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THE CANADIAN PHARMACEUTICAL JOURNAL,

PUBLISHED UNDER THE AUSPICES OF THE

Canadian Pharmaceutical Society.

EDITED BY E. B. SHUTTLEWORTH,

ASSISTED BY THE COMMITTEE OF PUBLICATION:

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1868.

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1868.

INDEX TO VOL. I.

THE CANADIAN PHARMACEUTICAL JOURNAL.

VOL. I. TORONTO, ONT., NOVEMBER, 1868. No. 7.

Original Papers.

LABELS.

Considering the large number of labels used, it is extraordinary that the details which should be attended to in their production, are not better understood and applied.

The first intention of a label is to notify the contents of the bottle or package labelled, therefore the name of the article should be in the largest and plainest type, or writing. The direction or explanation of uses should follow, and this may be in smaller type, as it will only be consulted by those who have use for the contents. The name of the vendor follows, and should be in type only inferior to the name of the article. The occupation generally follows, but is not essential, being sufficiently apparent, from the name of the article. The name of the place of business finishes the "matter."

For articles intended for internal use, the paper should be of the purest white, and the ink of the deepest black. For perfumery and fancy articles, greater latitude in the color of ink and paper is allowable; but in every case care should be taken that while the texture of the paper is firm and uniform; it is not so stiff as to prevent the paste or gum "taking" readily. These are the points of a good label, whether executed by letter-press printing, or lithography.

The errors to be guarded against, are the use of so-called ornamental types which are difficult to read; disproportion in the sizes of type, and putting the unimportant parts in large type; putting on borders that do not present a regular line to trim by, and placing the labels on the sheet in such a manner that an unnecessary amount of cutting requires to be done.

We have always found it best to keep labels in a shallow drawer, each kind in a seidlitz box, with a sample pasted on the cover. In this way waste is prevented. If arranged in alphabetical order, the proper label is obtained in a moment.

The plan of gumming the sheet makes the labels curl, and has no particular advantage to compensate for this inconvenience.

Below are some examples of good and bad labels:—

Pattern A.

SWEET SPIRIT OF NITRE.

Sold by T. WHITE, Chemist,
19 *Southampton Row.*

Pattern B.

FROM JAMES WILLIAMS, CHEMIST, &c.

SWEET SPIRITS OF NITRE.

33 *Lower Tooting*

Contents.

EVANS, MERCER & Co.,

Wholesale Drug Merchants,

MANUFACTURING CHEMISTS,

Importers of Patent Medicines, British and Foreign Perfumery, Surgical Instruments and Appliances,

GLASS, EARTHENWARE,

AND

DRUGGISTS' SUNDRIES of every description.

MANUFACTURERS, IN BOND,

Of Tinctures, Ether, Chloroform, &c.

OFFICE—265 NOTRE DAME STREET,

BONDED FACTORY, LABAROTORY AND MILL,

41 & 43 ST. JEAN BAPTISTE STREET,

1-y MONTREAL.

ATKINSON'S

PARISIAN TOOTH PASTE.

THE Wholesale Houses in Montreal, Toronto, Hamilton, and London, supply this celebrated Dentifrice at $2 per doz., less 5% for Cash.

N.B.—If every proprietory article had the merit of this Paste, the Drug Business would be more lucrative and respectable.

May, 1868. 1-

WOODRUFF, BENTLEY & Co.,

WHOLESALE DEALERS,

AND MANUFACTURERS OF

Patent Medicines,

BROUGHAM, ONTARIO.

ESTABLISHED 1844.

WE are sole Manufacturers and Proprietors of the following Medicines:—

Dr. Fowler's Extract of Wild Strawberry.
Dr. Boyer's Galvanic Fluid.
National Pain Remover.
National Pills.
Dr. A. E. Fife's Worm Lozenges.
Wilson's Magnetic Ointment.
Chicopee Indian Worm Tea.
Oriental Hair Gloss.
Egyptian Salve.
Oriental Black Oil.
Woodruff, Bentley & Co.'s Condition Powders.

These Medicines have a well established reputation, and command a good sale, and give entire satisfaction to the public.

Orders to be addressed to the Proprietors, as above, or to

LYMAN, ELLIOT & Co., *Toronto.*
NORTHOP & LYMAN, *Newcastle.*
J. WINER & Co., *Hamilton.*
HENRY SIMPSON & Co., *Montreal.*
LYMANS, CLARE & Co., *Montreal.*
JOHN ROBERTS, *Ottawa.*

Brougham, May, 1868. 1-6m

Pattern C.

Sweet Spirit of Nitre.

PREPARED BY T. C. JONES, CHEMIST, &c.
49 *Southampton Street.*

Pattern D.

SPIRITS CAMPHOR.

HIX, PHINNEY & CO.,
Chemists and Druggists,
KALAMAZOO, MICHIGAN.

Pattern E.

CONCENTRATED ESSENCE OF

THE WOOD VIOLET.

THE PERFUME OF PERFUMES.

PREPARED BY
H. BREIDENBACH,
Perfumer and Distiller of Flowers
TO THE QUEEN
157B, New Bond Street, London.

Pattern F.

HIGHLY PERFUMED

ALMOND OIL,

FOR

CLEANSING,

Strengthening and Beautifying

THE

HAIR.

PREPARED BY
ABOUSSAN E. THAHER,
DRUGGIST TO THE CALIPH,
BAGDAD, PERSIA.

Pattern G.

GREGORY'S

POWDER.

In this useful and elegant preparation are combined the medicinal virtues and fine Aroma of

PURE MAGNESIA,
TURKEY RHUBARB,
And prepared Jamaica Ginger.

PREPARED BY
W. TWIDALE,
FAMILY AND DISPENSING CHEMIST,
264 King Street, East,
TORONTO.

S. J. LYMAN & Co.,

44 *JOHN STREET, MONTREAL,*

DEALERS IN

Essential Oils, Chemicals,

DRUGS, &C.

AGENTS FOR

New Jersey Essential Oil Distillery.
Ontario Chemical Works.
Secombe Manufacturing Company.
Hamilton Glass Works.

All kinds Soda Apparatus, including Morse's celebrated Machinery for charging 32 galls. Soda in twelve minutes.

ALSO,

Morse's Improved Counter Stand, which secures Soda Water in the best possible condition to cool and refresh.

S. J. LYMAN & Co. will Buy and Sell on Commission, any DRUGS, CHEMICALS, or ESSENTIAL OILS; of the latter, they have always Consignments on hand.

TRADE MARKS furnished and taken out from the Dominion Government.

PATENT RIGHTS obtained with despatch.

The attention of Druggists is directed to ELLIOT'S DENTIFRICE, as a popular and salable toilet article.

Agents wanted in every Town in Canada.

Circulars furnished, with name of Agent, together with handsome show cards.

ELLIOT'S DENTIFRICE is for sale by

LYMANS CLARE & Co.,
HENRY SIMPSON & Co.,
KERRY BROS. & CRATHERN,
EVANS, MERCER & Co.,
Wholesale Druggists, Montreal.

ALSO, BY

LYMAN, ELLIOT & Co., and
HOOPER & Co.,
1-3m. *Wholesale Druggists, Toronto.*

Beaver Drug Mills and Laboratory.

TRADE MARK.

Alcoholic Preparations.

ETHERS, Chloroform, Flavouring Extracts, Spirit Varnishes, Tinctures, and every description of Medicinal Alcoholic Preparation, manufactured in bond, and supplied for export, less the duty.

Drugs and Spices—Powdered.

Every article of this brand is warranted [illegible]e.

Chemicals and Pharmaceutical Preparations.

Nitrate Silver Crystals, Citrate Magnesia, granulated, Carb. Potass, Cyanide Potass, Potassi Sulphuret, Ferri Carb. Precip., Ferri Carb. Sacch., Plasters, Extracts, &c.

Paints Ground in Oil.

White Lead, various qualities; White Zinc, Colors, and Patent Dryers, in assorted packages.

Price Lists mailed on application.

LYMAN, ELLIOT & Co.,
157 *King Street East,*
1-y *Toronto.*

Pattern H.

DR. GREGORY'S

STOMACHIC POWDER

In this elegant and useful preparation are combined the Medicinal virtues and fine aroma of

PURE MAGNESIA,

TURKEY RHUBARB,

AND JAMAICA GINGER.

—:o:—

DOSE.—A Dessert-spoonful in a wine glassful of water once or twice a day.

—:o:—

PREPARED BY

GRANT, COLFAX & Co.,

Myrtle Avenue,

WASHINGTON.

Pattern I.

DIGBY, HAIGHT & Co.,

Druggists and Apothecaries.

King Street, *Halifax.*

Physician's Prescriptions & Family Receipts

CAREFULLY PREPARED.

Pattern J.

Physicians' Prescriptions Carefully Dispensed.

JONES & BROWN,

DISPENSING CHEMISTS,

LONDON.

No. 161 New Street.

To review these in order—Pattern A is a good label. Pattern B is not good, it does not read straight on. Patterns C and D are both very good. Pattern E is perfect. Pattern F, the original is printed on pink glazed paper, and looks very well. Pattern G is bad, the word "Powder" is so ornamental as to be almost unreadable, and the border does not show a straight line to trim by. Pattern H is very good. Pattern I is rather crowded; the name of the firm too small; "Druggists and Apothecaries" too large in proportion. Pattern I has the same faults as I in the name and style, and the border is too light. These examples will show that our friends of the DAILY TELEGRAPH have all the founts required to make a good job in this department of printing, and it will be found on application that their prices are very reasonable.

The matter for labels should be written in a very legible hand, and it is necessary to read the proof carefully to avoid mistakes in spelling the names of druggists' articles, with which printers have little acquaintance.

It is impossible in the JOURNAL to give examples of the lithographic styles, and this is less to be regretted inasmuch as the best houses in the drug and perfumery trades seem to be abandoning the description of work usually produced by lithography as too florid to meet the requirements of correct taste, it is still used for cheap, flashy goods, intended to catch the eye and be bought *once.* There remains to notice the use of vermillion borders and capitals, with "antique, italic, script," and other fancy founts, which produce very beautiful effects when judiciously applied to perfumery labels.

Mining.

ASSAYING FOR AMATEURS.

BY THE EDITOR.

CHAPTER III.

General Properties of Gold—How Occurring in Nature—Directions for Selecting Specimens.

In point of value, gold holds a primary place among metals, and it is to its detection and estimation that the first attempts of the amateur are generally directed. In order that the subject may be better understood, we shall describe, briefly, a few of the leading properties of this noble metal.

The appearance of pure gold is not familiar to all, as it is seldom seen in an unalloyed state. In coins, and jewelry, it is always mixed with copper, or silver, for the purpose of rendering it harder, and more durable. When pure, its color is a bright yellow, and in this particular it stands distinguished from all other metallic elements. Its hardness is intermediate between silver and lead, and it is exceedingly malleable and ductile. When precipitated from its solutions, it is devoid of lustre, and has a rich chocolate color, not easily mistaken when once seen. The specific gravity of molten gold is 19·2; of hammered gold 19·3. Its melting point is variously stated by authorities. Daniell gives it at 2,596° Poulliet 2,192°, and Guyton Morveau 2,518°; at all events, a white heat is required.

In the fire it suffers no perceptible diminution of weight; and, in proof of this, it has been asserted, that a known quantity, exposto the continued heat of a blacksmith's forge, had suffered no loss at the expiration of three months. When, however, it is alloyed with silver or lead, a small portion appears to volatilize with those metals, as is proved by its presence as a deposit in the flues of a cupelling furnace, where a large quantity of an alloy of silver, lead, and gold had been operated on. The ordinary simple acids have no effect upon gold, nor is it tarnished by exposure to the air, sulphuretted hydrogen, or the compounds of sulphur. Chlorine gas readily attacks it, at ordinary temperatures; it is to this property of chlorine that the solvent action of *aqua regia* depends. By the mixing of the two acids, chlorine is set free, which combines with the gold, forming a terchloride. Although gold is so stable and unalterable itself, yet the terchloride is one of the most unstable of salts. It is easily decomposed by organic substances, a great number of metallic salts, and by the agency of light. When exposed to a heat of 420° it loses part of its chlorine, and, ultimately, becomes reduced to metallic gold. It has been asserted that it is volatile and capable of distillation. Gold unites with mercury very readily, forming an amalgam, from which the mercury can be again separated by heat. The combining weight of gold is 196.

In nature, gold is found associated with a number of metals, but generally in such small quantity that no advantage can be taken of it. In the native state, it is said to be more widely diffused than any other metal. It has been questioned whether it really exists in any other form, but most authorities agree that it sometimes occurs as a sulphuret, and then, chiefly associated with iron pyrites. Nearly always, however, it contains a small amount of silver. For all practical purposes—and particularly as referring to Canada—we shall consider gold ores as belonging to one of three classes. Firstly. Free gold, in particles visible to the naked eye, or by the aid of a magnifier. Secondly. Particles of gold diffused through the rock, and invisible to the eye by the aid of a magnifier; and thirdly, as a sulphuret, associated with iron pyrites, or encrusting it, as the case may be. Sometimes, a specimen may be found exhibiting all three of these modifications, and in nearly all cases iron pyrites is present.

The student should carefully examine all specimens with a magnifying glass, but must be particularly on his guard against three substances which bear a great resemblance to gold, and are very frequently mistaken for it. *Iron pyrites* is the great misleader of the inexperienced eye, and many unfortunate and ludicrous mistakes occur regarding it. Many of these have come under our own notice, and we may be pardoned for quoting the instance of a man, cited by an American author, who brought a specimen of a supposed rich ore to a San Francisco assayer: on being informed that it was iron pyrites, and comparatively worthless, he exclaimed: "Great heavens! there is an old woman up our way who owns a hill of it, and I married her!" Pyrites may, be readily distinguished from gold by its superior hardness, as demonstrated by attempting to scratch it with the point of a knife; gold is readily cut, but pyrites resists the steel, or at most, flies off in gritty pieces; a particle on being heated with nitric acid will quickly dissolve, giving off red fumes of nitrous acid,—gold will remain unaffected. The second substance liable to be mistaken for gold is copper pyrites, this may be detected by its solubility in nitric acid, and its loss of lustre when heated in the blow-pipe flame. *Mica* is the third substance, and, in fine spangles, it is very deceptive. By wetting the specimen the mica is dimmed and loses color, but the gold appears to better advantage. It may also be distinguished by its weight, which is only about one-sixth that of gold. Mica resists the action of nitric acid, a fact which must be borne in mind.

The student must exercise his judgment in selecting specimens for analysis, rejecting those pieces of ore which exhibit the most favorable appearance, as very fallacious results would ensue. He should endeavor to select those specimens which represent the average rock, and this is best accomplished by chipping off pieces, at random, from different samples, and from different points of the same specimen. In Canada, native gold is generally found in the quartz rock, and, more especially, in certain thin black veins which intersect the quartz, or divide it from the accompanying rock.

(TO BE CONTINUED.)

SULPHUR—ITS USES IN THE ARTS.

Every one of our readers is acquainted with the appearance of sulphur. Possibly many of them were made acquainted with its medical properties early in life, like Squeer's school-boys, to whom it was regularly administered, in molasses, always before breakfast. It is quite possible that many are not so familiar with its chemical properties and its extended uses in the arts. It is kept for sale everywhere in two forms; roll sulphur, popularly known as brimstone, formed by concretion after fusion, and in a powdered state, obtained by pulverizing the roll sulphur, by sublimation, or precipitation from its solution in limewater by muriatic acid. Sublimation is the heating of any solid substance until it becomes vaporized, and collecting it again when cooled by passing the vapor into a refrigerating chamber. Sulphur thus sublimed can be obtained in a very fine and impalpable state, called flowers of sulphur. When obtained from the solution as described above, it is called lac-sulphur, or milk of sulphur.

Sulphur is an element, that is, it has never been found to be resolvable into other sub-substances. Its affinities or tendencies to unite with other substances are numerous and strong, and under favorable circumstances it will combine with a vast number of simple and complex bodies. Its combinations with simple substances or elements are called sulphurets or sulphurides. Such compounds form a large proportion of the ores of different metals, as they are found in nature A simple experiment will illustrate the formation of these ores. Mix 21 parts by weight of flowers of sulphur with 30 parts of iron, and put it gradually into a red hot crucible, waiting until each portion becomes incandescent before adding more. After the whole is put in, cover the crucible and raise the heat until the entire mass is fused. The compound is called the proto-sulphide of iron. There are, also, other sulphides of iron, which contain more sulphur in proportion to the weight of the mass than the proto-sulphide. Of these the bisulphide may be mentioned. It has a pale yellow metallic lustre, and has often been mistaken for gold by the inexpert. In the early settlement of this country an enterprising adventurer shipped a whole cargo of this stuff to England, supposing it to be gold, and that he had, to use a modern phrase, "struck oil." His chagrin was great upon finding the value of his venture less than an equal bulk of good garden soil. So many similar mistakes have been made that the substance has been called "fools' gold." The mineralogical name for it is iron pyrites. These sulphides are types of the sulphides of other metals, as found native or artificially produced. The proto-sulphide of iron is used in the laboratory for making hydro sulphuric acid gas, to which the names sulphydric acid and sulphuretted hydrogen are also given. Hydrosulphuric acid is a most valuable reagent in analytical chemistry, and therefore deserves some mention here. When fragments of proto-sulphide of iron are thrown into dilute sulphuric acid, a series of reactions take place, which may be described as follows:

Sulphuric acid is a combination of sulphur and oxygen; the proto-sulphide of iron is a combination of sulphur and iron; the water used to dilute the acid is a combination of oxygen and hydrogen. When these couples come together, iron, which loves not sulphur less but oxygen more, deserts its own partner and unites with the faithless oxygen of the water, which leaves fond hydrogen desolate. Sulphur and hydrogen, under these circumstances, mutually sympathizing with each others wrongs, strike up a bargain and agree to unite their fortunes. The sulphuric acid aids and abets the disruption by providing for the protoxide of iron as fast as it is formed by the union of iron and oxygen, and uniting with it, forms the sulphate of iron. The sulphuretted hydrogen formed by the union of the sulphur and hydrogen not being so fortunate, goes off in exceedingly bad odor. The smell of this gas is discernable in the decay of all organic substances which contain sulphur, as turnips, cabbages, eggs, etc. The smell of rotten eggs is its most prominent characteristic, and in the principal test for its presence. The most minute quantities, imperceptible to smell, may be detected by moistening a bit of paper with a solution of acetate of lead. Paper so prepared is turned black by the action of the gas. The reason for this change of color will give the clue to the value of this reagent in chemical analysis. Metallic salts are formed by the union of their oxides with acids. When sulphydric acid comes in contact with solutions of these salts, a mutual decomposition takes place, the hydrogen of the sulphydric acid unites with the oxygen in the metallic base, and forms water, while the sulphur combines with the metal itself, to form a sulphide which generally falls to the bottom as a bulky precipitate. The conditions under which these reactions take place vary from different metals. Thus, the metals capable of being precipitated may be classed into groups. The alkalies are not precipitated by it under any circumstances, neither are the alkaline earths. A third group, comprising the salts of alumina and the sesquioxide of chromium, and a number of others of very rare occurrence, are not precipitated by sulphydric acid but by sulphide of ammonium. The metals of the third group and the remaining metals are precipitate under certain conditions, either by sulphide of ammonium or by sulphuretted hydrogen, the precipitate being in the third group a hydrated oxide, that is, an oxide combined with water, and in all other cases a sulphide, or the mixed sulphides of all the metals precipitable by these reagents. Suppose now a chemist wishes to determine whether sodium is a constituent of a very complex solution under examination. By passing a sufficient quantity of sulphuretted hydrogen through the solution under the proper conditions, he can eliminate all the metals, except the groups above specified not precipitable by this regent. The field of research is thus greately narrowed, and a very long step is taken towards the complete isolation of the substance sought. This brief description will give a correct idea of the great value of this reagent in chemical analysis.

Sulphur forms acids by combination with oxygen, the most important of which is sulphuric acid, more popularly known as oil of vitriol. This substance may be called the Goliath of chemistry. No other substance known has such extended and diversified applications. There is scarcely a department of the arts that does not directly or indirectly involve its use. From iron founding to the manufacture of gingerbread; in agriculture, in dyeing, in painting; indeed it would be very difficult to suggest a trade, occupation, or profession that does not depend more or less upon this most important substance. A friend askes over our shoulder, "Do you include lawyers and clergymen?" Most certainly we do. The paper upon which, and the ink with which lawyers and clergymen write, involve in their manufacture the use of sulphuric acid. Try something else. Hesitatingly—"boot-blacks." Out again. No blacking without the immediate or remote use of surphuric acid. Once more. "No, I give it up if the two extremes are not exempt. I'll none of the means."

The processes of manufacturing sulphuric acid are various. The fuming *Nordhausen* acid is distilled from the sulphate of iron, popularly known as green vitriol. The acid as thus obtained is in a state of the highest concentration it can attain in a fluid form. A proper redistillation of this acid produces a white fibrous mass of a silky appearance—solid sulphuric acid. This is called anhydrous sulphuric acid, the term *anhydrous* meaning without water. This is a most remarkable substance. Notwithstanding it is the most concentrated form in which the acid can be obtained, it has no acid properties. It is tough waxy in consistence, and may be molded in the hands without danger. The concentrated liquid acid would soon reduce them to a state resembling pounded raw beefsteak. Anhydrous sulphuric acid, or concentrated liquid acid is a very thirsty substance. Its fondness for water is only equaled by the disgust which the fluid seems to excite in some individuals of the human species. If it cannot get water elsewhere the acid will absorb it from the air. The anhydrous acid thus becomes liquid after a time, and the liquid gradually becomes weaker by exposure. It is therefore necessary to keep it from the air. Advantage is taken of this property to dry certain substances from which it is difficult to extract water. An open vessel containing acid is placed under a bell-glass, together with the substance to be dried. Being thus imprisoned together, the acid appropriates to itself all the moisture which the bell-glass incloses, and so without artificial heat a substance may be perfectly dried. Its attraction for water is so great that when poured into the latter it hisses like a red hot iron. Strong acid exposed to the air will absorb water enough to double its weight. Mix four pints of this acid with one pint of water, and there will be considerable less than five pints of the mixture. This shows that the attraction of sulphuric acid for water is very strong indeed, sufficient to compress it more than a pressure of hundreds of tuns to each square inch of surface would do if applied to that fluid separately. Were we not right in calling it a Goliath ?

We have already said that very large quantities of this substance are used. In England alone over one hundred thousand tons are used annually, and its manufacture is conducted on a large scale in quite a different manner, from the method above described for making the Nordhausen acid. That method is only practised at Nordhausen, in Saxony, from which the acid takes its name. In order to understand the manufacture of sulphuric acid as it is conducted on a large scale, we must first know something of nitric acid. Nitric acid is composed of nitrogen and oxygen. These two gases mixed constitute the bulk of the atmosphere which we breathe, but when chemically combined in the proper proportions they form the nitric acid of chemistry—the aquafortis of the shops—an acid ranking next in strength and importance to sulphuric acid. The salt known as nitrate of soda is composed of nitric acid and soda. When sulphuric acid is poured upon nitrate of soda, the salt is decomposed, the sulphuric acid unites with the soda to form sulphate of soda, and the nitric acid becomes free. It is liberated in the form of a gas, and in this state it is used in making sulphuric acid. Remember its components—oxygen and nitrogen. When sulphur is burned in air the oxygen of the air combines with it, and forms sulphurous acid. This is also a gas, but like most other acid gases it is freely absorbed by water. One half more oxygen than it already contains would, if combined with it, change it to sulphuric acid. The process of making sulphuric acid can now be understood. First, sulphur is burned to form sulphurous acid ; second, nitric acid is made to give a portion of its oxygen to transform the sulphurous acid into sulphuric acid ; then the compound of nitrogen and oxygen which remains (deutoxide of nitrogen) sizes oxygen from the air (though not as much as was absorbed at first by the sulphurous fumes) becoming peroxide of nitrogen, only to be again robbed of its oxygen by the sulphurous acid, and so on *ad libitum*, the sulphuric acid, as fast as it is formed, combines with steam which is generated for that purpose, and is further absorbed by water. The engraving illustrates the apparatus by which this process is effected. A A are furnaces in which the sulphur is burned ; in the current of heated gas is suspended an iron pot, B, containing nitrate of soda and oil of vitriol. The nitric acid vapors are thus intimately mingled with the sulphurous fumes, and pass through flues into the chamber, F F. This chamber is of lead, and is supported on strong timber framework. Water two or three inches in depth is placed upon the floor of the chamber D D, to absorb the acid. Jets of steam are admitted from the boiler, E, through the pipes, C C C. An exit flue, G, permits the escape of nitrogen and nitric oxide, the only gases which can escape in a properly managed chamber. Some modifications of this process have been invented by Gay Lussac and others by which saving is made in the amount of the salt used, but the general principle remains unchanged. The leaden chambers are frequently of enormous size, some of them being three hundred feet in length by twenty in width, and twelve to fifteen feet in height. The acid as drawn off from the chambers is too dilute for use in the arts. It is therefore concentrated in lead, glass, or platinum vessels, lead being used only for acids whose specific gravity is not required to be more than 1·720. This is the brown acid of commerce, and it usually contains many impurities. The concentrated acid of commerce is much stronger, having a specific gravity of 1·842, according to Bineau.

We have already noticed two acids, namely, sulphuric and sulphurous, formed by the union of sulphur and oxygen, as well as one formed by the union of sulphur and hydrogen—sulphureted hydrogen. There is still another oxacid, containing a small proportion of oxygen, called hyposulphurous acid. All of the oxacids combine with numerous bases to form salts extensively used in the arts. It would extend this article too much to specify their applications and describe them ; they would fill volumes. But there is one class of those salts we must say something about, namely, the alums. There are several kinds of alums, of which the common alum of the shops is a type in its composition and its qualities. If you examine a crystal of alum you will see a white, partially transparent substance, which has a sweetish astringent characteristic taste. From such an examination you would hardly guess that it is composed of five different elements, yet such is the case. Two of these components are gases, oxygen and hydrogen , two of them are metals, aluminum and potassium ; and the other is sulphur, which forms nearly one seventh of its entire weight. Throw your crystal upon a hot stove, and it will melt and froth and bubble, and finally become a dry, hard, white, and opaque mass. You have partly decomposed the salt by the process ; it has lost 216-474th of its former weight. What passed off was only water, which is composed of hydrogen and oxygen ; what remains is composed of four elements, and sulphur now composes nearly one-fourth the entire weight. In this state it is called anhydrous alum. The alums are in large demand in the art of dyeing, and the manufacture of the common alum is a large and growing industry. At some other time we may describe the process of making alum in full.

Take a lump of charcoal and a roll of brimstone and place them side by side. Nothing, to one unacquainted with the wonders of chemistry, would seem more improbable than these hard and opaque substances could unite to form one of the clearest, most limpid and colorless fluids known. That is so, however, Charcoal is nearly pure carbon. Sulphur and carbon unite to form the bisulphide of carbon, a fluid so clear and of so high a refracting power that it has been used, inclosed in a triangular glass box, for the prism of that most wonderful instrument, the spectroscope, of which you have heard and read much, and will probably hear a great deal more ere another decade passes.

Take a piece of the ordinary rubber sold at the present in the shops : put it on a fire shovel and hold it over the coals ; in a short time it will soften and fry, and presently it will commence burning with a blue flame. It is sulphur which burns with the blue flame, a very large proportion of the substance called india-rubber being sulphur. By a peculiar process this rubber can be rendered hard as horn, and in this state it is now used for combs, brush and knive handles, and even for the plates upon which dentists fix artificial teeth.

Sulphur is also largely used for bleaching, its fumes while burning producing that effect. Straw goods are thus whitened.

We might fill this paper with the enumeration of the uses of sulphur and its compounds. Any chemist will tell you that we have only skimmed over the surface of the subject. We have omitted to mention many of the properties of sulphur, some of which have given rise to much speculation. Sulphur is found plentifully distributed in the crust of the earth, but is most abundant in volcanic regions, one of the principal sources being the Island of Sicily, where it is found in an uncombined state. There is perhaps no other substance, unless it be iron, upon which the arts and refinements of civilization are more dependent. The world could infinitely better afford to lose all of the precious metals and precious stones, rather than be deprived of its sulphur deposits. The thought may serve to render the substance more palatable, when your physician prescribes it in the future.—*Scientific American.*

Geological Negatives.

Mr. James Thompson, of Glasgow, Scotland, has contrived a new method of producing photographic negatives of geological specimens. He saws from the stones thin slices containing fossil remains or other specimens ; these when polished are so thin and transparent that they may be used as negatives for photographic printing upon the usual sensitive paper. Beautiful prints are thus obtained, having all the fidelity of nature itself. Large numbers of these fossil negatives have been prepared by Mr. Thompson, and he has undertaken to supply the British Museum with duplicates.

A French physician has found by experiment that when six drops of absinthe are placed in a quart of water, fishes will die more quickly when put in the mixture, than would be the case were the same amount of prussic acid contained in the water. The experiment only confirms the fact already well known that this drink is poisonous in common with all other strong stimulants. It may however have the effect to retard somewhat the growing use of absinthe in this country.

New Medicines from Cochin China.—MM. Condamine and Blanchard have sent to the French Academy specimens of the bark of a tree called *haofach*, which the Annamites regard as a sovereign remedy against diarrhœa, dysentery and colic. Another bark called *couden* had similar properties ascribed to it. Haofach is considered best for certain intermittent fevers, and couden preferred for diarrhœa and colic.—*Student.*

PUBLISHERS' NOTICE.

The CANADIAN PHARMACEUTICAL JOURNAL *is issued monthly from the office of publication on the Fifteenth of every month. It will always contain information invaluable to Druggists, Chemists and others interested and connected with the sale, compounding, and dispensing of drugs and medicines. The present number will be sent to every druggist in the Dominion, all of whom, it is hoped, will show their appreciation of the enterprise by giving it substantial support. Members of the Canadian Pharmaceutical Association will receive the paper free as of right.*

To Advertisers this Journal offers the best and indeed the only medium of reaching by a single advertisement every Druggist in Canada. Our rates, published on the first page, will be found low, and will be strictly adhered to in all cases. Advertisements in order to secure insertion should be in the publisher's hands not later than the end of the month preceding each issue.

The Journal will be under the control of the following Committee, who will be responsible for the due performance of all advertising contracts:

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CANADIAN PHARMACEUTICAL SOCIETY.

PRESIDENT, - - - WM. ELLIOT, ESQ.

The regular meetings of the Society take place on the first Wednesday 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 Society admits as members, Chemists and Druggists of good standing, and their assistants and apprentices, if elected by a majority vote, and 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 Society may send their names for proposal to any of the members of the Society. A copy of the Constitution and By-laws of the Society will be furnished on application.

HENRY J. ROSE, *Secretary.*

THE CANADIAN
Pharmaceutical Journal.

TORONTO, ONT., NOV., 1868.

THE PRIZES FOR MEDICAL BOTANY.

An announcement will be found in another part of our columns regarding these prizes, and containing rules for the guidance of competitors. The liberal offer made by R. W. Elliot, Esq., to place the sum of twenty dollars at the disposal of the Society, as a prize for the best collection of Canadian medicinal plants, has had the effect of calling forth two additional prizes, offered by the Society for the same object.

We hope our young friends will not allow this excellent opportunity for distinction to go unimproved. The amount of the prizes is, by no means inconsiderable, and the honor to be achieved well worth attempting. Of still greater value is the amount of information and instruction which the competitor must inevitably derive from his researches in the field of botany; and in this respect the successful and unsuccessful share alike. We trust the stimulus afforded by these prizes will have a good effect in inducing a desire for knowledge, on the part of our apprentices, not only in this, but in other departments of science in which the druggist is interested.

In an able paper by Mr. Elliot, in the last number of this journal, will be found a list containing the names of over three hundred Canadian plants from which to select. It is not expected that the competitor will collect specimens of all these plants, in fact, number is not essential to success, but general excellence and correctness.

LECTURES ON CHEMISTRY.

The lecture committee have completed an arrangement for the delivery of lectures on chemistry, under the joint auspices of the Pharmaceutical Society and Mechanic's Institute, of this city. The classes are to meet two evenings a week, in the lecture room of the Institute, and assistants and apprentices connected with the Society will be privileged to attend, without the payment of any fee. Opportunity for experiment will be afforded to students, and certain evenings will be devoted to this purpose. The course will extend over the winter months, and will, no doubt, be well attended. We look forward to the time when the Society will be able to provide a laboratory, and professors of its own in the various departments of Pharmacy; but, in the meantime, the arrangement which has been made must be deemed satisfactory.

DETECTION OF ADULTERATION IN ESSENTIAL OILS BY MEANS OF IODINE.

To dealers in essential oils, the discovery of Dr. Tuchen has proved itself of great value, as affording a ready means of detecting adulteration. At the present time it is employed by many druggists in Canada, and it is necessary for those who regard the purity of the oils they use or sell, that they be made acquainted with the mode of using it. We briefly describe the method recommended by Zeller—the best authority on the subject—and also give his classification of the different volatile oils in their behaviour towards iodine.

Five or six drops of the oil to be examined are placed in a watch crystal, or on a piece of glass, and about two grains of iodine, in powder, are dropped in the middle of the oil; after the reaction is over the mixture must be stirred with a glass rod, and its appearance carefully noted. A reference to the accompanying classifiation will at once indicate the nature of the oil under examination.

I. Fulminating or decomposing with detonation, with much heat, and the generation of violet, and yellowish-red vapour.

(*a*) Quick and violent fulmination, with mostly violet vapours—*Oleum terebinthinæ, sabinæ, juniperi, macidis.*

(*b*) Brisk, but less quick and violent fulmination, with principally yellowish red vapours—*Oleum neroli, bergami, limonis, aurantii, lavandulæ, origani, copaiva.*

II. Quiet and noiseless evolution of yellowish red or gray vapours, accompanied with a rise of temperature.

(*a*) Many yellowish red vapours, considerable rise of temperature,—*Oleum cardamomi melissa, marjoranæ.*

(*b*) Few yellowish red vapours, with perceptible heat,—*Oleum rosmarini, hyssopi, anisi vulgaris.*

(*c*) Few yellowish red vapours, with little heat,—*Oleum thymi vulgaris, salvia, millefolli, cubebæ, cajeputi, menthæ, crispa, matricariæ, arnica flor, anethi, fœniculi, anisi stellati, carui.*

(*d*) Few greyish yellow vapours, little heat, *Oleum calami, valerianæ.*

(*e*) Few grey vapours, little heat,—*Oleum nigellæ, cumini.*

III. Solution without vapours, but with a rise of temperature.

(*a*) Considerable heat,—*Oleum cinnamomi Ceylon.*

(*b*) Little, and very little heat,—*Oleum cascurillæ, cydoniæ, absinthii, cinnamomi Chin., caryophylli.*

IV. Solution without vapours or heat.

(*a*) Forming a homogeneous solution,—

Oleum cynæ, tanacecti, menthæ piper, petroselini, sem. sinapis, sassafras, rutæ.

(*b*) Forming two strata,—*Oleum asphalti, ceræ, succini.*

V. Partial and very sparing solution, without reaction,—*Oleum amygdala amara, rosæ.*

The above reactions are supposed to take place at ordinary temperatures, except in the case of oils of a thick consistency, in which a heat sufficient to produce complete liquefaction is used

In a paper on this subject written by J. M. Maisch, and published some time ago in the *Chemical News*, it is stated that *bromine* may be advantageously employed for the same purpose as iodine, and, indeed, to greater advantage, as it is in the liquid state, and capable of more energetic action. The use of a solution of iodine is also recommended. It may be prepared by allowing ether to take up as much iodine as it will; the solution is used in the proportion of three drops to five or six of the oil. The reactions are somewhat different, but can be easily ascertained by experiment, or by reference to the paper alluded to, in which the subject is treated in a very able and exhaustive manner.

THE CANADIAN PHARMACEUTICAL SOCIETY.

The regular monthly meeting was held in the usual place, on Wednesday evening, 4th inst., J. T. Shapter in the chair.

After routine business, the following were elected members :—

J. A. Nasmith, Woodstock,
George Rankin, Toronto,
Assistants.

The Lecture Committee presented the following Report :—

Our arrangement has been made with the Mechanics' Institute and Dr. May, whereby junior members to the number of thirty-six will have the right of attending chemical lectures, on Wednesday and Friday evenings for five months, commencing after the 17th instant.

This society is to pay the sum of ninety dollars as its proportion for lectures, light, heating, and rent, but a separate arrangement will have to be made with the professor for apparatus broken, and chemicals used by students in their experiments, or students may provide their own apparatus and reagents. The committee are of opinion that it will be better if the professor provides all things requisite without any charge whatever to the students and will endeavor to agree with Dr. May on that point.

The committee feel that it would be entirely superfluous to urge either on employers or juniors the importance of these lectures as a means of attaining a knowledge of the elements of chemistry.

The only expense to the student is the merely nominal fee for membership to this society. It is requested that those intending to join the class should leave their names as soon as possible with Mr. Rose, who will be able in a few days to supply tickets, and information as to the text-books, &c.

All of which is respectfully submitted.

(Signed,) W. H. Dunspaugh.
Chairman.

Toronto, November 4th, 1868.

On motion of Mr. Elliott, seconded by Mr. Hodgetts, the report was received and adopted.

The Secretary called the attention of the meeting to the desirability of keeping up the practice of reading original papers each month, when the chairman, Mr. Shapter, hoped to be able to supply one for December.

The committee on Legislation presented no report, but expect to do so next meeting.

Meeting adjourned.

Henry J. Rose,
Secretary.

FACILITIES FOR DISPENSING MEDICINE.

BY HENRY BIROTH.

The position held towards the public by the apothecary is an extremely difficult one. His qualifications entitle him to the first rank of society; but while the public expects that he should have all the high qualifications necessary for the proper performance of his duties, it by no means extends to him commensurate praise. Courteousness and affability, conscientiousness and accuracy, are but a few of the qualifications that are demanded of the pharmacist.

To fill his position to the general satisfaction, he should be a model of talent and virtue. As the compounding of prescriptions is the true object of pharmacy, all other tasks and efforts being but expedients for attaining this end, it is requisite for the apothecary to possess cleverness and activity in preparing prescriptions. In appending the following, I therefore believe I can offer him some facilities which will prove both time and labor-saving.

1. *A Solution of Sulphate of Quinine in Sulphuric Acid.*—Take of sulphate of quinine one ounce, mix with eight ounces of water, then drop carefully into it concentrated sulphuric acid, and stir until the quinine is dissolved, then add sufficient water to make the whole measure ten fluid ounces. Ten parts of this solution will represent one part of quinine.

A similar solution may be made with aromatic sulphuric acid.

2. *A solution of Nitrate of Silver.*—The exact weighing of nitrate of silver in small quantities is very difficult, and takes a great deal of time, which in dispensing is of great importance. The solution is made by dissolving an ounce of nitrate of silver in sufficient distilled water to make it measure ten fluid ounces. This solution has to be kept in dark-colored bottles to prevent its decomposition by light.

3. *A Solution of Chloride of Zinc.*—Chloride of zinc, being a deliquescent salt, will soon become unfit for weighing by using it often. The solution is made in the same way as the above, by dissolving one ounce of chloride of zinc in sufficient distilled water to make it measure ten fluid ounces.

4. *A Mixture of Strychnia with Sugar.*—This is an important mixture, as strychnia cannot be too carefully handled. Doses of one-twelfth, one-eighth, or one-quarter of a grain cannot be weighed with as much accuracy as when mixed with sugar; the lightest breeze of air often affecting the correctness of the scale. One drachm of strychnia mixed with sufficient white sugar to make the whole weigh twelve drachms, is a convenient mixture in most all cases where small portions of strychnia are prescribed.

5. Similar mixtures as the above can be made with morphine, opium, and tarar-emetic. The proportions may be made the same, or smaller.

6. *A Concentrated Solution of Gum Arabic.*—Instead of using the powdered gum arabic wherever prescribed in liquids, it is better to use a solution of the gum in proportion 1 : 2; with this the medicine will always look nice and clean, and emulsions made with it will be elegant.

7. In a good many instances the dispensing druggist will avoid straining mixtures by keeping solutions in the proportion of 1:2 of the following salts: Ammoniæ murias, magnesæ sulphas, potassæ nitras, sodæ sulphis.

8. Very practical are solutions of several narcotic extracts, for example: Extractum hyosciami, extractum aconiti, extractum belladonnæ, extractum opii. As these extracts are often used in ointments, their solutions have to be concentrated 1:2, and as they are liable to decompose when dissolved in water alone, an addition of alcohol is necessary; glycerine is also a good solvent for them.

9. Misturæ cretæ is a preparation which only should be made extemporaneously. For this purpose the dry mixture may be kept ready according to the Pharmacopœia, *i. e.*: ℞. Cretæ preparatæ, two parts: sacchari albi; pulvis acaciæ aa one part: mix. One drachm of this with half ounce each of water and cinnamon water will make one ounce of chalk mixture.

10. We cannot always get fresh lard, and as long as our unguentum simplex is directed to be made with white wax—an already rancid body—it happens very often that an ointment of iodide of potassium gets yellow, instead of being perfectly white. A few grains of hyposulphite of soda dissolved in a little water, added to such ointment, will turn it snow white.

11. Acetate of lead will change partly into carbonate of lead by the carbonic acid of the atmosphere or of the water; therefore solutions of it will always have a milky appearance. In all cases where it is prescribed for internal use, the precipitated carbonate of lead should be redisolved with a few drops of acetic acid, and the solution will be clear.

12. It is very important in cases of poisoning to prepare a freshly precipitated hydrated oxide of iron. This should be done in the shortest time possible; therefore the necessary ingredients have to be kept ready separately in their respective proportions, that is: Solution of tursulphate of iron, four ounces; aqua ammoniæ, sufficient quantity. The precipitation is made according to the U. S. Pharmacopœia, strained, pressed firmly with the hands, and then mixed with sufficient water to make it measure six ounces. The sulphate of ammonia partly remaining in the precipitate, does not interfere with the effect of the antidote.

All these preparations should be labelled in a proper way, so that no mistake in using them may ever occur.—*The Pharmacist (Chicago.)*

Manufacture of Chlorate of Potassa.

Dr. Lunne (*Dingler's Journal*, vol. clxxxix. p. 488) gives a clear and able description of some English manufactures and processes for this salt, of which, so far as we know, none is made in America.

The method pursued is that usually mentioned in chemical text-books, *i.e.*, passing chlorine gas through milk of lime until its complete conversion into chlorate, and decomposition of the resulting solution by means of chloride of potassium. The apparatus employed is, in general, the same as that originally used for liquid chloride of lime; but the apparatus nowadays are of such perfection as to allow no smell of chlorine to be perceptible on the premises. Both the gas and absorption-vessels are double and act alternately, the latter being provided with rotating stirrers, by which milk of lime is kept moving. An apparatus of this kind in a Lancashire establishment has a large number of absorbers, which are close square tanks of cast-iron, 9 feet in diameter and height, lined with stone-tiles, the iron being little affected by the chlorine; besides the tanks are kept constantly nearly full of milk of lime. One of these tanks becomes saturated once in 3 days, and then yields 3½ cwts. of chlorate of potassa.

The milk shows at the beginning 8° Tw. (sp. gr. 1·040), and when saturated with gas 28° Tw. (1·140). It is then of a pinkish color, and almost clear, except the gritty sediment from the lime, and a small portion of lime which will remain unattacked. The color is due to permanganates carried over in the chlorine. The liquor after settling is evaporated in iron boilers, the sediment being made to yield its free chlorine by treatment with muriatic acid in a gas-apparatus proper connected with the absorbers.

While boiling down the solution chloride of potassium is added until the density reaches 1·180, the Stassfurth (Prussia) salt being preferred for the purpose. Evaporation is then continued until the density has arrived at 1·280, when the first crystallization is allowed to take place; the mother-liquor from which is concentrated to 70° Tw. (1·350) for another crop of crystals, and in the larger factories a third crystallization is necessary. The first salt-crop requires to be recrystalized, for which purpose it is dissolved in boiling water until the solution shows 1·160 sp. grav., or by wet steam without fresh water, which operation is performed in stone or leaden tanks. To facilitate the crystallizing, leaden straps are fastened across the sides, as is the custom in making rock-candy; and for the purpose of obtaining large crytals, and especially in winter, to lengthen the time of crystal-growth, the tanks are surrounded by non-conducting material. A peculiar trick for forming fine large crystals consists in adding in recrystallizing to every 400 gallons (imp.) 10 lbs. of sal-soda, which undoubtedly serves to remove the remaining lime from solution, and the precipitate of carbonate of lime carries with it mechanical impurities. The crystals are transferred to large iron funnels lined with lead, on which they are washed with cold water, and then dried in a proper room at a temperature varying from 65 to 70° C., or upon hollow boxes of sheet-lead, heated within by means of hot air or steam. The consumption for every cwt. of chlorate seems to be 6⅝ cwt. of manganese or 60 per cent.

Manufacture of White Lead.

White lead, or carbonate of lead, is extensively used in the arts. As a pigment, when pure and mixed with linseed oil, it produces a beautiful white. It is also the base and vehicle for colors used in painting. Cements for metals are composed mainly of it, and in the preparation of vulcanized rubber and liquid gutta percha it enters largely. In medicine it is employed mixed with linseed oil as an ointment for burns, scalds, ulcers, and excoriations. Of all the different preparations of lead the carbonate is the most poisonous to the human system, inducing what is known as the painter's colic in those engaged in its manufacture and in painters. This terrible disease, even if not fatal, frequently produces local paralysis, and the victim becomes a permanent cripple.

The method of manufacture is simple. The material, usually in pigs, of the purest quality, is melted in a fixed kettle and then run into very thin sheets. When made by hand, the process of casting these sheets requires considerable skill. The operator holds in his left hand, by a suitable handle, a sort of shovel of sheet brass, the sides turned up, and dipping up a small quantity of the melted metal, he dexterously throws it over the surface of his shovel, when it almost instantly cools in a thin sheet, the superfluous metal running back into the kettle. A number of these sheets are loosely coiled, forming a sort of cylinder to be submitted to the after action of the acid.

In large concerns, however, this hand casting has been superceded by a method very much superior, the invention of Mr. Augustus Graham, of Brooklyn, N. Y. A series of molds, corresponding to the shovel just mentioned, and connected to an endless chain, are successively presented to a current of melted lead, forming sheets in the shape of grates, called "buckles," from their resemblance to the large shoe and knee buckles worn in former times. These buckles are discharged at the further end of the apron and placed in earthen pots, their endges resting on inward projecting ledges about three inches from the bottom of the pots. Each pot contains a small quantity of acetic acid, not however reaching the lead buckles. The pots have holes near the top, and they are set on a floor covered with tan, the holes of the pots opposite each other to insure a free passage, from one to the other, of the acidulated gases. The first layer of pots is covered with boards, over which is spread another layer of tan, and on this another layer of pots, and so on to the height of perhaps twenty feet. The whole is covered with a thick layer of tan.

Then the process of decomposition begins. The tan ferments, generating heat, which causes the vinegar to evaporate and its vapors to circulate among the lead. This goes on for several weeks, and the white carbonate falls down in snowy heaps. When the process is supposed to be completed, or the action of the acid ceases, the pile is taken down, the carbonate removed, and those portions of the lead which have not been reduced, called "blue lead," are cleansed of their white coating and returned to the melting pot.

The carbonate or white lead, in the form of powder, is then washed in tanks with water. These tanks are placed high enough to draw off the lead paste from their bottoms to immense pans called drying kilns, which have false bottoms, between which and the true bottoms steam is admitted to hasten the evaporation of the water. When dry, the powdered lead may be packed ready for market, but usually it is ground in oil, in which form it is generally sold.

It is seldom, however, that it is offered pure; sulphate of barytes being extensively used to adulterate it. This substance is nearly as heavy as white lead, and is perfectly white but not so brilliant. It has not the body of white lead, but is not so easily affected in color by noxious gases, white lead being soon discolored by sulphureted hydrogen gas.
—*Scientific American.*

Ozone.

This remarkable substance, discovered by Schœinbein in 1840, has lately been the subject of numerous researches. Galignani says: "Our readers know that when air or oxygen is traversed by frequent electric sparks, it acquires a certain smell similar to that which is sometimes observed after a storm, or even a strong flash of lightning. It was generally admitted by our forefathers that when the Evil One did mortals the honor of paying them a visit his exit was always marked by a smell of brimstone, that being very like the odor we are alluding to, and most appropriately attributed to the enemy of mankind, who was known to be a great amateur of the electric fluid. Ozone is not soluble in water to any degree worth taking into account: a heat of from two hundred and fifty to three hundred degrees centigrade will decompose it: but it should be remarked that it has never yet been obtained in a state of purity, it being generally mixed with an enormous quantity of air and oxygen. But even in that state it evinces much greater power than the latter; it will, for instance, transform silver moistened with water into black peroxide of that metal without the aid of heat; it is rapidly absorbed by iodine and mercury, each in a dry state, and it will transform nitrogen into nitric acid by the aid of potash or slackened lime. Its property of turning starch blue when impregnated with iodide of potassium has been long used as a test of its presence; but it is a very imperfect one, since other substances produce a similar effect. It exercises a powerful action upon organic substances, and it is this which has recently called it into notice again. It has been shown by Dr. Scharr, of Berne, that ozone, as well as substances impregnated with it, will kill animalculæ with certainty and rapidity; and, as recent researches seem to place it beyond doubt that most epidemics, and cholera among the number, are owing to microzoaria, great hopes are entertained of its being possible to use ozone in hospitals as a disinfectant; and, perhaps, to extend its use still further. As might have been foreseen, however, from its being a modification of oxygen, it exercises an irritating action on the respiratory organs, a drawback which must necessarily reduce its application to sanitary purposes within narrow limits."

Cider may be preserved sweet for years, by putting it up in air-tight cans after the manner of preserving fruit. The cider should be first settled and racked off from the dregs, but fermentation should not be allowed to commence before canning.

Citrate of Bismuth and Ammonia.

The want, long realized, of some compound of bismuth which will dissolve in the stomach, or may be administered in the form of a solution, has given rise to one or two formulæ which are comparatively new, and which we publish without any remarks upon their therapeutical action or curative merits. The most approved of these is the double citrate of bismuth and ammonia, the first step in the preparation of which is the formation of the citrate of bismuth alone. This is done by dissolving 240 grains of the subcarbonate of the metal in 360 grains of officinal nitric acid, and when the solution is effected, adding an equal part to the acid, by weight, of distilled water in small quantities at a time. To this solution another, composed of 300 grains of citrate of potash in one pint of water, is slowly added, with constant stirring to favor reaction. By a combination of the nitric acid of the ternitrate of bismuth, as above formed, while at the same time an insoluble precipitate is formed by the union of the citrate acid with the bismuth, which latter salt is thoroughly washed with distilled water to free it from the nitrate of potash, and dried with a gentle heat upon a filter.

To prepare the citrate of bismuth and ammonia, the bismuth salt as prepared above is rubbed with water sufficient to make a paste, or if the two operations are immediately consecutive, the drying of the citrate of bismuth after the washing may be omitted. Strong aqua of ammonia is then to be added to the paste until the citrate is dissolved, carefully avoiding an excess of ammonia. After filtering, the solution should be spread on glass or porcelain plates to dry. As thus prepared it is in the form of shining, colorless, semi-transparent scales, having a slight acid reaction and taste. It is soluble in cold and hot water and in diluted alcohol, but less soluble in ether.

Its formula is BiO^3, NH^4O, $C^{12}H^5O^{11}+5HO=BiC^{12}NH^{14}O^{20}=473$. Besides being sometimes given with some vegetable extract in the form of a pill, it is likewise employed in solution in water, or water and a little alcohol, sixteen grains of the salt being allowed to one ounce of the solvent, and the dose being one drachm, containing two grains of the citrate.

Another process has been proposed for making this substance in solution, which involves less trouble than the other. It is by dissolving twenty ounces of citric acid in two pints of water, and adding eighteen and one-fourth ounces of the crystallised ternitrate of bismuth. When the latter is dissolved, the strong aqua ammonia, previously diluted with an equal volume of water, is added until the liquid is neutral. It is then diluted still further, until it becomes of the required strength for use, as already named. It is already beginning to be prescribed by the faculty of this country, but was first proposed in England.—*Jour. of Applied Chemistry.*

Photography.

Producing Colored Pictures.—Various attempts have been made to obtain photographs of objects in their natural colors. These attempts have been so far successful as to produce photographs in which every color of the original was faithfully represented; even the iridescent colors of the peacock's feather have been beautifully photographed. It is, however, not yet quite certain whether any means have been discovered by which the colors can be permanently fixed, as hitherto they have slowly faided away, and become one uniform reddish tint. It is generally admitted that, up to the present time, the most successful photographer in producing colored pictures is M. Niepce de Saint Victor, whose process is this: He takes a daguerreotype, or silver coated plate, and dips it into a weak solution of hypochlorite of sodium, having a specific gravity of 1·35, until it has assumed a bright pinkish hue. The plate is then covered with a solution of dextrine, saturated with chloride of lead; it is then dried, and subsequently submitted to the action of heat for several hours until the temperature of the plate reaches from 95° to 100°, or else expose the plate to the rays of the sun as a substitute for artificial heat, under a sheet of paper which had been steeped in an acid solution of sulphate of quinine. The plate is then ready to be placed in the camera obscura, and to receive the colored picture of the spectrum, or any other object. It is said that he has succeeded in increasing the stability of the colors developed on the sensitive surface by covering the plate with an alcoholic solution of gum benzoin. This branch of photography has been called Heliochromie.

Crystallization.

A very curious discovery has recently been made by M. Auguste Bertsch, and turned to practical account by M. Kuhlmann, the celebrated chemist. Who is there that has not, during cold winters, stopped to admire the beautifully symmesrical and yet fantastic figures of leaves and flowers depicted on the window-panes of a well-heated room, the air of which is charged with aqueous particles! M. Bertsch has found that Epsom salts (sulphate of magnesia) dissolved in beer, together with a small quantity of dextrine (artificial gum), and in this state applied to a pane of glass with a sponge or brush, will, on crystallizing, produce the identical designs above alluded to, hitherto considered peculiar to water; with this improvement, however, that the liquid may receive any color whatever, at the option of the operator, The ephemeral productions of frost may thus be easily perpetuated; but M. Kuhlmann, on being apprised of the fact, conceived the idea of going a step further, and transferring these fairy-like creations to stuffs and paper. For this purpose he first got the crystallizations on sheets of iron, on which he afterwards laid one of lead. By means of a powerful hydraulic press the minutest details of the figures in question were durably imprinted on the soft metal, and a copy of them in relief was then obtained by galvanoplastics. But here another difficulty arose: in the impression of cotton stuffs the pattern must be continuous; whereas in M. Kuhlmann's plates the lines at one end would clearly not coincide with those at the other, so that disagreeable interruptions would be caused in the printed designs. This obstacle, however, has been overcome in a most ingenious manner by effecting the crystallization on the cylindrical surface of a roller. A slight rotary motion imparted to it will prevent the liquid from accumulating at any particular point before it has evaporated.

Insalubrity of Cast-Iron Stoves.

When the attention of the Academy of Sciences of Paris was drawn some time since by M. Carret, one of the physicians of the Hotel Dieu of Chambery, in several papers, to the possible evil consequences of the use of cast-iron stoves, but little interest was excited in the matter. Recently General Morin has again brought the subject forward with better success. M. Carret does not hesitate to assert most positively that cast-iron stoves are sources of danger to those who habitually employ them. During an epidemic which recently prevailed in Savoy, but upon which M. Carret does not furnish us with any detailed information, he observes that all the inhabitants who were affected with it made use of cast-iron stoves, which had lately been imported into the country, whereas all those who employed other modes of firing, or other sorts of stoves, were left untouched by the disease. An epidemic of typhoid fever, which broke out some time after at the Lyceum of Chambery, was regarded by the same author as being influenced by a large cast-iron stove in the children's dormitory. General Morin speaks in the highest terms of M. Carret's memoirs, to which the recent experiments of MM. Troost and Deville give additional importance. These able investigatora have esrablished that iron and cast-iron when heated to a certain degree become pervious to the passage of gas. They have been enabled to state the quantity of oxide of carbon which may, as they suppose, transude from a given surface of metal, and have shown that the air which surrounds a stove is saturated with hydrogen and oxide of carbon. They conclude that cast-iron stoves when sufficiently heated absorb oxygen, and give issue to carbonic acid. General Morin related some comparative experiments which had been performed by M. Carret, and which, he said, corroborate this theory. Thus, after having remained one full hour in a room heated to 40° (centigrade) by means of a sheet-iron stove, M. Carret perspired abundantly, got a good appetite, but felt no sickness whatever; he had obtained the same result with an earthenware stove; but the experiment, when performed during only one half-hour with a cast-iron stove, had brought on intense headache and sickness. M. Deville, at the same sitting of the Academy, supported these views with considerable warmth. The danger which attended the use of cast-iron stoves, he said, was enormous and truly formidable. In his lecture room at the Sorbonne he had placed two electric bells, which were set in motion as soon as hydrogen or oxide of carbon was diffused in the room. Well, during his last lecture the two cast-iron stoves had scarcely been lit when the bells began to ring.

"These facts are certainly startling, if we consider the reputation of comparative harmlessness which these articles of domestic use had hitherto enjoyed. In France, particularly, the lodgings of the poorer classes, the barrack-rooms of the soldiery, the artists' studios, the class-rooms of large schools, &c., are commonly heated by this means. Of course we are inclined to question M. Carret's conclusions; but the apparently accurate character of the facts recorded, joined to the authority of those who have brought them forward, demand for them a serious investigation. We are glad to be able to add that a committee has been appointed by the Academy for the purpose of examining thoroughly into the subject. This committee is composed of MM. C[illegible] Bernard, Morin, Fremy, Deville, and Bussy, and we shall not fail, when the time comes, to mention what shall have been the result of their researches."—*Lancet.*

On the Comparative Action of Various Disinfecting Agents.

Dr. Beranger-Feraud, of the French navy, after trying wood charcoal, chlorine, chloride of lime, carbolic acid, and protosulphate of iron in deodorizing the bilge water of ships, comes to the conclusion that permanganate of potassa far exceeds them all in rapidity of action and thoroughness of effect, and says: "I made use of a solution of permanganate of potash, of the strength of half an ounce of crystals to a quart of water. One ounce and a half of this solution, which has a fine crimson color, added to a pint of foul bilge water, effectually removed all bad odor in three minutes, with a change of color to a dirty grayish-brown.

"The purifying action of permanganate of potassa is so remarkable that its success in the disinfection of putrid matters of every kind may safely be assumed. I have derived the greatest advantage from its use for many other sanitary purposes besides those just mentioned. It not only effectually destroys the foul odors arising from suppurations, and from putrefying and fæcal matters, but it acts likewise on many other odorous substances. I will cite a curious fact in conformation of this. Having one day inadvertently imbued my hand with a concentrated solution of carbolic acid, I could not rid myself of the penetrating and offensive smell. Repeated washings with soap, followed by applications of vinegar, chloride of lime and ammonia, failed to remove the odor. Being on the point of attending a consultation to which I was very reluctant to carry so nasty a smell, I was in despair. The idea occurred to dip my fingers in permanganate solution. The first application caused a notable diminution of the carbolic odor; after the third it had entirely gone."—*Med. Press and Circular.*

Iodine and Carbolic Acid.

A solution, containing iodine, carbolic acid and glycerine, has been introduced to the medical profession by Dr. Percy Boulton, who claims for it therapeutic virtues of superior efficiency.

Dr. Boulton's solution is prepared as follows:—

R.—Tinct. Iodini Comp	M xlv
Acid Carbolic Cryst. (fusa)..	M vi.
Glycerinæ	dr viii.
Aq. Destillat	oz v.

The iodine color gradually disappears, and the solution eventually becomes colorless. The time necessary to complete this change depends on the temperature—at 60° F. eight to ten days are required; if the cork of the bottle is secured, and the mixture exposed in a water bath to a temperature of from 90° to 100° F., the change will be effected in eight or ten hours. The change takes place as quickly in diffused light as in direct sunshine, provided the temperatures are equal. The solution exposed to sunshine becomes somewhat turbid and deposits a muddy precipitate.

The change is due entirely to the carbolic acid, glycerine alone, under similar conditions, effecting no change in the iodine solution, while carbolic acid acts equally well with or without the presence of glycerine.

The *character* of the change is probably the transformation of the iodine into iodide of formyle (iodoform), at the expense of the carbon atoms of the carbolic acid.

The solution possesses antiseptic and stimulant properties in a marked degree, and has met with favor as an application in the form of injections, gargles, and lotions "in cases of sore throat, ozæna, abscesses in the ear, and foul or indolent ulcers."

It has also been recommended as an *injection* in cases of internal hæmorrhoids, and by inhalation for throat and bronchial affections. When used for inhalation the glycerine can be omitted.—*Charles Bullock, in Journal of Pharmacy.*

Eating Clouds.

Dr. Livingston, relating his adventures on Lake Nyassa, thus tells one curiosity which he fell in with During a portion of the year, the northern dwellers on the lake have a harvest which furnishes a singular kind of food As we approached our limit in that direction, clouds, as of smoke arising from miles of burning grass were observed bending in a southeasterly direction, and we thought that the unseen land in the opposite side was closing in, and that we were near the end of the lake. But next morning we sailed through one of the clouds in our own side, and discovered, that it was neither smoke or haze, but countless millions of minute midges called "kungo" (a cloud of fog). They filled the air to an immense hight, and swarm upon the water too light to sink in it. Eyes and mouth had to be closed while passing through this living cloud, they struck upon the face like fine drifting snow. Thousands lay in the boat after emerging from the clouds of midges. The people gathered these insects by night and boiled them into thick cakes, to be used as a relish—millions of midges in a cake. A kungo cake an inch thick, and as large as the blue bonnet of a Scotch plowman, was offered to us, it was very dark in color, and tasted not unlike caviare or salted locusts.

How to Poison Children.

One naturally touches the point of his pen with great timidity at a reputation like that of the illustrious Liebig. But the learned professor, since his stay in Paris in attendance on the exhibition, has promulgated in the journals of science new food for children, which he declares is being fed with success to thousands of children in Germany; or, to use his own expression: "*A des petits tudesques par milliers.*" This food is a chemical compound, intended to contain the component parts of human milk, and to be a substitute for it. To accomplish this object, that is to say, to furnish to new-born children, deprived for any reason of their natural food, a substitute, he went to work and reproduced a milk by chemistry, which, chemically speaking, was correct, and which, he contends, children may take with perfect safety and advantage.

With such an authority as that of Liebig, therefore, the whole scientific world of Europe has been trying this new compound; for, to find a substitute for mother's milk, especially for the use of the foundling hospitals, is an immense desideratum. But here at Paris it was tried on but four children, and these four it killed two in three days, and two in four days. The experiment was made at the Lying-in Hospital of Dr. Depaul, professor of clinical obstetrics of the faculty of Paris, and the children selected were those abandoned by their mothers. The artificial milk quickly brought on bilious purging and prostration. Of course, Prof. Liebig declaims loudly against the fairness of the experiment; but Dr. Depaul is a competent judge, and the whole Academy of Medicine, after a fair report from the chemists in their body, have decided not to take the responsibility of a further experimentation with so dangerous a compound. What is the use, the Academy judiciously says, since we have in our hands so excellent a substitute, and so nearly an analogous substance, in cow's milk, with the addition of a little water and sugar? And upon this substance, which is so easily obtainable, the Academy has decided to rely for the feeding of the foundlings and all other children placed in their charge. Prof. Liebig has undoubtedly lost a point in this discussion.—*Paris Cor. Times.*

TANNING.—Mr. H. Miller Ragland has invented a process for preparing hides to receive more readily the action of tannic acid. After the hair and particles of flesh have been removed and the hides have been properly cleaned by the action of lime, the first step in this new process is to place the hides in water sufficient to cover them. The hides are to be placed in separately with the fleshy side upwards, and are to be sprinkled with bran in the following proportions:—

Light hides, for uppers, etc., each skin	6 ounces
Calf skins	3
Sheep skins.....	4½
Heavy hides, for sole leather	14

In this vat the skins must remain until fermentation has taken place, which will be, in warm weather, in about two days, but in cold weather somewhat longer. After this the skins must be removed and scraped from any adhering particles of lime or other substances. When this has been done the skins are subjected to the action of mustard seed, which forms the distinguishing characteristic in this process. It is carried out in the following manner:—A vat of proportionate size is filled with a sufficiency of water to cover the skins, and to this water there must be added for every hundred pounds weight of the skins, when dry, five pounds of ground Italian mustard seed, and five pounds of barley meal. When these ingredients have been thoroughly mixed with the water, the skins must be dipped therein, so that they may be perfectly saturated with it, and they must be left in this dip for the following length of time:—

Calf, sheep or goat skins....................	24 hours
Light hides and kips.	36
Heavy hides, for sole leather..............	48

When this time has expired the skins must be taken out and hung up to dry, but only partially, as when subjected to the next process they should still be in a damp condition. The dip which has just been described has a very powerful action on the skins; the combined action of the mustard seed, barley meal, and heat thereby generated, is to open the pores of the skins, and thus to render the remaining processes in tanning them by means of bark much more speedy than under any other methods hitherto known.—*Student.*

Colouring Matter.—This invention consists in the production of a red colouring matter, by the oxidation of a product isomeric with naphtalamine, and which is obtained by distilling naphtaline and taking the products of higher distillation to mix with the naphtalamine. The naphtaline is treated with nitric acid of 1·33 degrees density; the nitro-naphtaline obtained is then washed and reduced by either iron and acetic acid, or by hydrochloric acid and zinc; this reduction is energetic. It is distilled after reduction. The naphtaline passes over first, then the retort cools a little, and afterwards it is heated to a higher temperature, when a second body will pass over. This product of higher distillation is treated at about 250° Fah. with about 50 per cent. of nitrate of mercury, very dry, and a quantity of napthalamine equal to that of the second body is added. They are left in contact for about a quarter of an hour, and are then treated with boiling water containing an acid, preferably a vegetable acid. The colouring matter is dissolved and the mixture filtered to separate the raw materials. M. Alexandre Clavre, of Basle, is the discoverer of this process.—*Student.*

Extracting Colouring Matter from Madder.—M. Alexandre Claver, of Basle, has discovered a method of extracting the colouring matter from madder, which seems to be useful in that it increases the yield of colour. It consists in extracting the colouring matter or properties of madder by petroleum or other hydro-carbon in the presence of mineral acids. The petroleum or other hydro-carbon is heated to 100°, and the alizarine or flowers of madder brought to a pasty, sticky state with about five times their weight of hydrochloric or sulphuric acid which is added to them. The mixture is kept at the same temperature for an hour or two, it is then filtered, and on cooling, the colouring matter will precipitate from the petroleum which held it in solution. The chief feature in this invention is the use of acids, without which the madder flowers would yield to the solvents only a very small part of the colouring matter. The advantage of the extraction of these products is to be able to apply the madder, that is to say, the colouring matter or properties of the madder, *directly* in printing.—*Student.*

How to utilize Leeches.—A paragraph with the above title was copied from *Once a Week* into the Journal of the 3d inst., giving the credit of the invention to the "German doctors." There is nothing new in the discovery that they may be tapped and continue sucking. As long ago as when I was physician to the Boston Dispensary (1845), we used to puncture them with a cataract needle or the point of a lancet, while at work, Leeches were not so abundantly supplied as we then thought necessary, and this was tried satisfactorily. One leech would often do the work of two or three. The United States Dispensatory says: "Leeches will continue to suck after their tails are cut off, which is sometimes done, though it is a barbarous practice." Puncturing does not kill them, and some physicians have emptied them in that way, as they are less injured than by stripping, salting or pickling.—C. E. Buckingham, M.D., *in the Boston Medical and Surgical Journal.*

Syr. Ferri Phosph. Quinæ et Strychniæ.—A syrup now in use under the above name is made as follows. As this preparation is very liable to change, it should not be kept for any length of time:—"5 drs. Ferr. Sulp., 6 drs. Sodæ Phosph., 192 grs. Quinæ Sulph., q. s. Acid Sulph. Dil., q. s. Aquæ Ammoniæ, 6 grs. Strychniæ: 14 oz. Acid Phosph. Dil., 14 oz Sacchar. Alb. Dissolve the Sulphate of Iron in 4 oz. of boiling water, and the Phosphate of Soda in 2 oz. of boiling water. Mix the solutions, and wash the precipitated Phosphate of Iron till the washings are tasteless. With sufficient diluted Sulphuric Acid dissolve the Sulphate of Quinine in 2 oz. of water; precipitate the Quinine with Ammonia water, and carefully wash it. Dissolve the Phosphate of Iron and the Quinine thus obtained, as also the Strychnia, in the diluted Phosphoric Acid, then add the Sugar, and dissolve the whole without heat. The above syrup contains about 1 grain of Phosphate of Iron, 1 grain of Phosphate of Quinine, and 1-32 of a grain of Strpchnia, in each drachm.

Purifying Iron.—Mr. Charles Denton Abel has patented a communication from John Francis Bennett of Pittsburgh, United States, for the purifying of iron, from sulphur and phosphorus especially. After the molten iron has been treated by Bessemer's process for elimination of the carbon, it is further subjected to the action of carbonic acid, which it is said becomes decomposed, the carbon remaining with the iron while the oxygen unites with the sulphur to form sulphureous acid gas which escapes. In like manner the phosphorus unites with the oxygen of another portion of the carbonic acid forming phosphoric acid, and its carbon remains with the iron, should it be desirable to get rid of this carbon, air may be be passed in as in Bessemer's process, and this carbon introduced by the carbonic acid can be burnt out. There will be also a decomposition of the carbonic acid by the iron with deposition of carbon. While the blast of carbonic acid is passing through the molten iron the temperature of the metal will fall somewhat, losing about one-fourth of the additional heat gained by the passage of the atmospheric blast. This, however, is rather an advantage than otherwise, as it is found that by the atmospheric pneumatic process, the iron is rendered almost too fluid by extreme heat. If preferred, the carbonic acid may be heated before entering the converter or vessel where the molten iron is acted upon. Carbonic acid may also be used with advantage in removing sulphur, and other impurities, from sulphides of copper, zinc, nickle and other metals, by passing it as a blast-current through the metals when in a molten state. A modification of this process may be employed; it consists in allowing a small portion of carbonic acid to enter the blast cylinder together with the air, and thus subjecting the molten crude iron to a combined blast of atmospheric air and carbonic acid gas; by this means the impurities are removed during the process of decarbonization.—*Student.*

New Mode of Preparing Mercurial Ointment.—(By T. H. Hart, Apothecary, New Orleans.—Finding the mercurial ointment, as usually met with in commerce, to vary in strength and purity, and many complaints by physicians having been made of its irritating effects, I would suggest the following mode of preparing the same as offering the advantage of certainty, freshness and easy execution. Take of stearine (lard deprived of its fluid parts by strong pressure) and mercury, each 1 lb., tincture of benzoin (saturated) 4 drachms; into a mortar to which the ointment is intended to be made place a freezing mixture of ice pounded 12, salt 5, potas nit. 5 parts. Introduce into this the mercury contained in a test tube, or other suitable vessel; allow it to remain till the temperature has fallen to 32 deg., or below; remove and wipe the mortar thoroughly dry; immediately introduce the stearine and mercury; when the trituration is nearly completed, add the tincture of benzoin by small portions at a time. In this manner, under favorable circumstances, 2 lbs. of ointment can be made in fifteen minutes. The tincture of benzoin can be omitted if desired, but will be found of great benefit in retarding rancidity.—*The New Orleans Med. and Surg. Journal.*

Cheap Sources for Sulphurous Acid in the Laboratory.—For ten years or more the preparation of sulphurous acid and oxygen from oil of vitrol or white vitrol, mixed with incombustible matter, has been applied. Nowadays sulphurous acid and its salts likewise are coming more and more into demand as antiseptics and disinfectants, and new methods are introduced to produce them still cheaper. Among these are now to be mentioned prominently the cheap sulphates, as copperas, lead sulphate, white vitrol, and bluestone, not alone, however, but mixed with a portion of brimstone, the calcination of which together yields metallic sulphurets and sulphurous acid gas, of which the former product in many cases is even the more valuable by far. So in the case of copperas, the usful sulphate of iron, and in that of bluestone, a blue sulphate of copper.

Hard Cements.—(1) To four or five parts of clay, thoroughly dried and pulverized, add two parts of fine iron filings free from oxyd, one part of peroxyd of manganese, one-half of sea salt, and one-half of borax. Mingle thoroughly and render as fine as possible, then reduce to a thick paste with the necessary quantity of water, mixing thoroughly well. It must be used immediately. After application it should be exposed to warmth, gradually increasing almost to white heat. This cement is very hard, and presents complete resistance alike to red heat and boiling water. (2) To equal parts of sifted peroxyd of manganese and well-pulverized zinc white, add a sufficient quantity of commercial soluble glass to form a thin paste. This mixture, when used immediately, forms a cement quite equal in hardness and resistance to that obtained by the first method.—*M. Schwartze.*

Clear Tracing Paper.—This paper is made with Canada balsam, dissolved in turpentine, and applied to the surface of the sheet; after which the paper is hung upon a fine thread line to dry. If not sufficiently transparent, a second coat like the first may be given. When the second coat of balsam varnish is dry, the surface of the paper should be rubbed with a mixture of equal parts of nut oil and turpentine, and afterward with wheat flour, which must be all carefully wiped off again, with a clean rag. The sheet is then hung upon a line again and thoroughly dried.

RICHARDSON'S STYPTIC COLLOID.—Ether (absolute), Tannin (pure), to be treated with *absolute* alcohol, by digesting for several days. This makes a thick mixture, to which the ether is now to be added, until the whole has become quite fluid. Next take gun-cotton, (pyroxyline), and add to the solution of tannin until it will no longer readily dissolve. This seems to be the "Styptic Colloid of Richardson." To improve its odor a little tincture of benzoin is finally mixed in. All this appears plain enough, and if the directions to use *strong* articles be followed the article will, no doubt, be produced. It may probably be purchased now from the manufacturing chemists.—*Druggists' Circular.*

ALCOHOL FROM LICHENS.—The "Archives des Sciences" for August contains a translation of a Swedish paper by M. Sten Stenberg, showing the large quantity of amylaceous matter contained in certain lichens, among them the reindeer moss, (*Clandophora rangiferina*), existing in immense quantities in certain countries of the north. He converts the amylaceous matter into grape sugar by heat and acids, ferments it, and obtains alcohol, which he states to have an aromatic odor like that of almonds.—*Student.*

ACTION OF DUCKWEED.—M. Deherain has a short paper in "Comptes Rendus" on the decay and decomposition of plants in marshy water when duckweed grows on the surface, and intercepts the solar action. He shows that the plants no longer give out oxygen, and that fish die for want of that element. This he considers the true cause of their decease, and not the presence of sulphuretted hydrogen, arising from the decomposing submarine plants.

DEVELOPMENT OF THE EGG.—From observations on snails, frogs, newts, etc., M. Perez affirms that an egg begins by the formation of a nucleus at the bottom of the ovary. The second step is the transformation of the nucleus into a cell by scission of its peripheral layer, which individualizes itself into a membrane (the vitelline). Third step, first scission of the nucleus, producing the germinal vesicle and spot. Fourth, deposit of vitelline granulations in the primitive liquid of the ovule. He adds that the genesis and development of the male cells (spermatozoids) follow the same course, but with differences arising from the relative quantity of the vitelline granules.—*Student.*

CANADIAN MEDICINAL PLANTS.

PRIZES.

PRIZES are offered for collections of indigenous medical substances of vegetable origin, as follows:—

1ST PRIZE—FIFTEEN DOLLARS—a copy of *Griffith's Medical Botany*, and *Certificate.*

2D PRIZE—TEN DOLLARS—a copy of *Wood's Class-Book of Botany.*

3D PRIZE—FIVE DOLLARS—a copy of *Wood's Class-Book of Botany*, and *Certificate.*

Conditions of competition to be—

1st. *Competitors to have been engaged in the drug trade, and for not more than three years, and to be members of the Pharmaceutical Society previous to* 1869.

2. *Specimens to be forwarded* (carriage paid) *to the Secretary of the Society, Toronto, by 1st September,* 1869, *with a sealed letter, enclosing the address of the competitor, a certificate from his employer that the collection has been made by the competitor solely within a year; that he has been engaged in the drug trade during that time, and that he has not been more than three years so engaged at the date of this notice.*

3. *Each specimen is to be carefully prepared ready for sale or use, and packed in a paper bag. On each shall be written legibly, the common and scientific names, the date and locality of collection, and a private mark, which shall also be put on the outside of the letter accompanying the collection.*

4. *Three judges shall determine the order of merit; they shall be at liberty to withhold any or all of the Prizes, if the collections do not warrant an award, and to select such specimens as they may deem meritorious for the Museum of the Society, which specimens will have the name of the collector put upon them.*

5. *The points of competition to be number of specimens, condition, correctness of naming, and general excellence; quantity a secondary consideration.*

Collections to which Prizes are awarded will be sent to the Provincial Exhibition at the expense of the Society; and any Prizes secured there, shall be for the benefit of the collector.

Address—Collections,
Canadian Pharmaceutical Society,
H. J. ROSE, *Secretary,*
September 15th, 1868. *Toronto.*

Useful Receipts.

Crystalline Pomade.

℞ Spermaceti .... 2 oz.
Almond Oil .... 4 oz.
Castor Oil .... 12 oz.
Melt together and add
Oil Lavender.......................... ½ drachm.
" Verbena.......................... ½ "
" Lemon .... 1 oz.

The bottles should be slightly warmed before filling the pomade, and in summer fifty per cent. more spermaceti should be used.

Circassian Cream.

℞ Best Olive Oil .... 24 oz.
White wax.......................... 3 oz.
Spermaceti.......................... 2 oz.
English Oil of Lavender...... 2 drams.
Oil of Cloves .... 1 "
Ess. of Ambergris.......................... 4 "

Colour the oil with a little Alkanet Root to a slight red strain, and add the other ingredients, *secundum artem.*

Bear's Grease.

℞ Prepared Suet .... 6 oz.
Lard—washed.......................... 4 oz.
Olive Oil .... 2 oz.
Oil of Bays .... ¼ oz.
" Lemon.......................... ¼ oz.
" Thyme.......................... ½ dram.
" Lavender .... ½ " Mix

A small quantity of the genuine grease is generally added for conscience sake.

Bandoline.

℞ Gum Tragacanth, best........ 1 oz.
Rose Water .... 1 pint.

Allow it to stand, with occasional stirring, for 24 hours, then press through fine muslin, and add 10 drops oil almonds disolved in spirits—color if desirable with Tincture Cochineal.

WHOLESALE PRICES CURRENT.—NOV., 1868.

DRUGS, MEDICINES, &c.	$ c.	$ c.
Acid, Acetic, fort	0 12 @	0 15
" Benzoic, pure	0 30	0 35
" Citric	0 80	0 85
" Muriatic	0 04	0 07
" Nitric	0 11½	0 15
" Oxalic do.	0 26	0 35
" Sulphuric	0 04½	0 07
" Tartaric, pulv.	0 40	0 45
Ammon., carb. casks	0 16	0 18
" " jars	0 18	0 20
" Liquor, 880	0 18	0 25
" Muriate	0 12½	0 15
" Nitrate	0 50	0 60
Æther, Acetic	0 40	0 45
" Nitrous	0 22	0 25
" Sulphuric	0 00	0 55
Antim. Crude, pulv	0 10	0 12
" Tart. "	0 55	0 60
Alcohol, 95%	1 72½	2 00
Arrowroot, Jamaica	0 21	0 25
" Bermuda	0 60	0 60
Alum	0 02½	0 03
Balsam, Canada	0 35	0 45
" Copaiba	0 65	0 75
" Peru	2 90	3 00
" Tolu	1 20	1 50
Bark, Bayberry, pulv	0 20	0 25
" Canella, "	0 17	0 20
" Peruvian, yel. pulv	0 40	0 45
" " red "	1 80	1 90
" Slippery Elm, g. b.	0 18	0 20
" " flour, pkt's	0 30	0 35
" Sassafras	0 18	0 22
Berries, Cubebs, ground	0 30	0 40
" Juniper	0 06	0 10
Beans, Tonquin	0 60	1 10
" Vanilla	6 00	7 50
Bismuth, Alb.	6 30	—
" Carb.	6 30	—
Camphor, Crude	0 46	0 50
" Refined	0 65	0 70
Cantharides	0 82	0 90
" Powdered	0 90	1 00
Charcoal, Animal	0 04	0 06
" Wood, pow'd.	0 15	0 20
Chiretta	0 90	1 00
Chloroform	1 40	1 50
Cochineal, S. G.	0 90	1 00
" Black	1 30	1 75
Colocynth, Pulv.	0 50	0 80
Collodion	0 55	0 60
Elaterium ...oz.	4 50	5 00
Ergot	0 65	0 75
Extract, Belladonna	2 00	2 20
" Colocynth, Co.	1 25	1 75
" Gentian	0 50	0 60
" Hemlock, Ang.	1 12	1 25
" Henbane, "	2 40	2 60
" Jalap	5 00	5 50
" Mandrake	1 75	2 00
" Nux Vomic...oz	0 60	0 70
" Opium "	0 90	—
" 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 26	0 35
" Chamomile	0 40	0 45
Gum, Aloes, Barb. extra	1 00	1 10
" " " good	0 50	0 55
" " Cape	0 12½	0 16
" " " pow'd	0 25	0 30
" " Socot.	0 85	0 90
" " " pulv.	0 95	1 10
" Arabic, white	0 45	0 65
" " " pow'd	0 60	0 75
" " sorts	0 30	0 35
" " " pow'd	0 50	0 60
" " com. Gedda	0 13	0 16
" Assafœtida	0 25	0 40
" British or Dextrine	0 12	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	—
" 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	0 25	0 30

DRUGS, MEDICINES, &c. *Continued.*	$ c.	$ c.
Gum, Shellac, liver	0 24 @	0 28
" Storax	0 40	0 70
" Tragacanth, flake	0 70	1 00
" " common	0 20	0 25
Galls	0 32	0 37
Gelatine, Cox's, 6d.	1 10	1 20
Glycerine, com.	0 35	0 40
" Vienna	0 40	0 45
" Price's	0 65	0 75
Honey, Canada	0 16	0 20
" Exotic, Cuba	0 11	0 13
Iron, Carb. Precip.	0 20	0 25
" " Sacchar.	0 40	0 45
" Citrate Ammon.	0 90	1 00
" " & Quinine oz.	0 42	0 48
" " & Strychnine "	0 17	0 25
" Sulphate, pure	0 08	0 10
Iodine, good	4 50	5 00
" Resublimed	5 50	6 00
Jalapa ...oz.	1 50	2 00
Kreosote	1 60	2 50
Leaves, Buchu	0 30	0 50
" Foxglove	0 25	0 30
" Henbane	0 35	0 40
" Senna, Alex	0 30	0 60
" " E. I	0 12½	0 20
" " Tinnevilly	0 20	0 30
" Uva Ursi	0 15	0 20
Lime, Carbolate brl.	5 50	—
" Chloride	0 04½	0 06
" Sulphate,	0 08	0 12½
Lint, Taylor's best	1 12½	1 25
Lead, Acetate	0 14	0 17
Leptandrin ...oz.	0 65	—
Liq. Bismuthi	0 50	0 75
" Opii, Battley's	6 40	7 75
Lye, Concentrated	0 00	2 00
Liquorice, Solazzi	0 40	0 45
" Cassano	0 30	0 40
" Other brands	0 14	0 25
Liquorice, Refined	0 35 @	0 45
" " Hessin's doz	2 00	
Magnesia, Carb...1 oz.	0 22	0 25
" " ...4 "	0 17	0 20
" Calcined	0 65	0 75
" Citrate...gran.	0 40	0 50
Mercury	0 65	0 75
" Bichlor	0 70	0 80
" Biniodid ...oz.	0 30	0 35
" Chloride	0 90	1 00
" C. Chalk	0 45	0 60
" Nit. Oxyd	0 90	1 00
Morphia, Acet.	3 65	3 90
" Mur.	3 65	3 90
" Sulph.	3 85	3 90
Musk, Pure grain ...oz.	20 00	—
" Canton	1 75	2 00
Oil, Almonds, sweet	0 65	0 75
" " bitter	14 00	15 00
" Anniseed	4 40	5 00
" Bergamot, super.	7 50	8 00
" Carraway	3 75	4 00
" Cassia	3 00	3 20
" Castor, E. I.	0 16½	0 20
" " Crystal	0 22	0 25
" " Italian	0 26	0 28
" Citronella	1 67	2 00
" Cloves, Ang.	0 95	1 10
" Cod Liver	1 25	1 50
" Croton	2 80	3 00
" Geranium, pure, oz.	2 00	2 20
" Juniper Wood	0 90	1 00
" " Berries	6 00	7 00
" Lavand, Ang.	20 00	22 00
" " Exot.	1 40	1 60
" Lemon, super.	3 20	3 60
" " ord.	2 70	2 80
" Orange	3 00	3 20
" Origanum	0 65	0 75
" Peppermint, Ang.	16 00	17 00
" " Amer	4 80	5 50
" Rose, virgin	6 50	6 80
" " good	5 00	5 50
" Sassafras	1 00	1 10
" Wintergreen	6 00	6 50
" Wormwood, pure	5 80	50
Ointment, blue	0 65	0 70
Opium, Turkey	8 60	—
" " pulv	9 75	—
Orange Peel, opt.	0 65	0 75
" " good	0 12½	0 20
Pill, Blue, Mass	0 70	0 75

DRUGS, MEDICINES, &c. *Continued.*	$ c.	$ c.
Potash, Bi-chrom	0 15 @	0 20
" Bi-tart.	0 25	0 28
" Carbonate	0 16	0 20
" Chlorate	0 40	0 45
" Nitrate	7 50	9 00
Potassium, Bromide	1 75	2 40
" Cyanide	0 70	0 75
" Iodide	3 90	4 50
" Sulphuret	0 25	0 35
Pepsin, Boudault's ...oz.	1 65	1 80
" Houghton's, doz	8 00	9 00
" Morson's ...oz.	0 95	1 10
Phosphorus	0 75	0 85
Podophyllin	0 60	0 75
Quinine, Pelletier's	1 33	1 45
" Howard's	1 45	1 70
" " 100 oz. case	1 37½	—
" " 25 oz. tin	1 30	—
Root, Colomba	0 16	0 25
" Curcuma, grd	0 12½	0 17
" Dandelion,	0 25	0 35
" Elecampane	0 14	0 17
" Gentian	0 08	0 12½
" " pulv.	0 17	0 25
" Hellebore, pulv.	0 20	0 25
" Ipecac "	2 80	3 25
" Jalap, Vera Cruz	1 65	2 —
" " Tampico	0 80	1 —
" Liquorice, select	0 14	0 17
" " pow'd	0 15	0 20
" Mandrake, "	0 20	0 25
" Orris "	0 20	0 25
" Rhubarb, Turky	5 25	7 50
" " E. I., China	2 00	2 25
" " " pulv.	2 40	2 50
" " " 2nd	1 50	1 60
" " French	0 75	—
" Sarsap., Hond	0 42	0 50
" " Jam.	0 75	0 80
" Squills	0 10	0 15½
" Senega	0 40	0 50
" Spigelia	0 35	0 40
Sal., Epsom	3 00	4 00
" Rochelle	0 30	0 35
" Soda	0 02	0 03
Seed, Anise	0 16	0 30
" Canary	0 06½	0 07
" Cardamon	2 00	3 00
" Fenugreek, gr'd	0 10	0 15
" Hemp	0 06	0 07
" Mustard, white	0 14	0 16
Saffron, Amer.	0 90	1 00
" Spanish	14 00	16 00
Santonine	10 50	12 50
Sago	0 07	0 09
Silver, Nitrate, cash	14 90	16 50
Soap, Castile, mottled	0 12	0 14
Soda Ash	0 02½	0 04
" Bicarb. Newcastle	4 00	5 00
" " Howard's	0 16	0 18
" Caustic	0 04½	0 05
Spirits Ammon., arom	0 25	0 35
Strychnine, Crystals	2 65	3 00
Sulphur, Precip.	0 10	0 12½
" Sublimed	0 03¾	0 05
" Roll	0 03	0 04½
Tamarinds	0 15	0 20
Tapioca	0 15	0 20
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 80	0 85
Zinc, Chloride oz.	0 25	0 30
" Sulphate, pure	0 10	0 15
" " com.	0 06	0 10
DYESTUFFS.		
Annatto	0 25 @	0 45
Analine, Magenta, cryst	3 90	—
" " liquid	2 75	—
Argols, ground	0 15	0 25
Blue Vitriol, pure	0 08	0 10
Camwood, pure	0 06½	0 09
Copperas, green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 03	0 04
Indigo, Bengal	2 40	2 50
" Madras	0 90	1 00
" Extract	0 25	0 35
Japonica	0 05½	0 06½
Lacdye, pow'd.	0 35	0 40
Logwood	0 01¾	0 03

DYESTUFFS—*Continued.*	$ c.	$ c.
Logwood, Camp.	0 02 @	03½
" Extract	0 11	12
" " 1lb bxs	0 14	—
" " ½lb "	0 15	—
Madder, best Dutch	0 17	0 00
" " French	0 00	0 00
Quercitron	0 04	0 05
Sumac	0 06	0 07
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
SPICES.		
Allspice	0 08½ @	0 10
Cassia	0 42	0 45
Cloves	0 12½	0 14
Cayenne	0 20	0 25
Ginger, E. I.	0 12	0 14
" Jam	0 28	0 30
Mace	0 75	0 90
Mustard, com.	0 20	0 25
" D. S.	0 40	0 45
Nutmegs	0 45	0 75
Pepper, Black	0 10½	0 12½
" White	0 20	0 22
PAINTS, DRY.		
Black, Lamp, com.	0 07 @	0 08
" " refined	0 35	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 08	0 10
Green, Brunswick	0 07	0 10
" Chrome	0 20	0 25
" Paris	0 30	0 35
" Magnesia	0 20	0 25
Litharge	0 08	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 07½	0 08
" Venetian	0 02½	0 03½
Sienna, B. & G.	0 10	0 15
Umber, "	0 07	0 10
Vermillion, English	1 00	1 10
" 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 03
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 14	0 16
Putty	0 03¾	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25lb tins	2 35	—
" " No. 1 "	2 10	—
" " No. 2 "	1 90	—
" " No. 3 "	1 65	—
" " Com. "	1 30	—
White Zinc, Snow	3 00	3 50
NAVAL STORES.		
Black Pitch	4 50 @	5 50
Rosin, Strained	3 75	4 25
" Clear, pale	6 50	10 00
Spirits Turpentine	0 48	0 60
Tar Wood	4 00	5 00
OILS.		
Cod.	0 60 @	0 70
Lard, extra	—	—
" No. 1	—	—
" No. 2	1 20	—
Linseed, Raw	0 76	0 82
" Boiled	0 81	0 87
Olive, Common	—	1 60
" Salad	1 95	2 30
" " Pints, cases	4 25	4 50
" " Quarts	3 60	3 75
Seal Oil, Pale	0 75	0 85
" " Straw	0 75	0 80
Sesame Salad	1 60	1 75
Sperm, genuine	2 7	—
Whale, refined	0 00	0 80

Trade Report.

As is usual at this season of the year, wholesale houses are busy receing their fall stocks of goods by sailing ships, and in a few days stocks of heavy goods, glassware, earthenware, and such other items as will not bear steamer's freight, will be at their highest point for the year. The importations this season are on a moderate scale so far as quantities are concerned, and if trade proves at all good, many items will be scarce before the opening of navigation. In the meantime the assortment is pretty complete. Below are our notes of recent changes in prices:

Drugs.—Alcohol remains at the reduction noted last month. Cantharides, Castor Oil, Turkey Rhubarb, Chiretta, Glycerine, Oil Almonds Sweet, and Ipecac are quoted lower. Oil Lemon, Cardamons Gum Arabic, and Ergot are higher. Opium has again advanced, for some time the New York Market was lower than London, but within a few days prices have advanced in New York 62½c.

Chemicals.—Newcastle sorts are dull, flat and neglected. The depression is so great that many manufacturers are abandoning the business. Morphia salts are firmer, in sympathy with Opium.

Dye Stuffs.—The population of St. Domingo, instead of cutting Logwood this summer, have engaged in a revolution, and in consequence, both cut Logwood and Extract are very scarce and dear; the latter has advanced 1c. within a few days. Madder is also dearer. Other articles without change.

Oils and Naval Stores.—Cod Oil, Seal Oil and Whale Oil are a little dearer. Olive Oil second, is coming out higher than was expected, and will be dear. Lard Oil is out of the Market at present. Linseed Oil is very cheap, and is the only exception to the general advance in the price of Oils. Pitch, Tar, Rosin and Spirits of Turpentine are selling at remarkably low rates, and are undoubtedly good stock at present prices.

Notes and Queries.

Ferri Carb. Precip.—It is unfortunate that this much used preparation should have been introduced under a wrong name. In spite of the efforts of the European Pharmacopeas to rectify the matter by calling it *Ferri sesquioxid*; the old designation is still retained by the United States Dispensatory, and by the trade, and in all probability will remain so until the end of the chapter. At best, it is a very uncertain compound, and varies much according to the manner of its preparation When recently precipitated, it is certainly a carbonate of iron, but it immediately commences to change, and parts with its carbonic acid, becoming ultimately, an oxide of iron, containing variable amounts of water of hydration, dependant on the way in which it is dried. It is the custom of some manufacturers to calcine the dry mass in order to improve its colour, which would otherwise be a brown, and which, by this treatment, becomes a red of various shades of intensity. This exposure to heat is ruinous to the article, as its solubility in acid is much decreased thereby, and it is still much employed in solution, a heat above 212° should never be employed, and druggists purchasing should select that of a brown color, rejecting the bright red and insoluble preparation.

New Alcholometer.—A new and very ingenious method of determining the strength of alcoholic liquors, has been devised by Basile Rakowitsch, of the Russian Navy. It is based on the fact that chloroform readily dissolves alcohol but takes up but a minute quantity of water: if then, a mixture of alcohol and water be shaken with chloroform, the water will separate, and can easily be estimated. The instrument used by M. Racowitsch is a graduated tube, into which a known quantity of chloroform is poured, and to this is added a given quantity of the liquid. On being well agitated, the liquor is left to subside when the water will be found floating in a distinct layer on the top, and can be at once read off by means of the graduations on the tube. We have not yet tried this plan, but it seams feasible, and if so, will be of great service to druggists and others who have determinations of this kind to make. The amount of absolute alcohol, contained in a given amount of any tincture could be obtained without having recourse to the process of distillation—a process, by the way, which requires more than ordinary care to yield exact results. In such instances, the hydrometer is of no use, as the extractive or resinous matter contained in the tincture renders the indications of the hydrometer false. We recommend a trial of this new method to our readers.

Lucifer.—THE PATENT SAFETY MATCHES manufactured by Bryant & May, contain no phosphorus whatever. The match is prepared by dipping the usual splints of wood in a mixture of oxidizing substances, as chlorate of potash, red lead, or binoxide of maganese. The friction surface on the box is prepared with amorphous phosphorus, and the match is, with difficulty, ignited in any way except by rubbing on this surface. Amorphous phosphorus may be prepared by various processes, but that most generally adopted, on the large scale, is to expose phosphorus to a heat of about 450° out of contact with oxygen, as in an atmosphere of carbonic anhydride, or dry carbonic acid gas. The phosphorus by this treatment suffers neither increase or decrease in weight, but becomes of a red color, and is sensibly altered in its properties. It is not liable to ignite, and can be preserved in the air without risk. It is no longer poisonous, and is not soluble in the ordinary solvents of phosphorus. On being heated to 500° it returns to its former condition and properties.

Apprentice, Halifax.—The Botany prizes are open to all comers, and are not subject to repeal in the case of Nova Scotians. It is likely that the best manner of preparing and preserving specimens will be made the subject of a paper in this journal. We wish you success.

CHANGES.

R. Owen has become a partner in the establishment of J. T. Shapter, Toronto. Business is continued at the old stand, Yonge street.

A. W. Wallis, of Kleinburg, Ont., has removed to 287 Queen St. West, Toronto, and will carry on his business as before at the new stand.

The Daily Telegraph Printing House, Bay St., corner of King, Toronto.