist to determine. We may say, however, that the assumption has been questioned and denied by many eminent medical authorities. It has been affirmed that, in those diseases in which the hypophosphites have been recommended, phosphorus already exists in greater quantity in the system than when in health. However this may be, one thing is certain, that the use of these salts has been attended with the most satisfactory results, and that few remedies enjoy greater popularity, although, up to the present time, neither the British nor United States Pharmacopœias contain any official mention of them.

Hypophosphorous acid may be represented by the formula H_3PO_2. It is monobasic, that is, it is only capable of exchanging one of its atoms of hydrogen for an equivalent quantity of metal. Its salts will therefore have the formula MPH_2O_2. The concentrated acid is described as a thick, viscid, uncrystallizable liquid, having a strong acid taste and reaction. It may be obtained by decomposition of one of its salts by an equivalent quantity of any acid which forms an insoluble combination with the base present, Thus, (1) the lead salt may be decomposed by sulphuretted hydrogen—sulphydric acid; (2) or the barium salt with an equivalent quantity of sulphuric acid; (3) or the lime salt by the proper proportion of oxalic acid. The latter method will be found easiest of execution, inasmuch as no previous determination of the strength of the acid will be required, as would be necessary if a liquid acid were used. The following formula is given by Prof. Proctor:*

Hypophosphite of lime	480 grains.
Oxalic acid	350 "
Distilled water	9 fluid oz.

Dissolve the hypophosphite in six ounces of water, and the acid in the remainder, by the aid of heat; mix the solutions; filter; make up the measure to ten fluid ounces and finally evaporate to 8½ fluid ounces. The solution contains about ten per cent. of the acid, and cannot be kept any length of time if exposed to the air, as it gradually takes up oxygen, and becomes converted into a mixture of phosphorous and phosphoric acids.

The salts of hypophosphorous acid may be obtained, directly by neutralization by bases; or by boiling phophorus in solutions of the alkalies. The hypophosphites, as

*Read before the Ontario College of Pharmacy, at the adjourned Monthly Meeting, October 14th.

*Amer. Jour. Pharm., 1858, p. 118.

a class, are soluble in water, and some of them in alcohol. They are insoluble in the oils. They are, generally, permanent in air, though several are very deliquescent. When heated to a high temperature they are decomposed, phosphureted hydrogen being emitted and a residue of pyrophosphate remaining. Solutions of the hypophosphites become oxidized by exposure to air, with the production of phosphates. This change takes place much more rapidly under the influence of an elevated temperature, as 212° F. ; this fact may be advantageously borne in mind when the evaporation of a solution is to be conducted. Explosions have been known to occur during evaporation, as in the case of Prof. Marquart when evaporating the soda salt, on a sand-bath ; Trommsdorff at first ascribed this accident to an excess of heat, but subsequently when operating with a water-bath, and consequently at a heat under boiling, an explosion took place with such violence as to break all the windows in the laboratory, and severely injure the workman who was stirring the granulating salt. Mr. Tuson * in noticing this accident, says that he has superintended the making of large quantities of the soda and lime salts, but never knew anything like an explosion to occur ; the heat employed was, however, much below the boiling point of water.

The hypophosphite of calcium is that from which most of the medicinal hypophosphites are prepared, besides being, itself, largely used in medicine. Its formula is $Ca\,H\,P^2\,O_4$. It is seldom found in commerce in a decidedly crystalline form, as the evaporation is generally carried to dryness. It dissolves in 6 parts of cold, and in a rather smaller quantity of hot water. Its preparation, to say the least of it, is exceedingly disagreeable, dangerous and tedious, and in the opinion of the writer, had better be left to the manufacturing chemist, as being altogether unsuited to be carried on in the druggists usual laboratory—the back shop. The process consists in boiling phosphorus in milk of lime until combination is effected. The operation is best conducted in a deep iron pot, set under a hood ; 10 parts of phosphorus are added to 300 parts of water, and heat applied until the phosphorus melts ; 30 parts of quick-lime are added, and the mixture boiled until phosphureted hydrogen is no longer given off—the original measure of the liquid being kept up by additions of water. The pot should not be more than one-third filled. The liquid is filtered ; the residue washed, and the filtrate concentrated to remove carbonate of lime, and finally evaporated, until granulation. The yield is never very constant, being sometimes as low as half the phosphorus employed. The following equation will explain the reaction :

$$3\,Ca\,H_2\,O_2 + P_8 + 6H_2\,O. = 3\,Ca\,H_4\,P_2\,O_4 + 2\,PH_3$$

In reality, however, a large quantity of the phosphorus is lost as phosphate of lime, which is filtered out with the excess of lime. From experiments made by Frederking :* the following disposition of the phosphorus was proved : 14½ oz. were operated upon, and the yield of hypophosphite was above the average.

10·5 oz. hypophosphite lime	= 3·830	of Phosphorus.
9.30 oz. phosphoric acid	= 4·057	"
Phosphureted hydrogen..	= 6·683	"
	14 500	"

The salts of potassium, sodium, and ammonium, are prepared from the lime salt by double decomposition by the respective carbonates, calcium carbonate is precipitated, and the hypophosphite remains in solution, and may be obtained by careful evaporation, at a low temperature. The proper proportions for the decomposition will, of course, be indicated by the combining weights.

The hypophosphites of iron are common ingredients in the various syrups occurring in trade. In two preparations—Pfizer's and the Messrs. Tilden's—the writer found both the ferrous and ferric salts. The ferric salt may be obtained (1) by dissolving ferric hydrate in a cold solution of hypophosphorous acid ; (2) or by double decomposition between a solution of sodium hypophosphite and ferric sulphate. The precipitate is in the form of a white powder, which dissolves sparingly in the free acid, but readily in hydrochloric acid.

Hypophosphite of quinia is occasionally prescribed, and it may be well to notice that it may be prepared by dissolving the alkaloid —obtained by precipitation from an acid solution by ammonia—in the hypophosphorous acid ; (2) or by double decomposition between sulphate of quinia and barium hypophosphite. The salt of quinia is said to require 60 parts of water for solution—8 grains dissolving in a fluid ounce. A large amount of water would, therefore, be required, or the hypophosphite would fall with the precipitated barium sulphate.

*Chemical News, No. 31, p. 4

Pharmaceutic Items.

BY C. LEWIS DIEHL.

Almost every pharmacist who personally superintends the production of his preparations could, if inclined, to note the difficulties and phenomena occurring during the various processes, materially aid the progress of pharmacy. Unfortunately, many of us, from various causes, are prevented from doing this, and thus a great deal of valuable information is lost to the pharmaceutical world. Among the observant workers, a large class will be found who from motives of gain are prevented from publishing their observations; others again are prevented by reason of excessive modesty, which causes them to view their experiences as a necessary result of their inexperience ; still others, who are not encumbered with a very large excess of modesty in respect to making known their observations, are prevented by press of business or events totally beyond their control ; and as I have been rather negligent of late in fulfilling my promise to the editor of the *Pharmacist*, I take the liberty to adopt the latter plea as an excuse for the negligence.

*Archieves der Pharmacie, 1859.

I design in this paper to draw attention to a number of preparations, most of which have come under my observation within the last twelve months. Some of them—officinals of the present Pharmacopœia—I have found to admit of improvement, either in their general character or their methods of preparation ; while for the unofficinals, I have in some cases constructed formulas deemed by me in conformity with the spirit of our national standard.

CITRATE OF IRON.

To prepare this preparation handsomely and properly, it is necessary to employ an excess of hydrated sesquioxide of iron, and if the process is conducted strictly in conformity with the directions of the Pharmacopœia, and the ingredients are in the condition intended, no difficulty exists to prepare a satisfactory article ; but a strict adherence to the directions of the formula is necessary to insure *uniformly* a successful product. One of the principal difficulties *practically* exists in maintaining the temperature of the mixture of citric acid and hydrated sesquioxide of iron at not exceeding 150° F. I say practically, for in order to do so, constant attention is required, and this during the ordinary shop duties of the pharmacist is, to say the least, annoying, if not impossible. By an elevation of the temperature above 150° F., and probably approaching the boiling point of water, a portion of the hydrated sesquioxide is molecularly changed, and becoming insoluble, renders it exceedingly difficult to determine whether or not the solution has become completely saturated with iron. To overcome this difficulty, I have been in the habit of precipitating about one-eighth more of hydrated sesquioxide of iron than is required by the Pharmacopœia, and adding to about three-fourths of the magma the citric acid prescribed. By occasionally stirring, a clear solution is obtained, which is now gently heated by a warm bath, and fractional portions of the remaining magma added, until it is no longer dissolved—observing, however, to allow each portion to dissolve perfectly before adding the next.

Manipulating in this manner, I have never failed to meet with good results, and until very recently, I had not observed any phenomena worth recording. During the evaporation of a quantity, recently, it was observed that the solution became uncommonly dense before it had been reduced to the proper measure, and that, on diluting a portion with water, a turbid mixture was produced. As all the ingredients had been in proper condition and the manipulation correct, it was inferred that a portion of uncombined hydrated sesquioxide of iron had been dissolved, and this was apparently substantiated by the addition of a relatively small proportion of citric acid, which had the effect of rendering

the solution quite limpid and miscible with water, without the production of turpidity. I conclude that *when a warm solution of citrate of iron exercises a prolonged action upon recently precipitated hydrated sesquioxide of iron, it has the property of dissolving a portion of the hydrated base.*

The preparation of scales of citrate of iron is not at all difficult, even if all the citric acid has not been saturated. But to prepare the

AMMONIA-CITRATE OF IRON.

successfully and handsomely, the complete saturation of the citric acid with hydrated sesquioxide is quite necessary. If this is not the case, the resulting salt is removed from the glass plates with more or less difficulty, and cannot be obtained in handsome scales, being generally of a muddy color. I have been in the habit of reserving about one-sixteenth of the solution of citrate of iron, adding to the main bulk of the solution aqua ammonia until in slight excess, and then the reserved portion. The salt obtained was invariably found to be rapidly soluble in water, and, while it is readily removed from the glass plates, to be less prone to deliquescence than the compound completely saturated with ammonia. The direction of the Pharmacopœia to use a given measure of aqua ammonia is objectionable, on account of the inconvenience resulting from the variable strength of that article as found in the shops or obtained from the manufacturer; and while it is a very simple matter for the skilled operator to determine the strength of aqua ammonia expeditiously, it requires more time than pharmacists not skilled or prepared for these determinations are willing to devote to it, and as a consequence, the preparation is purchased. But if by some simple change in the manipulation we can reach the same end and at the time avoid the possibility of failure by reason of inequality of the substance used and that intended to be used, we encourage the preparation of this salt, and by similar attention to other preparations encourage the home production of many that are now exclusively procured from the manufacturers. Simplicity in the construction of formulas, and explicit directions that will enable the unskilled operator to determine the nature of the numerous difficulties that rise in his path, will do more toward encouraging the home production of pharmaceutic preparations than the numerous lectures that are given through the pages of journals of pharmacy, while at the same time by the practice the unskilled become skilled.

CITRATE OF IRON AND QUINIA.

This compound of the Pharmacopœia I have found so excessively difficult of solubility, even when heat is applied to favor it, that it has been a question with me whether its medicinal efficacy is not impaired thereby. There exists no particular difficulty in preparing a handsome article when the directions of the Pharmacopœia are followed, but these directions are liable to the same objections as specified previously with regard to solutions of citrate of iron, as a good result is dependent entirely upon the accurate attention given the preparation during the process of heating; for if the heating reaches a certain point of temperature higher than directed when the quinia is being dissolved, it is apt to agglomerate into masses which are very unmanageable and difficult to dissolve. In my experience, the difficulty is obviated by triturating the properly precipitated and washed quinia, with a portion of the solution of citrate of iron, introducing it into a flask and then adding the remaining solution. By occasional agitation, the quinia dissolves in a short time, forming a clear solution, which may be concentrated on a water bath without paying any special attention to temperature, and will scale with perfect facility. But by far the more popular salt is the

AMMONIO-CITRATE OF IRON AND QUINIA,

which appears to have replaced the officinal compound almost entirely. This I have prepared almost succesfully by reserving about one-sixteenth of the solution of citrate of iron and quinia obtained as above, and adding to the remaining fifteen-sixteenths, contained in a flask, dilute aqua ammonia in fractional portions, until a permanent precipitate results. Upon each addition of ammonia, quinia is copiously precipitated, but dissolves readily by agitation until toward the end of the process, when it will dissolve more slowly, and care must be exercised to avoid an undesirable excess of alkali. The addition of the reserved one-sixteenth of solution will redissolve the precipitate formed, by careful manipulation; and the solution when evaporated to the consistence of treacle—which can in this instance also be done upon an ordinary water bath without special care as to temperature—will, when spread upon glass plates, form glass scales of a handsome garnet color, of perfect and rapid solubility, and only moderate deliquescence.

Some remarks on dispensing these results may not be out of place here, for I have on various occasions experienced annoyance which, by a little foreknowledge, might have been entirely obviated.

SOLUTIONS OF THE SOLUBLE CITRATES

The most expeditious method of dissolving the soluble scaled preparations consists, in my experience, in placing the salt in a mortar, adding just sufficient water to cover it, allowing it to stand a minute or so, and then gently triturating the mixture with a pestle, when perfect solution will result. If it is attempted to dissolve these salts by direct trituration with water, they will adhere to the pestle and sides of the mortar, and greatly delay the operation. Dispensers are in the habit of simply throwing the scale into the aqueous menstrum and promoting solution by stirring, and while this is sometimes as effectual as the method proposed, it frequently delays solution, and should therefore not be resorted to.

PILLS OF THE SOLUBLE CITRATES

are found by me to be most conveniently and expeditiously prepared by adding from ten to fifteen per cent. of finely-powdered elm bark, and forming a mass by the aid of glycerine, which appears to exercise just sufficient solvent power to effect proper cohesion. Plastic mass is obtained, which does not harden rapidly, and is readily rolled into pills.

The saffron of Pharmacy, which is prepared mainly in two or three of the provinces of France, is so light when dried that from 35,000 to 40,000 flowers are required to make a pound. Each plant produces only three flowers.

On the Aniline or Coal-Tar Colors.*

BY W. H. PERKIN, F.R.S.

Coal-Tar, Benzol, Nitrobenzol, Aniline, and Aniline Purple or Mauve.

In this short course of lectures, it is my desire to bring before you a somewhat condensed history of the artificial colouring matters, generally known as the "Coal-Tar Colors." By this designation it is not meant to imply that coloring matters actually exist in coal-tar, and may, therefore, be extracted from it, but that coal-tar is the source of certain products which, when changed by various chemical processes, are capable of yielding colored derivatives. You will thus perceive that it is important for us to consider the various means employed to obtain the raw materials before giving our attention to the coloring matters themselves. We will, therefore, at once proceed to the consideration of "coal-tar;" its formation and constitution.

Coal-tar consists of the oily fluid formed by the destructive distillation of coal, and is obtained as a secondary product in the manufacture of coal-gas. Originally, coal-tar was a great nuisance to the gas manufacturer, and it was often a problem to him what he should do with it. I need scarcely say that this state of things is now changed. In the gas works the coal is distilled in large retorts, sometimes 25 or 30 feet in length. They are made of fire-clay or iron, and several are arranged in one furnace or oven, as it is usually termed. Each retort is fitted with an iron mouth-piece, from which a vertical tube rises, the mouth-piece also having a door fastened with a cross-bar and screw.

When in use, these retorts are rapidly filled with coal by means of a proper scoop, and then the doors are luted and fixed so as to be air-tight. Distillation commences immediately, as the retorts are constantly kept red hot. The gas and other products which form pass up the front vertical pipe (connected with the mouth-piece), through a bend, and down into a long horizontal tube, called the "hydraulic main." Here most of the oily products condense, and as they accumulate pass on with the gas down the general main, and flow into a tank provided for their reception. These oily products constitute "coal-tar." The coal-gas, leaving this tar behind, passes on to the condensers, and deposits a second, but smaller quantity of tar, and is then purified and stored in the gas-holders. The gas, however, does not interest us now.

I am here distilling some coal in a small glass retort, the beak of which is inserted into one of the openings of a three-necked receiver. The second opening is connected with the tube, so that the gaseous products may be examined, while the third and lower one is fitted to a small bottle, in which you see we have already obtained a quantity of an oily fluid. This is our coal-tar.

Having now seen how coal-tar is produced, we will consider of what it consists. Coal-tar is by no means a definite body, but contains a great number of substances, as a glance at the following table will show:—

*The Cantor Lectures, delivered before the Society of Arts. Published in the Chemical News.

TABLE I.—PRODUCTS OF THE DISTILLATION OF COAL.

Name.	Formula.	Boiling point Centgr.
Hydrogen	HH	——
Marsh gas (hydride of methyl)	$(CH_3)H$	——
Hydride of hexyl	$(C_6H_{13})H$	65
Hydride of octyl	$(C_8H_{17})H$	106
Hydride of decyl	$(C_{10}H_{21})H$	158
Olefiant gas (ethylene)	C_2H_4	——
Propylene (tritylene)	C_3H_6	——
Caprolene (hexylene)	C_6H_{12}	55
Œnanthylene (heptylene)	C_7H_{14}	99
Paraffine	$CnHn$	——
Acetylene	C_2H_2	——
Benzol	C_6H_6	80·3
Paraluenzol	C_8H_{10}	97·5
Toluol	C_7H_8	110
Xylol	C_8H_{10}	139
Cumol	C_9H_{12}	148·4
Cymol	$C_{10}H_{14}$	170·7
Naphthalene	$C_{10}H_8$	212
Paranaphthalene (anthracene)	$C_{14}H_{10}$	——
Chrysen	C_6H_4	——
Pyren	$C_{15}H_4$	——
Water	$\left\{\begin{matrix}H\\H\end{matrix}\right\}O$	100
Hydrosulphuric acid	$\left\{\begin{matrix}H\\H\end{matrix}\right\}S$	——
Hydrosulphocyanic acid	$\left\{\begin{matrix}H\\(CN)\end{matrix}\right\}S$	——
Carbonic oxide	CO	——
Carbonic anhydride	CO_2	——
Bisulphide of carbon	CS_2	47
Sulphurous anhydride	SO_2	—10
Acetic acid	$\left\{\begin{matrix}H\\(C_2H_3O)\end{matrix}\right\}O$	120
Carbonic acid (phenol)	$\left\{\begin{matrix}H\\(C_6H_5)\end{matrix}\right\}O$	188
Cresylic alcohol (cresol)	$\left\{\begin{matrix}H\\(C_7H_7)\end{matrix}\right\}O$	203
Phlorylic alcohol (phlorol)	$\left\{\begin{matrix}H\\(C_8H_9)\end{matrix}\right\}O$	——
Rosolic acid	$C_{12}H_{12}O_3$	——
Brunolic acid	—	——
Ammonia	$\left\{\begin{matrix}H\\H\\H\end{matrix}\right\}N$	—33
Aniline	$\left\{\begin{matrix}(C_6H_5)\\H\\H\end{matrix}\right\}N$	182
Pyridine	$(C_5H_5)'''N$	115
Picoline	$(C_6H_7)'''N$	134
Lutidine	$(C_7H_9)'''N$	154
Collodine	$(C_8H_{11})'''N$	170
Parvoline	$(C_9H_{13})'''N$	188
Corodine	$(C_{10}H_{15})'''N$	211
Rubidine	$(C_{11}H_{17})'''N$	230
Viridine	$(C_{12}H_{19})'''N$	251
Leucoline	$(C_9H_7)'''N$	235
Lepidine	$(C_{10}H_9)'''N$	260
Cryptidine	$(C_{11}H_{11})'''N$	256
Pyrrol	$(C_4H_5)'''N$	133
Hydrocyanic acid	HCN	26 5

This list, however, does not indicate all the constituents of coal-tar, but only those which chemists have, up to the present time, succeeded in separating from it; moreover, when we consider how greatly coal differs in composition, and also that the products vary according to the temperature to which the coal has been submitted, it is evident that coal-tar must be an almost endless source of chemical products. Many would, perhaps, consider this list a perfectly hopeless jumble of names, impossible to impress upon the memory, but, fortunately, chemists are able to classify their products, so that this formidable array of substances may be grouped under three or four different heads only, and therefore, their relationship being once understood, little difficulty is experienced in remembering their names.

Among those products, and at the lower part of this table, you will observe a substance called "aniline." This substance is of great interest to us, being one of the principal sources of the coal-tar colors. Aniline was discovered by Unverdorben, in 1826, among the products of the distillation of indigo, and from its property of forming crystalline compounds with acids, was called "crystalline." Afterwards Runge obtaining it from the distillation of coal, and because it gave a blue coloration with a solution of chloride of lime, called it "kyanol," or blue oil. Fritzsche, still later, obtained aniline by the distillation of indigo with hydrate of potassium, and gave it its present name, derived from *anil*, the Portuguese for indigo. About this time Zinin discovered a remarkable reaction, by which he obtained aniline from a substance called nitrobenzol; he called it, however, benzidam. The products obtained by these different chemists were not at first known to be identical; and it was not until Dr. Hofmann investigated the subject that they were all shown to be the same body, aniline.

Zinin's process for the conversion of nitrobenzol into aniline, consisted in treating the nitrobenzol with an alcoholic solution of sulphide of ammonium; this was greatly improved upon by Bechamp, who employed a mixture of finely-divided iron and acetic acid, in place of sulphide of ammonium.

This is a brief sketch of the history of aniline up to the time of the discovery of the mauve dye; it was then purely a laboratory product, and was prepared in very small quantities at the time, and only when required for scientific research. Chemists have always been desirous of producing natural organic bodies artificially, and have, in many instances, been successful. It was while trying to solve one of these questions that I discovered the "mauve." I was endeavoring to convert an artificial base into the natural alkaloid quinine, but my experiment, instead of yielding the colorless quinine, gave a reddish powder. With a desire to understand this peculiar result, a different base of more simple construction was selected, viz., aniline, and in this case I obtained a perfectly black product; this was purified and dried, and when digested with spirits of wine gave the mauve dye.

You will perceive that this discovery did not in any way originate from a desire to produce a coloring matter, as is sometimes stated, but in experiments of a purely theoretical nature.

After showing this coloring matter to several friends, I was advised to consider the possibility of manufacturing it upon the large scale, and was eventually induced to make the experiment, though I must confess, not without considerable fear for the result, especially as my chemical advisers set before me anything but encouraging prospects. In starting this manufacture, the first difficulty was to decide upon the source from which aniline could be obtained at a sufficiently low price. It was at once evident that indigo was by far too costly a product for this purpose. Attention was, therefore, directed to the extraction of aniline from coal-tar, but after very numerous experiments, it was found that the difficulty of purifying it was so great that it was not practicable to prepare it at a reasonable price from this product. There was, therefore, but one source left, namely, nitrobenzol; but to prepare aniline from this body necessitated the establishment of a new manufacture; nitrobenzol at that time not being a commercial article, and although it could be produced in small quantities without much difficulty, yet when tons were required at a limited cost, many obstacles presented themselves.

Having spoken of nitrobenzol, it will be necessary, before proceeding further, to tell you something of the body it is prepared from, and also how it is made in quantity. Nitrobenzol is produced from a derivative of coal-tar called benzol—you will see it mentioned in the list of coal-tar products. It is composed exclusively of carbon and hydrogen, and is, therefore, called a hydrocarbon.

Benzol was discovered by Faraday, in 1825, one year before aniline by Dr. Unverdorben. Its existence in coal-tar was first pointed out by Dr. Hofmann, in 1845, and afterward Mansfield showed that an almost unlimited supply might be obtained from this source. Benzol is a volatile oil, boiling at a temperature of 80·8°C., nearly 20° lower than water, and is also very inflammable, burning with a smoky flame. When ignited it cannot be extinguished by water, as it floats upon its surface. Its vapor, when mixed with air, is explosive. It is also very dense. This I can easily show you by decanting a small quantity of benzole vapor several times from one vessel into another, and then igniting it. Instances have been known, when distilling benzole in large quantities, and some leak in the apparatus has occurred, so that its vapor has escaped, that it has run along the ground, and been ignited by a furnace situated thirty or forty feet distant, and instantly run back to the apparatus. To illustrate this I will pour some benzol vapor into the top of a slightly inclined trough, fourteen feet long, at the lower end of which is placed a lamp. The vapor will be seen to run gradually down till it reaches the lamp, where it ignites and instantly rushes back to the top of the trough. One of the most remarkable properties of benzol is, that when cooled down to nearly the freezing point of water, it solidifies to a beautiful crystalline mass. This property of benzol is sometimes taken advantage of when it is required in a very pure state, as the impurities which accompany it are fluid, and do not freeze when cooled with ice.

Benzol is often sold under the name of benzine collas, for the purpose of removing grease from wearing apparel. But let us consider how benzol is separated from the great number of products with which it is associated in coal-tar. The first operation consists in distilling the coal-tar just as it comes from the gas-works, in large stills, holding one or two thousand gallons each; these are often made of old steam-boilers; at first very volatile and light oily products come over, and are collected until their density increases to such an extent that they no longer float upon water. These contstitute crude coal-tar naphtha. The distillation is then carried on, and heavy, or, as they are technically termed, "dead" oils are collected, a residue of common pitch being left in the still. This pitch is generally run out, and cast into blocks; but sometimes the distillation is carried on after the dead oils have been obtained, when a mixture of solid oily products distils, nothing but a kind of coke being left behind. These latter substances, however, do not interest us now.

The light oil, or crude coal-tar naphtha, is then purified by one or two alternate distillations with steam and treatments with con-

centrated sulphuric acid. It is thus rendered a colorless fluid. Thus purified, coal-tar naptha contains, besides benzol, at least four or five other bodies. These, however, mostly differ from benzol in being less volatile; therefore, the naphtha is again distilled, the first, or more volatile portions only being collected for benzol. By repeating this process of fractional distillation several times, commercial benzol is obtained. Some manufacturers employ stills of a peculiar construction, which enables them to obtain a good product by a smaller number of distillations. Benzol, when treated with fuming nitric acid or aquafortis, undergoes a remarkable change. At first the two fluids mix and become of dark brown color and slightly warm, in the course of a few moments red fumes appear, and the mixture enters into ebullition. During this violent action the color of the liquid becomes lighter and ultimately changes to orange. If water be now added to this product, the benzol, which is such a light body, will be seen to have completely changed into a dense yellow oil sinking in water. This oil is nitrobenzol. Nitrobenzol was discovered in 1834 by Mitscherlich. It solidifies into a crystalline mass at a temperature of about 3° C.; its odor is like that of the oil of bitter almonds, and before the introduction of coal-tar colors it was made in small quantities, and sold under the name of essence de Myrbane, for the purpose of scenting soap.

From the energy with which benzol is attacked by fuming nitric acid, nitrobenzol at first appeared to be a most difficult product to manufacture on the large s ie, and this difficulty seemed the greater when it was found necessary that it should be made at a moderate cost. Moreover, at the time I am now referring to, fuming nitric acid, sp. gr. 1.5 could not be obtained in the market, or only at such a cost as almost to preclude its use. Under these circumstances, two mixtures were experimented with instead of the nitric acid in a very concentrated condition. The first was a mixture of nitrate of sodium and sulphuric acid, the second a mixture of ordinary nitric acid, sp. gr. 1.3, and sulphuric acid. The mixture of sulphuric acid and nitrate of sodium was preferred, and employed on the large scale.

To be Continued.

ONTARIO COLLEGE OF PHARMACY

PRESIDENT, - - - WM. ELLIOT, ESQ.

The regular meetings of the College take place on the FIRST FRIDAY *evening of each month, at the Mechanics' Institute, when, after the transaction of business, there is a paper read, or discussion engaged in, upon subjects of interest and value to the members.*

The College admits as members, Chemists and Druggists of good standing, and their assistants and apprentices, as associates, on payment of the following fees:

Principals, - - - - - -	$4 00 per Annum
Assistants & Apprentices,	2 00 "

The JOURNAL *is furnished* FREE *to all members.*

Parties wishing to join the College may send their names for proposal to any of the members of the College. A copy of the Constitution and By-laws of the College will be furnished on application.

HENRY J. ROSE, *Secretary.*

THE CANADIAN

Pharmaceutical Journal.

E. B. SHUTTLEWORTH, EDITOR.

TORONTO, ONT., OCTOBER, 1870.

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.

Subscriptions will not be acknowledged by letter, as our sending the paper may be taken as sufficient evidence of the receipt of the money.

All communications connected with the paper to be addressed, post-paid,

"EDITOR CANADIAN PHARMACEUTICAL JOURNAL TORONTO."

IN consequence of the adjournment of the monthly meeting, we have had to delay the issue of the JOURNAL a few days over the usual time.

EARLY CLOSING.

We learn that the druggists of Kingston have resolved to close their places of business at seven o'clock, during the fall and winter months. Our eastern friends have, in this matter, set their western brethren an example worthy of imitation, which, we hope will not go unimproved.

If there is one man more than another who requires a few hours respite from the calls of business, it is the "poor apothecary." His work is incessant; it involves no small amount of anxiety; the wear and tear on the system is greater than is the case with any other business with which we are acquainted, and, if we might be allowed a moment's digression from the subject, the pay is worse, a state of things which is by no means conducive to that serenity of mind necessary to a state of health.

Druggists have always been late workers; it is, in some measure necessary that it should be so. We are, however, inclined to think that the amount of night-work might be much curtailed without injury either to the druggist or his customers. The number of cases of urgent sickness are comparatively few, and the supplying of these can never be brought forward as an argument against early closing, else we deny the right of closing the shop at all. The difficulty does not lie with the public, but with the druggist. "I must not close while so and so keeps open;" this is the secret of late hours, it is not the gain which tempts—for, in common with others who are acquainted with the working of the system, we well know that the expenses of keeping open shop until a late hour frequently exceed the receipts. It is an unhealthy and morbid spirit of competition which, in the great majority of instances, underlies this pernicious system. It seems needless to call up illustrations of the truth of our statements, as our readers will, no doubt be able to do this for themselves; we remember however, a case in point, which came under our own observation, and which we watched with some interest, from beginning to end. In a city which shall be nameless, there dwelt two druggists whose shops were located on the same street; in fact, the shop of one was exactly opposite that of the other. We need not say that competition was sharp, and that every effort was made by either party to display those objects which might tempt customers. All this was very laudable; but it soon became evident that the business done by both was barely sufficient for one; as a consequence, our druggists had a large amount of unoccupied time at their disposal, despite their best endeavors to assume a brisk and business-like appearance. A rivalry in prices was tried; but no sooner did Mr. A. announce his intention to sell coal oil at a price that defied competition, than his friend on the opposite side displayed by flaming placards, his willingness to part with *his* stock at even greater sacrifices. This excitement lasted for a time, but it was found that a prolonged contest was incompatible with a clear view of the bread and butter question, and a drawn battle was the result. Hitherto, as if by mutual consent, these rival stores had been regularly closed at nine, but in an evil hour, and perhaps, while under the influence of envy, caused by an apparent increase in the number of customers who visited the shop of Mr. B.—which, we may say, were daily counted by Mr. A. from an entrenched position near the window—an idea was suggested to the mind of the latter, and before long was carried to triumphal execution. The evening came, and at the appointed time the shop of B—— was closed, but judge of his surprise and chagrin, when, half an hour later, he beheld the establishment of his rival resplendent with the light of additional lamps, which danced among the colored bottles in the window as if in mockery at his defeat. The gauntlet was now thrown down, and to make a long story short, war was continued to the bitter end. Night after night have we seen these unhappy druggists, with heavy eyes, standing behind their customless counters. The hours of ten, eleven, and twelve were successively reached, and it was soon evident that nature or rivalry must succumb. The end came; for several days the shutters of the shop of A—had not been removed, we made enquiry for him, but were informed that he was not—profits *vs.* coal oil had proved too much for him.

There is another side to the story beyond that we have pointed out; the determination of receipts and expenses alone, will not give a

true balance, without other considerations are taken into account. The old adage about "all work and no play" is a true one, and we know that unless time is allowed for recreation, the amount of work done will gradually, though surely, become less, until mind and body become worn out, and work, as well as play, are rendered impossible.

The question of the employed, is, in this connection, entitled to consideration. What can we expect of an apprentice, or assistant, whose time is taken up in business until nine or ten o'clock in the evening? Study, especially of those subjects which have engrossed the attention during the day, is next to impossible, and cannot be pursued without injury to mind and body. A young man who spends the few remaining hours of night in study is in but poor condition for work next day, and the employer who tells his apprentice to read and qualify himself for his business, and expects him to work steadily from seven or eight until ten in the shop—occupies according to our way of thinking, a rather questionable position. In place of a bright, active, and willing assistant, he will have one that is dull, languid and perhaps reluctant. Let the arrangements of the day embrace time for recreation and study as well as for work, and we are certain that in the case of a conscientious and honest assistant, the employer will not be the loser.

We are well aware that individual effort, on the part of any druggist, is not directly of much use in effecting a change in favor of early closing; a concerted movement is required and we hope that the druggists of our larger cities and towns will not pass this intimation unheeded.

Chemical Manufactures and Preparations at the Provincial Exhibition.

If the extent of the chemical manufactures of Canada was to be estimated by the display at the late Provincial Exhibition, the opinion formed of this branch of industry would not be very flattering either to our resources or enterprise. A more meagre display it would, indeed, be difficult to imagine. Of articles strictly chemical there were none, but under the head of "preparations" and "extras" there were a few entries, embracing samples of white lead, ground in oil; putty; lubricating oil; inks; and essential oils; nor must we omit to mention samples of prepared glycerine, Chinese garden powder, tick destroyer, and burning fluid, exhibited by Mr. Miller, of this city. Although these latter articles did not gain a prize, they were "commended" by the judges—as they have been in time past, by the public. Indeed it is far from our intention to say anything at all disparaging of any of the articles exhibited; it is the lack of interest as shown by the small number of entries, which we complain of. We should like to see a little more pride on the part of our manufacturers, for we know that it is from this defect, and this only, that the class of chemical preparations has, in our annual fairs, become a mere name.

Pharmaceutical Conventions.

The 18th annual meeting of the American Pharmaceutical Association, was held at Baltimore, on September 13th, and following days. The attendance amounted to considerably over one hundred, and the meeting appears to have been, as usual, a very interesting and successful one. Delegates from various Pharmaceutical associations and colleges, were present; amongst others, Messrs. Wenzell and Perkins, who represented the California Pharmaceutical Society, a body which certainly gives ample evidence of its zeal for the cause, in thus sending delegates from so great a distance. Neither of our Canadian societies were represented, but amongst the names of those present we notice that of Mr. W. Saunders, of London, who appears to have taken an active part in the proceedings of the association.

By a strange coincidence, the British Pharmaceutical Conference commenced its sittings on the same day as the American Association, and at the annual dinner of the former, held at the Adelphi Hotel, Liverpool, on the evening of the 13th, a telegraphic shake-hands was proposed, and carried into execution by the transmission of the following messages:

"From the President of the British Pharmaceutical Conference, at Liverpool, to the President of the American Pharmaceutical Association, at Baltimore:—The most successful meeting ever held, sends hearty fraternal greetings."

"From the American Pharmaceutical Association, Baltimore:—Fraternal greetings of American Pharmaceutical Association."

It appears that the latter message was sent previous to the reception of the former, or as our friend the *Chemist and Druggist* says: "Good will and mutual sympathy ran faster than the telegraph," so that the messages passed each other on the way.

Messrs. Lyman Brothers' Pic-Nic.

An excursion and pic-nic, given by Messrs. Lyman Brothers & Co., of this city, to their former and present employees, took place on Saturday, September 24th. The party, which numbered about one hundred and thirty, accompanied by Professor Toulmin's brass and quadrille bands, embarked on the steamer *Transit*, which had been chartered for the occasion, and, about noon, set sail for Port Credit—the place selected for the pic-nic. The weather was delightfully clear and bright, and the sail on the lake was enjoyed by all. On arriving at the wharf at Port Credit, the party wended its way to the grounds, which are situated in the grove by the lake-side, where every arrangement had been made for the convenience and comfort of the excursionists. The former part of the afternoon was spent in a very pleasant manner, and, towards evening, tea was served in a spacious tent which had been erected for that purpose. Mr. Lyman, Jr., and ladies, were unremitting in their attention to the comfort of the party; and in the matter of refreshments, their efforts were especially appreciated, as the fresh breeze from the lake proved decidedly appetizing. At dusk the party re-embarked on the steamer, and during the sail home, the time was pleasantly occupied in dancing, &c. On nearing the city, a cordial vote of thanks, on behalf of the employees, was tendered to the Messrs. Lyman and ladies, by Mr. W. Hunter. Mr. Lyman replied in a brief speech, in which he thanked the party for the very hearty expression of good feeling embodied in the remarks of the previous speaker, and shown in the happy faces of those around him. There was one respect in which he felt particularly pleased—that was, the entire absence of anything approaching to intemperance. It had been represented to him, that in encouraging a gathering like the present he was aiding a system which always led to an over-indulgence in intoxicating liquors. He was glad to find that this was not the case. After speeches by Mr. Henry Lyman, Jr., Dr. Howsen, and others, the arrival of the steamer at the wharf gave the signal for separation, and the various members of the party wended their way to their respective homes, all expressing themselves highly satisfied with the proceedings of the day.

To our Young Friends.

In the present number we have introduced a new feature, which we hope will be a source of pleasure and instruction to our young druggists. We allude to the "Student's Column." We purpose giving, each month, a number of chemical problems for solution. The answers must be forwarded to us before the fifth of the month, and when correct, will be published, with the writer's name attached, in the succeeding number of the *Journal*. We do not intend to make these questions too difficult, and shall endeavor to confine ourselves to those having a strictly pharmaceutical bearing. We hope our young friends will enter into the matter with spirit, for we are not aware of any method which we can devise by which a greater amount of information may be gained.

A Rat-proof Wood.

Dr. Binkerd, of Pennsylvania, communicates the following to the Philadelphia *Medical and Surgical Reporter*. If subsequent experiments should prove the statements made to be true, in regard to the common mouse—and this seems highly probable—the fact might be turned to advantage in the construction of druggist's drawers and bins used for containing seeds, or other articles, subject to the ravages of this little pest:

It is well known that the brown rat, or *Mus decumanus* of the zoologist is the most pestiferous rodent inflicted upon the commercial world. It will cut its way through pine or oaken plank, with the facility of a ship-carpenter. It is the pest, alike, of merchants, importers, grocers and farmers. The sum of its combined ravages, estimated in dollars and cents, since its introduction into the United States, would materially diminish our National debt of to-day, if not entirely liquidate it.

Being surrounded by these animals, I found it necessary to keep fruits, butter, cheese, and other articles in boxes made of hemlock, not the *conium* of the botanist, but the *abies canadensis* of the arborist. In these boxes I could keep the most toothsome delicacies in the cellar with impunity, even though the box afforded free ventilation, which, in many cases, is highly necessary.

To test the matter still further, I made a box of dry hemlock boards, perforating each end of the box with a 7-8 inch circular hole. Into this box I put a large healthy rat, caught in a hemispherical wire trap, nailed it up securely, put in a dark, quiet place and awaited the result.

On inspection at the end of 24 hours, I found he had scarcely more than touched the wood. I returned the box, leaving the rat to his cogitations, which horn of the dilemma to choose.

At the end of forty-eight hours I made him another visit. He had evidently come to the conclusion that remaining inactive was to strand upon Scylla, while the effort to buy his liberty could do no worse than wreck him upon Charybdis. He had enlarged the hole sufficiently to get his head out, in which condition I found and dispatched him on the third morning of his incarceration.

Skeleton Leaves.

The druggist is frequently inquired of in regard to the manner of skeltonizing leaves; and we have seen many very pretty objects, suitable for display in the shop windows made by this method—the capsule of the poppy, or the seed-vessels of stramonium, for instance. The following process, which is taken from a foreign contemporary, will be found more in detail than anything we have hitherto seen on the subject:

Skeleton leaves are among the most beautiful objects in nature, and as they can be arranged either in groups under glass shades made into pictures, as it were, and hung against the wall, or placed in either blank books or albums, they come within the means of all, and can be used to decorate the palace or cottage. The most suitable leaves for the purpose are those from what botanists call *exogenous* plants, and may be known by the veins of the leaf branching from a central vein or midrib; those from *endogenous* plants rising from the base and curving towards the apex of the leaf. The object in view is to destroy what may be called the fleshy part of the leaf, as well as the skin, leaving only the ribs or veins.

The most successful, and probably the simplest, way to do this is to macerate the leaves in rain-water till they are decomposed. For this purpose, when the leaves are collected they should be placed in an earthenware pan or a wooden tub, kept covered with rain-water, and allowed to stand in the sun. In about a fortnight's time they should be examined, and if found pulpy and decaying, will be ready for skeletonizing, for which process some cards, a camel's-hair brush, as one rather stiff (a tooth-brush for instance) will be required. When all is prepared, gently float a leaf on to a card, and with the soft brush carefully remove the skin. Have ready a basin of clean water, and when the skin of one side is completely removed, reverse the card in the water, and slip it under the leaf, so that the other side is uppermost. Brush this to remove the skin, when the fleshy part will most likely come with it; but if not, it will readily wash out in the basin of water.

If particles of the green-colored matter still adhere to the skeleton, endeavor to remove them with the soft brush; but if that is of no avail, the hard one must be used. Great care will be necessary to avoid breaking the skeleton leaves, and the hard brush should only be used in a perpendicular direction (a sort of gentle tapping), as any horizontal motion or "brushing" action will infallibly break the skeleton. Never attempt to touch the leaves or the skeleton in this state with the fingers, as when they are soft their own weight will often break them.

A very good way of bleaching the skeletons is to prepare a solution of chloride of lime, which must be allowed to settle, and the clear liquor poured into a basin in which the skeletons may be put by floating them off the card. It is well to have half-a-dozen ready to bleach at once, as they require watching, and if allowed to remain in too long will fall to pieces. From two to four hours will generally suffice to bleach the skeltons of all ordinary leaves, after which they should be washed in several changes of water, and finally left in clean water for half an hour.

After the leaf has been sufficiently washed, it should be floated on to a card and dried as quickly as possible, care being taken to arrange the skeleton perfectly flat, and as near as possible to the natural shape. This can be done with the assistance of the soft brush. When dry the skeleton should be perfectly white, and should be mounted on dark backgrounds, as black velvet or paper.

Well-grown leaves should always be chosen, and be thoroughly examined for flaws before maceration. Leaves containing much tannin cannot be skeletonized by this process, but are generally placed in a box with a number of caddis worms, which eat away the fleshy parts, when the skeletons can be bleached in the usual way. Holly-leaves must be placed in a separate vessel, on account of their spines, which would be apt to damage other leaves; they make beautiful skeletons, and are sufficiently strong to be moved with the fingers.

It is not necessary to give list of leaves suitable; but the leaf of the poplar, the apple, the pear, and the ivy may be mentioned as easy ones to commence with. Various seed vessels may be treated in the same manner, and by precisely similar means, and thus greater variety given to the groups. Wishing our readers success in their experiments, we would remind them that what is worth doing at all is worth doing well, and that "a thing of beauty is a joy forever."

Separation of Nitrate of Potash from Nitrate of Soda.

Schultz proposes to effect the separation of these salts, by taking advantage of their different degrees of solubility in nitric acid. Nitrate of soda is, comparatively, insoluble in that menstruum, one part requiring sixty-six of acid for complete solution, while the potash compound dissolves in about one and a half parts of acid. The method appears to be impracticable, except for the separation of small quantities, and on the manufacturing scale would be rendered useless, by reason of the cost of the menstruum, and the loss consequent on evaporation.

Quinquina Chocolate.

The *Chemical News* contains a notice of a paper in *Les Monde*, by Dr. Heuzé, from which it appears that the author has succeeded in preparing an extract of Peruvian bark so as to possess no unpleasant bitter taste, and this is mixed with pure chocolate paste, so as to form readily-portable, and, at the same, agreeable dietetic medicine. This preparation is (thus it was stated at a meeting of the Central Imperial Society of Agriculture) considered superior to the sulphate of quinine.

The editor of a Pharmaceutical contemporary, on being asked by a correspondent to give his views on Franco-Prussian difficulties, prefers leaving the task to the daily papers, on the ground that all he is supposed to know about Prussia is prussic acid; while Solferino and Magenta are, to him, merely the names of various aniline compounds.

At the taking of the last census in the United States, there were 55,000 physicians, 11,000 druggists, at present there are 74,000 physicians.

OBITUARY.

It becomes our melancholy duty to chronicle the death of a much respected member of the College—Mr. William McConnell, of Cobourg. The circumstances attending his decease were of an unusually painful character. It appears that Mr. McConnell came to this city on the 28th of September, for the purpose of making his fall purchases, and, while at the Union Station, his attention was attracted by a new engine belonging to one of the narrow gauge railways. In company with

two other gentlemen he stepped off the platform on to the track for the purpose of examining the locomotive, and while doing so failed to notice a train which was backing up on the track on which the party were standing. All three gentlemen were struck by the hind car; two of the three escaped with trifling injuries, but Mr. McConnell was thrown across the rails, the wheels of the car passing over his arm and side. He was at once removed to an adjoining house, and subsequently to the General hospital, but an examination of his injuries revealed no hope of his recovery. The unfortunate gentleman lingered until five o'clock in the evening—some ten hours after the accident occurred—when he quietly expired, retaining full possession of his mental faculties until the the last. A circular was issued by the president of the college, inviting members to the funeral, which took place at four o'clock on the following day, when the remains were taken to the train to be conveyed to Cobourg for final interment. Our friend leaves behind him a widow and four children to mourn his loss, and in tendering them the heartfelt sympathy of the members of the college, we would at the same time express our sorrow at the loss of a warm personal friend.

BOOKS AND PAMPHLETS.

ARCHIVES OF OPHTHALMOLOGY AND OTOLOGY; Vol. I., No. 2. William Wood & Co., New York.

The second number of this incomparable periodical is before us. The promises of the publishers, and the expectations raised by the former number have been fully realized in the present issue, which is he no wise behind its predecessor. The number contains some twenty original papers, which extend over 350 pages; and are illustrated by several plain and colored lithographs.

THE MEDICAL TIMES: a Semi-monthly Journal of Medical and Surgical Science.

This is the title of a new periodical issued by the well-known publishers Messrs. J. B. Lippincott & Co., of Philadelphia. Amongst the list of regular contributors—which numbers over one hundred—we notice the names of many eminent medical writers; and from the first number, which is now before us, we think the *Times* may be, at once, assigned a place in the front rank of periodical Medical literature.

The thirteenth edition of the UNITED STATES DISPENSATORY, of Wood & Bache, has been recently issued. As no alteration has been made in the U. S. Pharmacopœia, since the publication of the former edition, no material changes have been made, but much additional matter has been added—amounting in all to over one hundred pages. The modifications rendered necessary by the issue of the British Pharmacopœia of 1867, have also been made. The work is so well known that, having mentioned these changes, any further remarks are unnecessary.

Students' Column.

Answers must be forwarded to the Editor before the fifth of each month.

QUESTIONS.

I. A vessel is capable of containing two hundred cubic inches of water, at a temperature of 60° F. What is its capacity in measures of the apothecaries' and imperial systems?

II. Two grammes of chloral hydrate are ordered to be dissolved in 8 grammes of water with the addition of 2½ grammes of simple syrup. What Troy weights will correspond nearest to these quantities?

III. Give the formula for sulphuric, muriatic and nitric acids, according to the old and new systems: and the combining weights of each compound?

IV. What compound will be formed by the addition of a solution of common salt to that of nitrate of silver? What will be the weight of the precipitate from one ounce of the nitrate of silver? And what will be the effect of employing an excess of the precipitant?

V. What amount of iodide of potassium is required to decompose 10 ounces of perchloride of mercury?

VI. Explain by an equation, the reaction which takes place between solutions of sulphate of iron and carbonate of soda?

VII. What amount of sulphate of iron is obtainable by the solution of ten ounces of the metal?

VIII. Name the principal varieties of cinchona, in the order of their alkaloidal strength as regards quinine?

IX. Enumerate the localities from which the supply of *acacia* is obtained, and give the names of the trees producing the different varieties?

X. Name the substances incompatible with a solution of opium?

Notes and Queries.

A NEW VEHICLE FOR SUPPOSITORIES.—We have received a communication from Mr. T. Carre, of Meaford, in regard to a new vehicle for the administration of opium, or other medicine, by suppository. The composition is similar to that used in printers' rollers, with the substitution, however, of glycerine for the greater part of the syrup ordinarily used. We are not prepared to pronounce upon its merits, but from trials made by Mr. Carre, and others, on patients suffering from hemorrhoids, it would appear that the new composition possesses advantages over other excipients used for a like purpose. We have shown the sample sent us to several of our pharmacists, and all seem to think favorably of it. As gelatin is one of the ingredients, the composition could not be used for making suppositories containing tannin, as an insoluble and inert substance would be formed.

We append that portion of Mr. Carre's letter in which the formula and mode of preparation are given:

"Best glue.....ʒiv.
Glycerine.....ʒviii.
Golden syrup.....ʒii.
Water.....ʒviii.

"Soak the glue in the water until quite soft, then dissolve over steam or water bath; mix the syrup and glycerine well together, add them to the glue solution, and boil until they lose about 2 oz. in weight; then pour out on an oiled tray, or into any suitable mould, previously removing any scum formed.

"The piece sent you is two years old, and has been kept in a dry place, exposed to the air, and contains less water than was originally contained in the syrup and glycerine, consequently will not dissolve so readily as when fresh; yet it will yield even to cold water in two or three days, but when fresh would soon become soft, and, in the bowel, would dissolve quickly enough. In six or eight hours it would have completely disappeared.

"Its chief use would be as an excipient in severe cases of piles, for which its elastic texture seems to fit it, and which first caused me to try it. The action of the hot solution in the opium may have a good effect in preparing it to exert its full influence. It has answered well in the cases in which it has been used, and the sufferers have recommended it to others similarly affected.

"The syrup in the above might, perhaps, be omitted, and a larger quantity of glycerine used. The tendency of a larger quantity of syrup would be to favor the formation of a tough and almost insoluble skin.

"The composition is to be dissolved in a little water with gentle heat, and the opium mixed with it, then run it into a mould. I make a mould of glazed paper, formed on a small vial, or any suitable cylindrical body, gum down the edges, close over one end, oil well inside, run the composition into it, and when cold remove the paper, and cut into suitable lengths. It dissolves slowly in the rectum, and is very soothing in its effects."

ONTARIO COLLEGE OF PHARMACY.

The regular monthly meeting was held at the usual place, on Friday evening 14th inst., having been postponed from the 7th. In the unavoidable absence of the president, Mr. Shuttleworth was voted into the chair, and the minutes of last meeting were read and adopted, after which the following gentlemen were elected members:

Wm. Dagg.....Tiverton.
H. A. Knowles.....Toronto.

ASSOCIATES.

John Templeton.....Napanee.
Geo Aldridge.....Hamilton.
Murdock McLeod.....Bradford.

The Secretary asked the Society for instructions regarding the notification to members, of the night of meeting, as it was found that many, who wished to attend, often required a notice of some kind, otherwise, it escaped their attention.

It was decided that a fresh supply of handbills, something similar to the last, should be printed, and distributed on the Monday before each meeting.

As announced at last meeting, the subject of syrup of the hypophosphites, was introduced. The chairman said that he had put a few remarks on the subject on paper; he was requested to read them.

His interesting paper (which will be found in another column) was well received by the meeting.

The Secretary said that, with regard to the solubility of the hypophosphites of commerce, especially the lime salt, he had seldom found them soluble in six parts of water, while the long continued application of heat caused a further precipitation.

Mr. Shuttleworth said that this sometimes arose from a too hasty drying of the salt, but he had not met many samples of that kind. In some cases the addition of a small quantity of hypophosphorous acid caused a perfect solution.

In reply to a question as to an easy test of purity, it was suggested that the nitrate of silver test might be made available, as the silver salts of phosphoric acids are easily recognized by their color and appearance, while the hypophosphite of silver is at once reduced to the metallic state. Contamination of the lime salt with phosphates and phosphites might easily be proved by the presence of a precipitate on treating with chloride of barium.

As to the presence of iron in commercial samples of the syrup, several members present said they had always found distinct traces of that substance, and the objection that if the full quantity of iron were added, the syrup became discolored, was not found to hold good if proper care were used in its preparation.

After several other remarks, and questions by the members, the chairman said he was pleased to see the interest taken in the subject of the evening, and hoped they would be able to have some such practical discussions at future meetings.

Meeting adjourned.

H. J. Rose,
Secretary.

Selections.

The Opium Trade.

A Calcutta correspondent writes on this subject as follows:

From all the accounts we receive here it appears to be tolerably certain that Sir Rutherford Alcock's commercial engagements with the government will not be ratified at home. So far as India is concerned, this is a result to be desired. Even without his untoward assistance there is very palpable danger impending over the opium revenue of this country. What the real aim of the Chinese government is I do not profess to be able to decide. Their avowed intention to foster the cultivation of opium at home until the India trade is destroyed, and to strangle their own, by this means enforcing total abstinence, may be what they sincerely intend, but I take leave to doubt it. It is I suspect, but a wily mode of holding a candle to the devil, and of securing on grounds of the loftiest morality, the fullest profits derivable from immorality. Admitting, however, that Chinese government is really sincere in its aim, I question very much whether it is attainable. During the proposed process the Chinese revenues would reap an enormous harvest, ever increasing as the India trade failed; and when the first act was completed and China grew all her own opium, it is at least open to doubt whether the then government would retain sufficiency of its pristine virtue to cut itself off from a source of wealth which, by that time it would have come to look upon as an all-important element of the finances of the country. Moreover, as, on the removal of all restriction on its consumption, the national taste for opium, already so strong, would have been vastly stimulated, it is, to say the least, problematical whether the people would or could forego the use of the drug. But be this as it may, the fact remains that the cultivation of opium in China is already very great, and is rapidly increasing, and that the drug locally produced is not far inferior to Indian opium, and can of course be sold at a cheaper rate. With local recognition of opium, the old argument as to the immorality of the Indian trade disappears. It will be necessary, therefore, for the Indian government henceforth to fight China in her own markets, and while raising the largest revenue from opium attainable to keep the price at which it can be sold in China so low as to prevent competition from other quarters, and if possible to undersell the Chinese growers themselves.

To extend the cultivation of the poppy in Bengal it will be necessary to give the cultivators a higher price for their produce, and also to extend its growth to other parts of India. The alternative plan is abandoning the monopoly of cultivation and manufacture, which is the Bengal system, and introducing the Bombay system, which levies a heavy transit duty on the opium manufactured by private enterprise in Malwa. I am, however, distinctly of opinion that the Bengal system, securing the monopoly of direct purchase, preparation and sale of the drug, should be maintained. Practically, the government derive something like £30 a chest more from Bengal opium than is derived under the Bombay, or "pass" system Malwa opium. Of course, a heavier duty might be imposed on Malwa opium, but this would certainly at first check production, and a reduced supply now means an increased production in China—a consummation religiously to be avoided. I have, therefore, little doubt that sooner or later the Indian government will, in furtherance of their real interest, stimulate the cultivation of opium by the payment of a higher price to the cultivator, and, as a consequence, extend the area over which it is produced. The enhanced price of, say one shilling to the pound, would be all important to the cultivator, while the difference it would make to the government would be insignificant.—*Philadelphia North American.*

Cod-Liver Oil.

The process of manufacturing the far-famed cod-liver oil at Portgual Cove, Newfoundland, is described in the *St. John's Telegraph*. The livers of the cod are sold by the fishermen to the manufacturer of the oil at the rate of 24c. a gallon. On the average it requires 2½ gallons of liver to produce a gallon of oil. The livers are first carefully washed, and must be "cooked" at once, while fresh. They are first put into a large tin boiler. This is plunged into a larger iron boiler filled with hot water, the water not being allowed to touch the livers, which are thus gently steamed till a quantity of oil is floating on the surface. This is dipped out and filtered through blanketing first; then twice afterwards it is filtered through bags of moleskin. From the last filtration it comes out of a beautiful crystalline transparency, and without any unpleasant smell or taste. The oil is now poured into 60 gallon casks, and forwarded to the exporting merchant. The refuse is placed under screw presses and the remainder of the oil extracted. This is not refined, but sold as common cod oil, and is used largely on railways and for lubricating machinery. The cod-liver oil has gone up in price lately, owing to the immense demand for it in Europe, and now it is sold to the merchant at the rate of 130 cents a gallon. Last year 330 tuns of it were exported, the value being 260 dols. per tun. Of the common cod oil, unrefined, 4,521 tuns were exported, the value being 144 dols. per tun. So plentiful has been the catch of cod this year that in one factory 2,000 had been barrelled before the season was half through. The men who handle it get quite a liking for the oil. A little dog running about the premises laps it eagerly. The secret of making good cod-liver oil lies in the application of the proper degree of heat—too much or too little will seriously injure the quality. Great attention to cleanliness is also necessary, the filtering bags requiring to be washed thoroughly every day, and the troughs scrubbed out with great care. The rancid oil that is frequently met with is the produce of manufacturers who are careless about these matters. The best oil is made in the way above described; and all the pretences of quacks about refining it, and making it palatable, are, it is declared, mere moonshine, and either covers for adulteration, or such as deprive the oil of its medicinal properties. There is, no doubt, an enormous amount of adulteration practised by the retailers of cod-liver oil, but it is maintained that it is not done in Newfoundland. The greater part of the oil goes to London, and there it is "doctored." The writer in the St. John's

paper states that were a person with competent skill and capital to embark in the manufacture in Newfoundland on an extensive scale, and bottle the oil on the spot for the retailers, guarding it by a label and other securities, and guaranteeing a pure article of the best quality, his oil would speedily take the lead in the market.—*Chemist and Druggist.*

The Alkaloids Contained in Opium.

M. O. Hesse has discovered several new alkaloids in opium. The alkaline fluid obtained by treating the opium with soda or lime is treated with ether, and the latter agitated with acetic acid. The acidulous liquid separated from the ether is poured slowly and with stirring into a dilute solution of soda employed in excess; a resinous precipitate is formed, and slowly agglomerates. After twenty-four hours the precipitate is separated, an excess of hydrochloric acid added, and subsequently of ammonia, which latter reagent causes the precipitation of the bases. The alkaline fluid holding the precipitate in suspension is treated with chloroform, and the latter subsequently with acetic acid. Excess of ammonia, added to the acid solution, yields a coloured resinous precipitate, which soons becomes crystalline, and consists of impure *cauthopine*. After twenty-four hours the mother liquor is treated with soda sufficient to displace the ammonia of the ammoniacal salts, when a precipitate of *codeine* separates. This is removed by repeated shaking with ether, codeine being more easily soluble in this menstruum than the other alkaloids contained in the liquor. These, however, *meconidine*, *codamine*, *laudamine*, and another termed *x* by the author, may be dissolved by ether after the addition of chloride of ammonium to the fluid. By slow evaporation laudamine crystallizes out, the other alkaloids constituting an amorphous mass after complete evaporation. The ethereal solution should, however, be separated from the crystals of laudamine before it is completely evaporated, and be treated with a solution of bicarbonate of sodium; by evaporation the ethereal solution then readily yields crystals of codamine. As soon as the formation of these has ceased, the ethereal mother-liquor is poured off and treated with acetic acid; this acid solution is then saturated with chloride of sodium, which throws down the chlorhydrate of meconidine, while the base *x* remains in solution. The author then describes in detail the methods of purifying the several bases, and also the properties which characterise them.—*Chemist and Druggist.*

Detection and Estimation of Arsenic in Fuchsine.

Dr. Rieckher has published a lengthy paper on this subject, the result of which we report below. The reason for undertaking the work was the employment of fuchsine for the coloration of extracts, liquors, candies, and even of syrup of raspberries; and as fuchsine is prepared by the aid of arsenic acid, it seemed probable that neither arsenic nor arsenious acid could be separated from it entirely by washing. Fuchsine that had been bought in two different places was treated to this end with pure zinc and sulphuric acid, and the gas passed into a dilute solution of nitrate of silver. A separation of metallic silver ensued, and after precipitating the remaining dissolved silver with hydrochloric acid, a yellow precipate was obtained in the filtrate with hydrosulphuric acid. Further tests proved decidedly the presence of both arsenious and arsenic acid; each of which was determined quantitatively, amounting in

	I.	II.
Arsenious acid	2.045 p. c.	1.002 p. c.
Arsenic acid	8.121 p. c.	4.470 p. c.

Fuchsine is therefore always objectionable to use for coloring drugs or medicines, to say nothing of candies and sweetmeats in general. —*Drug. Circular.*

Glucose.

We learn from the *Grocer* that glucose is fast becoming an article of commerce. Some large parcels have been already received from the Continent, and, unless the lowness of the price obtained for it proves to be a bar to its free production, considerable quantities may be expected. It is offered in the form of huge blocks or cakes, but when specially prepared for the use of brewers, it undergoes a process of crushing that reduces it into small particles resembling grains of malt. It is not allowed by the excise authorities to enter a brewery in a liquid state. By some brewers, especially those interested in the production of pale sparkling ales, it is preferred to either malt or sugar for obtaining sound and wholesome liquors, in which there is none of that acidity, impurity, or treacly sweetness which may be frequently detected in ales and beer brewed from the common classes of raw sugar. With confectioners, who require the addition of an almost colorless preparation for their more delicate manufactures, it is gradually taking the place of sugar.—*Drug. Circular.*

Hypochlorite of Soda in Lead Poisoning.

Operatives who work in the manufacture of the various salts of lead, especially white lead, and persons who use the many popular hair tonics containing sulphur and acetate of lead, have remarked the dark precipitate which forms on the skin and its annexes. This is the black sulphuret of lead, and is quite sure, after a time, to be absorbed by the skin, and ultimately to induce saturnine poisoning. Dr. Melu, in a recent number of the *Bulletin de Therapeutique*, recommends, to remove this deposit, a bath or wash of the hypochlorite of soda—a means easy of application, and followed by prompt and immediate removal of the dark stains. He takes :

Dry chloride of calcium.....13 oz.
Crystallized carbonate of soda...26 oz.
Water, about..... 3 gallons.

Dissolve the chloride in the water, then add the soda dissolved also. A precipitate of carbonate of lime will be thrown down, and the supernatant fluid will be a solution of hypochlorite of soda. Add this to sufficient water for an ordinary bath, and pour in half a drachm of essence of lemon, eau de cologne, or other aromatic. The patient should remain half to three-quarters of an hour in the bath, or should wash with it those parts of the body darkened by the sulphuret.—*Medical and Surg. Reporter—Dental Cosmos, July* 1870.

Gingilie Oil.

The gingilie *(Sesamum Indicum)* is said to be an African plant, and is supposed to have been introduced to the West Indies by the negroes. It is now pretty generally distributed, and in this country it thrives admirably in the Newera Kalawyia district. The plant is cultivated for the seed, which yields a fixed oil. The method adopted in Ceylon of expressing the oil is rather primitive, and consequently it possesses an unpleasant flavor and a brown muddy colour. If properly prepared, the oil would form of a very good substitute for sweet oil. The best method of preparing the oil is as follows :—First steep the seeds repeatedly in cold water, or boil them for a short time, till they are divested of the reddish-brown colouring matter contained in the epidermis of the seeds, then, when the seeds have become perfectly white, dry them in the sun, and express the oil in the ordinary way. The seed yields from 40 to 44 per cent. of a pale straw-coloured oil. When thus prepared the oil is perfectly devoid of smell, and may be used for extracting the perfume of the jasmine, tuberose, camomile, and yellow rose. To effect this, one weight of the flowers should be added to three weights of the oil in a bottle, which should be corked and left in the sun for forty days, when the oil will be impregnated with the perfume of the flowers. The gingilie oil is soluble in alcohol, saponifies with alkalies, solidifies by nitric acid, and combines with the oxide of lead. The gingilie oil is highly esteemed by Egyptian belles for its properties of cleansing the skin, and of imparting to it a bloom and lustre, and also of preserving the beauty and gloss of the hair. In Ceylon it is used for similar purposes. The negroes also use the seeds for making a sort of beverage something like coffee, by roasting the seeds and infusing them in water. The commercial value of the oil in England is £40 per ton.—*Jaffna News in the Chemist and Druggist.*

Plumbago in Canada.

The plumbago mines in the neighbourhood of the township of Buckingham have attracted attention in England, and the Ottawa *Free Press* learns that Mr. Edward Blackwell, of the Royal School of Mines of England, has been sent out there to report on and prove some properties in that district. From the manner in which he speaks of the resources, it thinks that before long some large companies will commence work. It seems a pity that so much mineral wealth has so long been lying untouched, and it hopes that this example shown by old countrymen will soon be followed by some of our Canadian moneyed men. The uses of plumbago are numerous, and it has a large market in the United States as well as in England; it is worth at present about twenty pounds a ton, and our Canadian variety commands as high a price as the celebrated Ceylon plumbago.

Tasteless Mixture of Cod-Liver Oil.

The *Chemist and Druggist* gives the following in regard to a new formula for the administration of cod-liver oil :

It has occurred to M. C. Paresi, that by treated cod-liver oil with ground roasted coffee the disagreeable taste and odour of the former might be removed. By experi-

ment, he found that by the treatment the oil lost nearly the whole of its disagreeable taste and odour, a slight fishy odour alone remaining. Another advantage is that the oil preserves all its nutritive properties. The following is the method employed :—

Cod-liver oil, 20 parts ; ground roasted coffee of good quality, 1 part; pure powdered ivory black, ½ part.

The whole is transferred to a glass flask, carefully mixed and heated over a water-bath to 120° or 130° F. for a quarter of an hour, care being taken to keep the vessel corked. The heat is then removed, and the mixture allowed to stew for three days, with occasional agitation. It is then filtered, and a very limpid oil of an amber colour thus obtained. Its odour and taste recall that of coffee, while the fishy taste is not very pronounced. The addition of coffee to cod-liver oil may also perhaps augment the nutritive and therapeutic properties of the latter

Pepsin.

It is due to the valuable experiments lately conducted by Mr. Emil Scheffer (Pharmaceutical Chemist of Louisville, Ky.), that we now posses a better knowledge of his remedy, as well as how it should be prepared. No wonder that many observant physicians have always contended there was no therapeutic value in the wine of pepsin. Their conclusions were right, for Mr. Scheffer has clearly proven that the alcohol contained in the wine destroyed the pepsin. (*Amer. Jour. Phar.*, 1870, p. 97.) Consequently no effects can be expected from a solution of pepsin in a solvent containing alcohol. Neither have I much faith in the dry pepsin, owing to its being mixed with half starch, which is apt to turn musty by the least attraction of moisture.

The gastric juice containing hydrochloric acid induced Mr. Scheffer to adopt the more rational plan of preparing his liquid pepsin by using that acid and glycerine.

The glycerine in this case not only acts as a preservative, but undoubtedly also produces a soothing effect on the irritated mucous membrane of the stomach. The dose is from one to two teaspoonfuls after each meal, in cases of dyspepsia, indigestion, and vomiting of pregnant women. I am informed that the liquid pepsin so prepared has given entire satisfaction to many of the Louisville physicians who have prescribed it. It is my opinion that the profession have heretofore been greatly deceived by the so-called wine of pepsin, usually made from the *rennet* instead of the pepsin proper, and the little good they have seen may have been more owing to the slight stimulating effect of some "old sherry" than anything else.

Rennet is made from the fourth stomach of the calf, and it is very doubtful whether identical with pepsin or not ; because it has been proven that the most powerful pepsin is found in the carnivora, and next to them in the omnivora. C. Schmidt has demonstrated that the gastric juice of the dog dissolves from five to six times more albumen than that of the sheep, and Claude Bernard's experiments have also given similar results. Mr. Scheffer is still engaged in further researches on this subject, and I hope may soon be able to tell us what relations, if any, rennet bears toward pepsin.—*Med. and Surg. Reporter.*

Table of Measures.

The following table, which appears in an English exchange, will be found useful to some of our readers :

A box 24in. by 16in. square, and 28in. deep, will contain a barrel.

A box 26in. by 15¼ in. square, and 8in. deep, will contain a bushel.

A box 12in. by 11¼ in. square, and 9in. deep will contain half a bushel.

A box 8in. by 8in. square, and 8in. deep will contain a peck.

A box 8in. by 8in. square, and 4⅝in. deep will contain one gallon.

A box 7in. by 8in. square, and 4⅝in. deep will contain half a gallon.

A box 4in. by 4in. square, and 4⅛ in. deep will contain a pint.

Maxims of Success.

The celebrated Scotch surgeon, James Syme, who died last June, used to give his students the following maxims to insure success in practice :

1. Never look surprised at *anything*.
2. Before stating your opinion of a case on your second visit, ascertain whether your previous directions have been complied with.
3. Never ask the same question twice.—*Med. and Surg. Reporter.*

Changes.

Mr. George Rankin, formerly of the establishment of Messrs. Lyman Bros. & Co., has commenced a new business at Markham.

Mr. Neil C. Love has removed to his new premises, corner of Yonge and Richmond streets, Toronto.

Messrs. Jones & Jones, of Port Perry, have sold out to Messrs. Allison & Campbell, of that place.

Messrs. Chamberlain & Gibbard, of Strathroy, have dissolved partnership. Mr. Chamberlain continues.

Mr. E. N. Bromley has opened a store at Clifton.

Smithville boasts the addition of two new drug stores ; one opened by Messrs. Hewson & Co ; the other by Mr. J. T. Middleton.

The business at Yorkville formerly carried on by Messrs. Leslie & Co., and subsequently by Mr. W. Mitchell, has again changed hands and is now conducted by Mr. J. C. Lander, former assistant in the establishment of Messrs. Elliot & Co. of this city.

A new business has been commenced at Meaford, by Messrs. W. Bell & Co.

Fire.—A narrow escape from the ravages of spontaneous combustion occurred in an upper flat over the store of Messrs. Holbrook & Stark, of Hamilton, last Thursday. The *Spectator* says the flat alluded to is used as a kind of store-room, wherein a quantity of drugs and chemicals are kept. About ten minutes before the fire was discovered, Mr. Holbrook was in the room, and at that time there was no sign of fire, and as there was no fire used in the place, its origin is a mystery. The only conclusion come to is that it was spontaneous combustion, caused by some rags, saturated with oil, that were in a box exposed to the rays of the sun. Had the fire been undiscovered a few minutes longer, it is hard to tell what the consequences would have been.

Fall Trade Report.

Respecting the Fall Trade, which last month opened very hopefully, we may now say that it behoves all business men to cultivate a good degree of caution, because it is well ascertained from reliable statements coming from all parts of the country, that the yield of the harvest is falling largely below the expectations which had been formed of it, and, as a necessary consequence, the amount of money put into circulation will be proportionately small ; so that country traders in all departments will find more or less difficulty in meeting payments.

As regards goods sold by wholesale druggists, there have been, in the past few weeks, more and greater changes than usual, owing largely to the war raging between two great European nations, which, usually, are both great producers and great consumers of the class of goods in question. Among them the chief ones affected are, of course, Saltpetre, Sulphur, and the preparations of Lead, especially the first one, which, in a few days advanced some fifty per cent. The rise on the other two is smaller than might have been expected. There is quite a long list of articles which are indirectly affected in price by the terrible contest now going on ; among them are Ethers, Chloroform, Bismuth, Glycerine, Santonine, Perfumery, Fancy Articles, Glassware, &c., &c., all of which are either dearer, or likely to be so before long.

Among articles which are higher in price we may mention, crude Antimony and its preparations, Vanilla beans—which are almost out of market ; extracts of Belladonna and Henbane, Gums Assafœtida, Guaiacum and Shellac, Mercury with its combinations, Opium, Quinine—which is very scarce, Gentian and Hellebore Roots, Cardamom Seeds, American Saffron, and among Spices, Black Pepper and Mace.

There are too, quite a number of articles which favor buyers, such as Iodine, Leptandrin, Citrate of Magnesia, Ipecac, Jalap, E. J. Rhubarb, Indigo, Linseed Oils, Seal Oils, &c. &c., which are either lower or remain at the very moderate prices they have latterly been sold at.

We are quite of opinion that in the Drug Trade, as in many others, the facilities for country dealers supplying themselves at low rates are quite as great in Toronto as in any city of the Dominion.

WHOLESALE PRICES CURRENT.—OCTOBER, 1870.

Drugs, Medicines, &c.	$ c.		$ c.
Acid, Acetic, fort	0 12	@	0 14
" Benzoic, pure	0 25		0 35
" Citric	0 75		0 85
" Muriatic	0 05		0 07
" Nitric	0 11½		0 15
" Oxalic do	0 24		0 30
" Sulphuric	0 03½		0 07
" Tartaric, pulv.	0 39		0 45
Ammon., carb' casks	0 18½		0 19
" " jars	0 18½		0 20
" Liquor, 880	0 18		0 25
" Muriate	0 12½		0 15
" Nitrate	0 45		0 60
Æther, Acetic	0 45		0 50
" Nitrous	0 27		0 30
" Sulphuric	0 42		0 50
Antim. Crude, pulv.	0 15		0 15
" Tart. "	0 46		0 55
Alcohol, 95%	1 77½		1 87½
Arrowroot, Jamaica	0 20		0 22
" Bermuda	0 45		0 65
Alum	0 02½		0 03½
Balsam, Canada	0 24		0 30
" Copaiba	0 75		0 80
" Peru	3 80		4 00
" Tolu	1 10		1 30
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 12		0 15
Berries, Cubebs, ground.	0 25		0 35
" Juniper	6 06		0 10
Beans, Tonquin	0 60		1 10
" Vanilla	14 00		15 50
Bismuth, Alb.	4 80		5 00
" Carb.	4 80		5 00
Camphor, Crude	0 35		0 45
" Refined	0 45		0 55
Cantharides	1 50		1 60
" Powdered	1 55		1 65
Charcoal, Animal	0 01		0 06
" Wood, pow'd.	0 12		0 15
Cuiretta	0 25		0 30
Chloroform	1 25		1 50
Cochineal, S. G.	0 85		1 00
" Black	1 10		1 30
Colocynth, Pulv.	0 80		0 90
Collodion	0 67		0 70
Elaterium oz.	4 50		5 00
Ergot	0 70		0 80
Extract, Belladonna	2 00		2 20
" Colocynth, Co.	1 25		1 75
" Gentian	0 50		0 60
" Hemlock, Ang.	1 12		1 25
" Henbane, "	3 75		4 00
" 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, Ang	0 70		0 80
Flowers, Arnica	0 25		0 35
" Chamomile	0 30		0 40
Gum, Aloes, Barb. extra	0 70		0 80
" " " good	0 42		0 50
" " Cape	0 15		0 20
" " " pow'd	0 25		0 30
" " Socot	0 50		0 75
" " " 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 31		0 35
" 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	36		0 38

Drugs, Medicines, &c. *Continued.*	$ c.		$ c.
Gum, Shellac, liver	0 30	@	0 35
" Storax	0 65		0 75
" Tragacanth, flake.	0 80		0 90
" " common	0 35		0 40
Galls	0 32		0 37
Gelatine, Cox's, 6d.	1 10		1 20
Glycerine, com.	0 28		0 30
" Vienna	0 30		0 40
" Price's	0 65		0 75
Honey, Canada, best	0 17		0 20
" Lower Canada	0 15		0 18
Iron, Carb. Precip.	0 20		0 25
" " Saccher.	0 40		0 45
" Citrate Ammon.	0 90		1 60
" " & Quinine oz.	0 43		0 43
" " & 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 40		1 60
Kreosote	1 60		1 70
Leaves, Buchu	0 25		0 30
" 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 bri.	5 50		—
" Chloride	0 04½		0 06
" Sulphate,	0 08		0 12½
Lint, Taylor's best	1 20		1 25
Lead, Acetate	0 14		0 17
Leptandrin oz.	0 75		—
Liq. Bismuthi			
" Opii, Battley's	6 60		8 00
Lye, Concentrated	1 50		2 00
Liquorice, Solazzi	0 42		0 45
" Cassano	0 23		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 37		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	5 70		—
" Mur	5 70		7 00
" Sulph.	5 80		—
Musk, Pure gram. oz.	21 00		—
" Canton	1 00		1 20
Oil, Almonds, sweet	0 43		0 55
" " bitter	14 00		15 00
" Aniseed	3 60		4 50
" Bergamot, super.	5 70		6 50
" Carraway	4 00		4 20
" Cassia	2 20		2 40
" Castor, E. I.	0 14		0 15
" " Crystal	0 22		0 25
" " Italian	0 26		0 28
" Citronella	1 60		1 85
" Cloves, Ang.	1 00		1 10
" Cod Liver	1 40		1 50
" Croton	1 70		2 00
" Geranium, pure, oz.	2 00		2 20
" Juniper Wood	0 80		1 00
" " Berries	6 00		7 00
" Lavand, Ang.	19 20		20 00
" " Exot	1 40		1 60
" Lemon, super.	3 30		3 60
" " ord.	2 60		2 80
" Orange	3 00		3 20
" Origanum	0 65		0 75
" Peppermint, Ang.	15 00		17 00
" " Amer.	3 00		4 20
" Rose, virgin	7 75		8 00
" " good	4 40		5 50
" Sassafras	0 85		0 95
" Wintergreen	6 00		6 50
" Wormwood, pure	5 80		5?
Ointment, Blue	0 65		0 70
Opium, Turkey,	9 00		9 50
" " pulv.	11 40		12 00
Orange Peel, opt.	0 43		0 50
" " pow'd.	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 38		0 40
" Nitrate	8 50		9 00
Potassium, Bromide	1 80		1 90
" Cyanide	0 65		0 75
" Iodide	3 80		4 50
" Sulphuret	0 25		0 35
Pepsin, Boudault's oz.	1 25		1 50
" Houghton's, doz	8 00		9 00
" Morson's. oz.	0 85		1 10
Phosphorus	0 75		0 85
Podophyllin	0 50		0 60
Quinine, Pelletier's	1 90		1 95
" Howard's	1 90		1 95
" " 100 oz. case	0 00		—
" " 25 oz. tin	1 35		—
Root, Colomba	0 14		0 20
" Curcuma, grd.	0 12½		0 17
" Dandelion, pure	0 25		0 35
" Elecampane	0 14		0 17
" Gentian	0 10		0 12½
" " pulv.	0 15		0 20
" Hellebore, pulv.	0 17		0 25
" Ipecaac "	2 30		2 40
" Jalap, Vera Cruz.	1 55		2 —
" " Tampico	0 90		1 —
" Liquorice, select.	0 13		0 17
" " pow'd	0 15		0 20
" Mandrake, "	0 20		0 25
" Orris "	0 20		0 25
" Rhubarb, Turky.	4 00		4 50
" " E. I., China.	1 25		2 00
" " " pulv.	1 40		2 50
" " " " 2nd	1 30		1 50
" " French	0 75		—
" Sarsap., Hond.	0 45		0 50
" " Jam.	0 88		0 90
" Squills	0 10		0 15½
" Senega	0 97		1 60
" Spigelia	0 35		0 40
Sal., Epsom	2 50		3 00
" Rochelle	0 28		0 35
" Soda	0 01½		0 03
Seed, Anise	0 16		0 30
" Canary	0 05		0 06
" Cardamon	4 10		5 75
" Fenugreek, gr'd.	0 10		0 15
" Hemp	0 06		0 06½
" Mustard, white	0 14		0 16
Saffron, Amer.	3 00		3 50
" Spanish	17 00		18 00
Santonine	10 00		10 50
Sago	0 07½		0 09
Silver, Nitrate, cash	14 50		16 50
Soap, Castile, mottled	0 11½		0 14
Soda Ash	0 03		0 04
" Bicarb. Newcastle.	3 75		4 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 15		0 18
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 90		0 95
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	4 75		—
" " liquid	2 60		—
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 02½		0 04
Indigo, Bengal	2 40		2 50
" Madras	1 05		1 20
" Extract	0 28		0 35
Japonica	0 05		0 06½
Lac-dye, pow'd	0 33		0 38
Logwood	0 02		0 03

Dyestuffs—*Continued*	$ c.		$ c.
Logwood, Camp	0 02	@	03½
" Extract	0 10½		0 14
" " 1lb bxs	0 14		—
" " ½lb "	0 15		--
Madder, best Dutch	0 15		0 18
" 2nd quality	0 14½		0 16
Quercitron	0 03		0 05
Sumac	0 06		0 08
Tin, Muriate	0 10½		0 12½
Redwood	0 05		0 06
Spices.			
Allspice	0 03½	@	0 10
Cassia	0 42		0 50
Cloves	0 12½		0 15
Cayenne	0 18		0 25
Ginger, E. I.	0 12		0 14
" Jam.	0 25		0 30
Mace	1 35		1 40
Mustard, com.	0 20		0 25
" D. S.	0 40		0 45
Nutmegs	0 70		0 75
Pepper, Black	0 14		0 15
" 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 12½
Chalk, White	0 01		0 01½
" Red	0 05½		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 95		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 03		0 12
White Lead, gen. 25lb tins	2 30		—
" " 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	3 10	@	3 50
Rosin, Strained	3 50		3 75
" Clear, pale	5 75		10 00
Spirits Turpentine	0 56		0 60
Tar Wood	3 40		4 00
Oils.			
Cod	0 62	@	0 65
Land, extra	1 45		—
" No. 1	1 12½		--
" No. 2	1 00		--
Linseed, Raw	0 75		0 80
" Boiled	0 80		0 85
Olive, Common	1 30		1 35
" Salad	1 80		2 30
" " Pints, cases	4 20		4 40
" " Quarts	3 60		3 60
Seal Oil, Pale	0 75		0 80
" " Straw	0 70		0 75
Sesame Salad	1 30		1 35
Sperm, genuine	2 10		2 20
Whale, refined	0 75		0 80