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THE CANADIAN

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Liquor Bismuthi.

BY GEORGE F. H. MARKOE.

The writer has been called upon to prepare this solution quite frequently, and in considerable quantities, and after a careful trial of all the published formulas for its manufacture has found some objection to all of them. The writer cheerfully acknowledges his indebtedness to Mr. N. Gray Bartlett, to whom we owe the first good working formula given in the *Am. Jour. Pharm.*, Jan., 1865. Mr. Albert E. Ebert, in the same journal, Jan., 1866, gives an improvement on Mr. Bartlett's process by which he avoids the use of crystallized citrate of potassa, and forms the citrate of bismuth by adding citric acid to the nitrate of bismuth and then adding hydrate of potassa, by which means citrate of bismuth is precipitated and nitrate of potassa is obtained in solution, and is got rid of by washing the bismuth salt on a filter. Ebert's process is a good one, indeed the best that has been published, and the only objection the writer has to it is the use of caustic potassa to neutralize the nitric acid. The idea of adding the citric acid to the solution of nitrate of bismuth, must in justice be credited to Mr. Thomas P. Blunt, who first suggested it in the *Lond. Pharm., Journ.*, May, 1865.

The objections to caustic potassa are, that great care must be used to avoid an excess, from the fact that citrate of bismuth is freely soluble in potassa, and thus involves a loss of bismuth if any excess happens to be used; caustic potassa is a very troublesome chemical to keep in good condition, being very prone to attract both moisture and carbonic acid from the atmosphere, by which means it becomes in a great degree unfitted for use. It is a difficult matter to get caustic potassa free from carbonate, and still more difficult to keep it so, even if free from this impurity when the bottle is first opened. Another objection is that caustic potassa is expensive.

The following modified process offers a substitute for the caustic potassa that gives excellent results. This substitute is well crystallized carbonate of soda, a salt that can at all times be obtained of good quality at a very low price. Citrate of bismuth is less soluble in carbonate of soda than in caustic potassa, hence a gain is made by using the former.

The process is the following:

Take of subcarbonate of bismuth, one troy oz.
Citric acid (in powder), 420 grains.
Nitric acid (sp. gr. 1·42), one and a half troyounces.
Crystallized carbonate of soda, 1150 grs.
Distilled water.
Alcohol, each a sufficient quantity.

Dissolve by gradual addition the subcarbonate of bismuth in the nitric acid, and when the solution is completed, dilute it with a fluidounce of distilled water, add the citric acid, stir it until it is dissolved. Dissolve the carbonate of soda in ten fluidounces of distilled water and gradually add the soda solution to the bismuth solution, constantly stirring the mixture. After standing for six or eight hours, transfer the mixture to a moistened paper filter, and wash to remove nitrate of soda. Transfer the magma to a mortar or evaporating dish and carefully add water of ammonia until the citrate of bismuth is dissolved. Dilute the solution with an equal volume of distilled water and treat half a fluidounce (14·7 cubic centimetres) with an excess of sulphide of ammonium, or, better still, "*sulphide of sodium,*" (as suggested by the writer in a paper presented to this Association, and published in the proceedings for 1866, 252); collect and wash the sulphide of bismuth on a tared filter, (which has been exposed to the heat of a water bath, previous to being tared), and heat on a water bath until thoroughly dry; allow the filter and contents to cool under a bell glass over sulphuric acid, and carefully weigh. Multiply the weight of the sulphide of bismuth by the fraction ·908 to find its equivalent in teroxide of bismuth. Apply the same ratio to the remainder of the bismuth solution, and dilute it to such a degree that each fluidrachm shall contain one grain of teroxide of bismuth, seven-eighths of which measure must be made with distilled water, and the remainder with alcohol. The average product of liquor bismuthi obtained in several trials was 51 fluidounces, being about two per cent. better results than those obtained by Mr. Ebert's process.—*Proc. Am. Phar. Assoc.* 1868.

Notes on Unguentum Hydrargyri Natratis.

BY GEORGE M. HALBRIGHT.

Most all our standard works on Chemistry and Pharmacy give formulas for the preparation of products used by the apothecary in the pursuit of his profession, which, if strictly followed and properly understood, will generally give the desired result. Yet, notwithstanding the greatest care and precaution on the part of the manipulator, the operation will sometimes fail, thereby causing him to regard the prescribed process as faulty, which would really have yielded a satisfactory preparation if followed with proper attention to its minor details.

Uniformity of strength, permanence and *therapeutical goodness* of Pharmaceutic preparations are ends to be desired by the *conscientious dispenser.*

The amateur usually seeks for the second quality, although the others are equally, if not more important; yet they are not as difficult to attain.

The object of this paper is to point out several difficulties which are encountered in preparing the *Unguentum Hyd. Nitratis* of the U. S. P., and also to offer a few suggestions by which such perplexities can be overcome.

As yet the standard formula gives everything but a permanent ointment, even at the hands of many of our best Pharmacists. One of the first considerations in the preparation of this useful and beautiful ointment. is *purity of material,* and secondly the *degree of heat* employed in manipulating.

The acid should be of full strength, the mercury free from *contamination,* and the fatty bodies fresh and pure.

After repeated experiments with material obtained from different sources, in the preparation of this ointment, I do not hesitate to attribute nearly all the failures reported in making Citrine Ointment, to the undue amount of heat and the quality of the fats used, more especially the lard.

I do not intend my remarks to apply to pure lard, but to such as is usually offered for sale by grocers, butchers and dealers generally, samples of which will be found to contain as adulterations various chemicals and other substances, rendering it unfit for the

uses of the pharmacist as well as for family consumption.

Salt, Nitrate of Potassa, Potato Starch and water are added to increase weight, while Borax, Alum and *Sulphate of Copper* are intended to give it a firm consistence, and more especially that proper degree of whiteness which is always desirable in good brands of lard. If not transgressing on space I might make mention of one of the many enterprises that have flourished and died in our great western city. The recital may not be new to many, but it is not without interest to those who are pharmaceutically concerned. About ten years ago there was a firm in this city engaged in the manufacture of lard, who had machinery adapted to the adulteration of that staple, by incorporating twenty per cent. of water, and an uncertain per centage of Sulphate of Copper with kettle-rendered lard, which was packed in casks, branded as "Pure Leaf Lard," and shipped to Southern States. The general appearance of this detestable stuff was decidedly fine, it had a hard consistence, was firmly grained and of a snowy whiteness. Have any of our Southern pharmacists ever made Citrine Ointment which had a fine yellow colour when finished, but when taken from the shelf a few days later would be of a dark brownish hue, or has any other pharmacist in this vicinity been surprised with a similar discovery? I fear the factors of "Pure Leaf Lard" have many scores to cancel in that respect.

With these few remarks on the physical condition of a portion of the material used in compounding Citrine Ointment, I submit the following formula for the benefit of those who are interested in dispensing—a *smooth ointment*—with a *fine yellow color* and good consistence—instead of a crumbling mass with a variety of colors, or a dark brown (sometimes black) semi-fluid substance, with about as much strength in the odor as in the remedial power of the several products of its facture, in their primitive condition:

Take of	Mercury.....	one troy ounce.
"	Nitric Acid (1.42)	two troy ounces.
"	Leaf Lard.....	eight "
"	Olive Oil.....	four "

Dissolve the mercury in the acid, then heat together the lard and oil in a porcelain vessel, when the lard has melted, slowly add the mercurial solution, stirring briskly with a wooden spatula, then raise the temperature gradually until the mixture begins to effervesce, remove from the fire and continue to stir briskly until the reaction is thoroughly established, after which an occasional use of the spatula will suffice until the ointment stiffens.

The *modus operandi* of this formula does not differ essentially from that given in the Pharmacopœia, except in the application of heat. By adding the mercurial solution immediately after the lard has fused and then raising the temperature, stirring in the meanwhile, until the reaction is established, all danger of burning the ointment is avoided; a result that often follows when the heat is above 200 degrees.

I do not consider it necessary to raise the heat so high as 200 degress, as I have succeeded in every experiment in getting up a good reaction by the above means at 190 degrees, with a liberal extraction of nitrous fumes and a very satisfactory result.

The proportion of acid and mercury is about the same as in the officinal formula. Olive oil is substituted for Neatsfoot oil, not only because it is more readily obtained than a good quality of Neatsfoot oil, but, when it is used as directed by this formula, it yields a finer product, almost devoid of that strong, rancid odor which usually accompanies the ointment as prepared according to the U.S.P. Fresh Poppy Seed oil can be substituted for Olive oil without detriment, although it does not make as firm an ointment as the latter.

The sample which was prepared one year ago still retains its original consistence. The golden yellow color is somewhat deepened by age, and the odor stronger, otherwise it is a fair specimen of one of the incomplete Pharmaceutic products, but not the "*desideratum*" among the ointments, notwithstanding American Pharmacy has made rapid strides during the past few years, and thus far the "carpet-baggers" of the Western Empire have outrun, in many respects, many of the savans of the Old World.—*Pharmacist.*

On the Morphia Strength of Commercial Opium.

BY P. W. BEDFORD.

Query 18.—What is the morphia strength of commercial powdered opium (a number of samples); and what is the most ready means of determining it?

In accepting this query the writer continues a subject on which he presented a paper to this Association some eight years ago.

During the past year he has examined eight specimens of powdered opium, purchased from wholesale houses in our city.

The results have been as follows:

Sample No.	1	contained	9·40	per ct.	morphia.
"	2	"	9·01	"	"
"	3	"	6·33	"	"
"	4	"	8·10	"	"
"	5	"	7·05	"	"
"	6	"	6·75	"	"
"	7	"	6·00	"	"
"	8	"	6·25	"	"

The quantities operated upon were ten and twenty grammes, and two or three such portions were taken of each sample of opium. The process used was that officinal in the U. S. P.

Recently in conversation with Professor F. F. Mayer, he stated that the process did not yield accurate results, and suggested a process which he has used in such analysis for some time past. Since that conversation I have not been sufficiently at leisure to take up the subject, and at my request Professor Mayer examined two specimens which I procured for him from two of our best wholesale houses.

No.	1	contained	13·60	per cent.	morphia.
"	2	"	9·04	"	"

To the second portion of the query, "what is the most ready means of determining it?" I am now prepared to give a reply satisfactory to myself. The doubts thrown on my mind as to the perfect reliability of the process of the U. S. P. recently, by conversations with those more familiar with the subject, and the limited time at my disposal, have decided me to leave this portion of the query, for further investigation, and another year I will continue the subject.—*Proc. Am. Pharm. Asioc.*, 1868.

A New Mode for the Preparation of Sulphate of Manganese.

BY F. MAHLA.

The methods for the preparation of Sulphate of Manganese as suggested in the various hand books of chemistry do not only give unsatisfactory results—they are also difficult and exceedingly unpleasant to execute. It seems to me, therefore, that a new mode for the manufacture of this salt would be acceptable to the profession.

I use as material for the preparation of Sulphate of Manganese the liquid which remains in the retorts after a chlorine generation. To this I add Carbonate of Soda in a sufficient quantity to throw down all metallic oxides, or until it has acquired a slight alkaline reaction. The precipitate thus produced is collected on a muslin filter and washed with pure water until the filtrate does not produce any more a marked reaction with nitrate of silver.

Three-fourths of the moist magma are now placed into a porcelain evaporating dish, and dilute sulphuric acid added in sufficient quantity to effect a complete solution. This is heated to near the boiling point, and the reserved one-fourth of the precipitate added in small portions at a time, until the liquid after filtration is not blackened any more by the addition of tannin. The entire bulk of solution is then passed through a filter and the filtrate with wash waters evaporated to crystalization, which does not take place till the liquid has acquired almost a syrupy consistency. The first crop of crystals is sometimes contaminated with sulphate of lime, owing to the presence of carbonate of lime in the commercial peroxyd of manganese. It is easy to separate this compound by evaporting the liquid to dryness, when on redissolving the dry residue in a small quantity of water, the sulphate of lime, owing to its lesser solubility remains as an insoluble body, from which the solution of Sulphate of Manganese can be separated by filtration.—*The Pharmacist.*

On the Fluid Extract of Liquorice Root as an Excipient for Quinia.

BY JOSEPH HARROP.

In the November number of the *Journal*, (1868) I noticed a communication on syrup of chocolate as a vehicle for quinine, by the use of which it appears the taste of quinine is entirely avoided. There is at least one objection to the use of the preparation referred to, the time and pains necessary to prepare it This might not be an objection to some apothecaries, but to the majority I think it would be. The writer also mentions its liability to ferment, which would be another objection.

After reading the article referred to, I remembered having on several occasions added as an adjuvant powdered extract of liquorice as per prescription, to quinine mixtures, but which as far as I could judge, did not much conceal the bitter taste of the medicine. About the same time I had occasion to take some quinine, and on looking around for something to overcome its bitterness, I tried the fluid extract of liquorice-root, which I thought would at least be nicer than the powdered extract, when I found it to completely conceal the taste.

The inference then may be that the glycyrrhizin, said to be the source of the sweet taste in the root, and described as a transparent yellow gelatinous substance, overcame the bitterness of the quinine, and that the principle is, in part, destroyed or impaired by the process of manufacture in producing the commercial extract.

Might not the fluid-extract or a concentrated tincture be used to more completely cover the taste of aloes in the tincture, of which Dr. Wood says "liquorice answers the purpose imperfectly?" also in other preparations having an unpleasant taste?—*Jour. of Pharmacy.*

Aniline Colors.

Dr. M. Reiman, of Berlin, Prussia, whose name is already known to the reader as a prominent savant in the field of industrial arts, contributes the following upon the above interesting topic:—

The beginning of this decennium is marked by a general change in all departments of the art of dyeing. Instead of the coloring matters previously in use, and which had been extracted from wood and bark, it was attempted to employ those coloring matters that had recently been prepared from aniline. and the most perfect success attended this innovation.

The coloring substances obtained from aniline are decidedly preferable to those extracted from woods, barks, etc., by reason of their substantial character; that is to say, the fibres do not require the use of mordants before being dyed. Thus, neither wool nor silk requires to be mordanted before they are dyed in aniline colors, since these latter are capable of dyeing material without any previous preparation of the animal fibre. According to the old method, when dyeing with logwood, red-wood, cochineal, etc., it was always necessary to impregnate the fibre which was to be dyed with that mordant which, by combining with the pigment of the coloring matter, would cause it to adhere to the fibre; for these coloring matters become pigments only by combining with the mordants that are employed. Aniline colors, however, being true pigments, it is unnecessary to employ mordants with them. The aniline color is, as chemists say, always a salt; when it is dissolved, the animal fibre precipitates the salt, and is dyed by it. Therefore, whenever animal fibre is dipped into such a solution, the coloring matter adheres to the fibre. According as the fibre is allowed to remain a longer or shorter time in the bath, brighter or darker shades are obtained. Hence from a single bath, every shade of color may be produced—a thing which was utterly impossible with the pigments formerly employed.

Aside from this great advantage, these aniline colors sparkle with a brilliancy that no other colors ever show. To this fact is due the extensive application of these colors in the manufacture of ladies' articles.

Who, ten short years ago, could have dreamed of a blue or violet such as is now daily produced in our dyeing establishments? To-day, however, the sparkling colors of birds and flowers are fixed on our textile fibres. Chemists have even discovered that the brilliant colors of many flowers are aniline colors, produced in the plant by nature. Thus in the dahlia has been found an aniline color, which is known in commerce by the name of "Hoffman's violet;" and M. Ziegler has shown that a colored liquid, consisting of a

solution of an aniline color, is contained in some conchils found on the shores of Spain. After this, it can not excite astonishment that the aniline pigments are now of the greatest importance to dyers, who could not now exist without them. Especially the grays that are now in fashion are always prepared by aniline colors. Even in dyeing cloth, a reddish gray is frequently produced by treating the cloth in an aniline bath, after it has received the usual gray color. In a similar manner the violet shades of some cloths are produced.

Aniline colors are employed to as great an extent for dyeing cotton as for the materials already mentioned—wool and silk. The difficulties to be surmounted are, however, far greater in the case of cotton. Vegetable fibre will not take the colors from the bath unless it be previously obtained.

Animal fibre, when compared with vegetable fibre, possesses the advantage of containing nitrogen; and every substance that contains nitrogen can fix aniline colors. It was therefore deemed advisable by dyers to cover the vegetable fibre, which lacks nitrogen, with some substance containing this element. Then the substance containing the nitrogen will attract the aniline color, and through it as a medium the aniline color will be fixed on the cotton or any other vegetable fibre. The nitrogenous substances were taken from animals, and hence the process of covering the vegetable fibre with animal substances was called "animalizing." The albumen of eggs and of blood, as also the caseine from milk, while in solution, were brought into contact with the fibre, and when this was thoroughly impregnated with the animal solution, the albumen or caseine was by some chemical process rendered insoluble, and thus was fixed on the fibre. For instance, to cover cotton with the albumen of eggs, the latter substance was diluted with water, and the cotton impregnated with it in a diluted state. The cotton was then dyed, and put into an apartment filled with steam. Since the temperature of steam under ordinary pressure is 212° Fahrenheit—80° Réaumur or 100° Celsius—and albumen coagulates at 70° to 80° Celsius, the albumen of course became insoluble after a short time, as it assumed the temperature of the steam. The cotton could then be washed with either hot or cold water, without any danger of its losing a particle of albumen.

Caseine was dissolved in ammonia, and the alkeline solution of the animal product thus obtained was employed to impregnate cotton or any other fibre that was devoid of nitrogen. Now, caseine, though readily dissolved in alkaline liquids, is insoluble in acids, and it can, therefore, be precipitated from its alkaline solution by the addition of any acid. The dyers, accordingly, in order to fix the caseine, dipped the cotton impregnated with the alkaline solution of caseine in an acid bath, and the caseine was instantly precipitated on the fibre by the acid. In such or a similar manner, any animal substance was fixed on the fibre; and this process is still employed in the printing of cotton. The animal substances spoken of are, however, too expensive for ordinary use; hence the dyers were soon obliged to resort to other mordants for fixing the aniline colors on vegetable fibre. In preparing Adrianople red, an alkaline solution is employed, in which oil is divided into excessively fine drops, so fine, in fact, that the liquid looks like milk, which is also a colorless liquid, rendered non-transparent by small drops of fat or butter. A similar fluid is obtained by mixing oil, alcohol, and sulphuric acid; it is known to dyers by the name of "oil mordant," and has the property of enabling the cotton to take up and fix the aniline colors. The above-mentioned mixture may conveniently be diluted with water, and employed to impregnate the cotton, which will then take up and fix the aniline colors when dipped in a warm solution of these pigments. It was soon discovered that other substances containing fat might serve as mordants for aniline colors. Thus, soap, and especially barrel, or Dutch soap, when dissolved in water, fixes the aniline pigments on the cotton. This kind of soap is so cheap, that it may be employed even for the cheapest cotton articles. It is necessary merely to put the cotton into a solution of Dutch soap, to wring the cotton, and to dye it immediately in a warm bath of any aniline color. Another substance used for fixing aniline colors is tannin or tannic acid, which, as is generally known, is contained in gall-nuts and other astringents. A decoction of gall-nuts or sumac enables the cotton which is dipped into it to take up and to fix the coloring matters. In practice, gall-nuts, or what is more frequently employed, sumac, is boiled in water, and the cotton is allowed to remain in the clear decoction for from twelve to twenty-four hours. The cotton is then taken out, wrung, and dyed as usual in a warm bath of any aniline color.

Sumac and soap are, at present, the mordants most frequently employed for fixing aniline colors on vegetable fibre. As aniline colors are effected by the influence of the atmosphere and by soap, dyers frequently dye the cotton, at first with the coloring matters formerly employed, and then also with the corresponding aniline color. Thus, aniline blue, on cotton is, in its darker shades, always grounded with Prussian blue. The very slight cost of aniline pigments is of great importance to the dyer. It is true that they are dear enough, and formerly were still more so. But then, they are, beyond all comparison, more intense than the coloring matters formerly employed. Thus, one pound of magenta will dye 200 pounds of wool to quite a deep red shade. Could a pound of any of the old pigments have sufficed for such a quantity of material? The other aniline pigments have a similar intensity; so that, besides the increase, in brilliancy, it is also economical to employ the new colors. In addition to all these advantages, the dyer can, with greater ease, produce shades after a given pattern with these colors. The pigment in solution looks exactly as the color produced on the fibre. Formerly the dyer was required to prepare a color which did not yet exist; now he procures it from the manufacturer. He chooses the shade which is to be produced, and can never fail, as was formerly the case, when he was obliged to produce the *color* from the bath. How tedious were the former processes of mordanting, washing, hanging, dyeing, etc. Now minutes suffice for that labor which previously required days.

It has been objected to the employment of aniline colors that they are unstable. This is true. But it must be observed that it is scarcely possible for such brilliant colors as the aniline pigments to be stable. The sparkling dahlia-violet, the brilliant red, and night-blue, as magenta, etc., can never bear the

influence of the atmosphere, dust, acid, vapors, etc. Those of the formerly employed pigments that at all approached in brilliancy these aniline colors were fully as unstable as they. One need only mention the cudbear, that violet pigment which, though by no means imparting as fresh and sparkling shades as aniline violet, is almost as unstable. The red, violet and blue colors produced by woods and other similar substances for dyeing were fully as fleeting as the aniline pigments. Even black, which is usually regarded as a firm color, is one of the most unstable ones. In fact, the black, as it is generally produced by logwood and iron salts, is so liable to change, that acid, vapors, or atmospheric influences are sufficient to make it disappear. The true reason why the black on cloths and finer materials *appears*, at least, to be durable is that it lies on a surface of the most stable of all coloring matters—indigo. The black color of cloth and other expensive stuffs is produced by first dyeing the goods dark blue in the warm indigo vat. This is an expensive and uncomfortable process, but necessary for a stable black color. The indigo imparts to the wool a perfectly firm blue color, and upon this the dyer produces his black with logwood and iron. After some time this black dye is partly or entirely destroyed; and the observer is prevented from noticing it by the dark-blue indigo lustre of the goods. A comparison with a piece of freshly dyed cloth will, however, show that the black has disappeared. It is a well-known fact that the black produced by logwood easily assumes a reddish hue, especially if there be but little indigo under the black.

But it must never be forgotten that aniline colors are to be employed mainly for articles of fashion. Articles which must, by all means, retain their color are never dyed with aniline. In such cases, indigo, madder, and other solid pigments must be employed. In summing up the advantages of the aniline colors, we must consider their brilliancy and freshness, rather than their durability. They are certainly at present the most important pigments for the dyer, as they combine facility of treatment and moderate costliness with a brilliancy never hitherto known—in short, all that the dyer wishes.—*Manufacturer and Builder.*

Manufacture of Brushes.

We produce no bristles of any consequence in this country. A comparatively small quantity is annually saved, and goes into the manufacture of scrubbing, shoe and other coarse kinds of brushes; but for bristles in general, we depend upon transatlantic sources of supply. There is another kind of hair that costs immensely—it is the hair of the badger. It is used for making the brushes of grainers. The tails of the animal alone supply it. The price in gold is thirty dollars a pound. Most of it comes from Germany. For the last four years none have been procurable. The Prussian Government got into its noddle a notion to adopt the badger's tail in its infantrymen's hats, much as our bucktail regiment sported in the caudal appendages of deer. The result was, that grainers found their brushes about as scarce as shabby bonnets in fashionable churches.

The idea of camel hair brushes is surely a pleasant fiction. It is like calling a small-bladed knife a pen-knife. Nobody makes quill pens in this era, and no camel's offer their hair for brushes of any kind. For the material of all this kind of brush we are indebted to the tails of the raccoon, opossum, silver martin, skunk and Hudson's Bay sable. It is not less queer than true, that while all these furs are produced on our own soil, we must go to England to buy the tails. The furs are shipped to Europe, tails and all. The shipper will not cut them off, less he mar the integrity of the skins. There has always been an active demand for long goat hair for brush-making purposes. Every bill-goat carries an appendage beneath his chin from four to ten inches long. Eugenia took a fancy to it as a trimming for her pelisse, and, presto! all the supply ranged far beyond a price that would prove productive to the brush-maker, to be used as an article of trimming. The retail traders give to the article a fanciful name, but the chances are that the tippet or muff known as Angora goat fleece was once supported by a four-legged ranger with a pair of horns surmounting his caput.

There are many ways of preparing hair and bristles, and some ways, also, of eking out the supply. Manilla produces a grass that, in second class brushes, can be so intermingled as to deceive the eye of any body but an expert. Shred whalebone was formerly used to some extent, but the only available kinds of whalebone are now very nearly as dear as bristles. In the manufacture of brushes, the struggle is now between this country and Europe. The French make goods showy and poor. The scarcity of materials of all kinds for making brushes is gradually increasing, and endeavors are now being made to utilize the vast quantity of American bristles that annually go to waste in the big porkeries of Cincinnati and Chicago. At the asylum for the blind, the manufacture of the commoner kinds of brushes is a prominent branch of industry; and it is astonishing to see the manner in which the absolutely sightless can perfect their work.

In a mechanical point of view, the art of brush-making is a difficult one. Few branches of industry prove more remunerative to the artisan. The home manufacturer, owing to circumstances he cannot avert, has to compete with foreign workmen. The only trouble is, that the French and English manufacturer can put into the market an article at four dollars a dozen, only distinguishable after being used from an article costing treble the money. And that's what's the matter with the brush trade.

Hydrogenium—A New Metal.

Professor Graham, Master of the Mint, has just read before the Royal Society (January 7, 1869) a very remarkable memoir "On the Relation of Hydrogen to Palladium," in which he brings forward strong evidence in favor of the metallic nature of hydrogen. The view is by no means original, but no such strong evidence in its favor has ever previously been admitted.

Professor Graham gives the name *hydrogenium* to the assumed highly volatile metal of which he regards hydrogen gas as the vapor. The chemical properties of hydrogenium differ from those of ordinary hydrogen. The palladium alloy, which contains hydrogenium, precipitates mercury and calomel from a solution of chloride of mercury (corrosive sublimate) without any disengagement of hydrogen—that is, hydrogenium decomposes chloride of mercury, while hydrogen does not. Moreover, hydrogenium unites with chlorine and iodine in the dark, reduces per-salts of iron and some other metals into proto-salts, and has considerable deoxidizing powers, and, in short, seems to be the active form of hydrogen, as ozone is of oxygen.

"The general conclusions," says Professor Gramam, "which appear to flow from this inquiry are that in palladium fully charged with hydrogen, there exists a compound of palladium and hydrogen which may approach to equal equivalents; that both substances are solid, metallic, and of a white aspect; that the alloy contains about twenty volumes of palladium united with one volume of hydrogenium; and that the density of the latter is about 2, a little higher than magnesium (which is 1·743), to which hydrogenium may be supposed to bear some analogy; that hydrogenium has a certain amount of tenacity, and possesses the electrical conductivity of a metal; and, finally, that hydrogenium takes its place amongst magnetic metals."—*Medical Times and Gazette.*

Physiological Uses of the Beard.

The inhaling of metallic particles to which certain workmen are exposed, is replete with serious and lasting effects. In autopsies of persons who have died from pulmonary consumption, the lungs are frequently found filled with the substance belonging to the peculiar business which they have pursued during life. Cotton, in the form of dust, metal filings, chemical vapors, fumes of copper, arsenic, etc., are but a small number of the many substances which enter the lungs and finally destroy the lives of those engaged in such occupations. The lace weavers of Germany, and those occupied in the paper-staining factories are particularly exposed to these pernicious effects. Many temporary means have been tried to protect the artisans from such fatal consequences, but none have been found as effectual as the wearing of a beard and moustache. These and the hair which grows in the nostrils are found to be the best protection. All who have permitted their growth can testify to their efficacy in preventing the entrance of particles of dust, etc., and by a proper attention to cleanliness they will serve their purpose. The callings of women do not as a general thing, expose them to these evils, but of such as are unfortunate enough to be obliged to encounter them in the cotton mills, a small instrument has been devised for their protection.—*Univ. Journal.*

Ink from Elder.

According to a German journal, an excellent permanent black ink may be made from the common elder. The bruised berries are placed in an earthen vessel and kept in a warm place for three days, and then pressed out and filtered. The filtered juice is of such an intense color that it takes 200 parts of water to reduce it to the shade of dark red wine. Add to 12½ parts of this filtered juice, one ounce of sulphate of iron and the same quantity of pyroligneous acid, and an ink is prepared which, when first used, has the color of violet, but when dry is indigo blue black. This ink is superior in some respects to that prepared with galls. It does not become thick so soon; it flows easier from the pen without gumming; and in writing the letters do not run into one another.

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.

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.
E. B. SHUTTLEWORTH, EDITOR.

TORONTO, ONT., APRIL, 1869

In consequence of the expiration of the original arrangement with the publisher, Mr. J. Trout, and for the needful purpose of keeping the expenses of the JOURNAL within the narrowest limits practicable, the Printing Committee have decided, however reluctantly, not to renew the publisher's engagement, but to distribute the duties of that position among themselves. Letters will, therefore, in future be addressed to the Editor, instead of to Mr. Trout, as formerly.

OUR STUDENTS.

The lecture season has come to an end, and the Chemistry class, which our students have been attending, is now broken up. As some of our readers are aware, this class was one of a series, held under the auspices of the Toronto Mechanics' Institute, but by an arrangement made with that body, the students of the Society, to the number of thirty, were allowed the privilege of attending. The lectures were also modified, as much as possible, to suit the requirements of pharmaceutical pupils.

Two separate examinations have taken place—one for the Institute and the other for the Society—and we are happy to say that in both these our students have rendered themselves conspicious. These examinations were conducted under Professor Croft, of the Toronto University. An appropriation of twenty five dollars was made by the Society, for the purpose of providing prizes. This was divided into four sums to be expended in such works as the Lecture Committee might deem suitable. We have just returned from witnessing the presentation of these prizes—an account of which will be found in another column—and to us, the ceremony was replete with interest. These students are the first-fruits of the Society, and the crowning of their success partook of no less pleasure than would the baptism of a first-born.

Although a prize is calculated to indicate honour rather than profit—and, under the present circumstances, certainly does so—yet, even in the latter sense, considerable will ultimately be realized by the gentlemen whose assidious studies have been thus rewarded. Employers, at all times, in selecting assistants, give preference to those who have some knowledge of chemistry; and when this is certified to by so eminent a chemist as Professor Croft, no small advantage will be gained on the part of those thus favored.

We trust, however, that those who have gained prizes—in common with those who have not been so fortunate— will not permit their studies to terminate with this their first session; but allow the seed so auspiciously planted to grow and bear abundant fruit. This can only be accomplished by incessant study and untiring experiment. No class of persons, engaged in business, have an equal advantage in this respect with druggists. Chemicals are always within their reach, and apparatus, of a kind, is always at hand. Even supposing that no experiments are made, but that an observant eye is kept on the manipulations of the day—that no reaction is unquestioned, and the why and wherefore of every operation is ascertained—an immense amount of information will be gained. We have, however, never yet seen an employer who did not regard with pleasure, a little experimentalizing on the part of his apprentices—provided, of course, that the regular duties were not encroached upon. And it is policy to pursue this course; an enquiring and ingenious apprentice is sure to be of more value to his master, than one who contents himself with being able to read the names on the shop bottles, and whose manipulations are confined to making a square parcel.

Our young friends should never forget that from the pestle and mortar have arisen more distinguished chemists than any other source. The renowned Davy commenced life as an apothecaries' apprentice; and that, too, in a very unthrifty soil, for his master had little taste for chemistry or chemical experiments, characterizing them as nonsense, and little Humphrey as "an idle and incorrigible boy." The sequal—happily for our theory, showed this statement false, and gives encouragement to all incorrigible youths of a like character.

For the benefit of our country apprentices, we append the list of questions propounded to the chemistry class, so that they may examine themselves as to their knowledge, and, if found wanting, lose no time in bringing themselves up to the required status.

1. How may the cohesion of fluids be shown?
2. How may the specific gravity of a solid, in small fragments, be determined?
3. A stone weighing 50 grs., has a sp. gr. of 4·9; acids extract 30 grs. of a metal, leaving a mineral sp. gr. 3·2. Required the sp. gr. of the metal?
4. Explain the principle of the hydrometer?
5. Give the laws of combining proportions?
6. Describe the preparation, and properties, of oxygen, and hydrogen?
7. What compounds does sulphur form with oxygen?—and with hydrogen?
8. How is chlorine prepared?—what are its uses?
9. How is phosphorus obtained?—what modifications are known?—what compounds does it form with oxygen, and with hydrogen?
10. What compounds does carbon form with oxygen, and with hydrogen?—which of the latter occurs naturally?—and how?
11. How is carbonate of soda prepared?
12. If carbonate of soda contains caustic soda, how may the proportions of both be determined?
13. How is nitrate of potassium obtained?—how purified?

BEET ROOT SUGAR.

An interesting series of articles are in course of publication in the *Scientific American*, in which this subject is treated "statistically, economically, agriculturally and technologically." From what we have seen, these articles will prove of great practical benefit to the United States, and will no doubt tend to stimulate a branch of industry which, if the writer speaks correctly, must prove very remunerative. It appears that during the year

1868, 630,000 tons of beet-root sugar were manufactured in European countries—about one-third of this quantity being produced by France alone. Formerly the yield was about five per cent. the weight of the beets, but by improved processes, from eight to eight and a half per cent. is now obtained. American beets have been analyzed and found to contain from eleven to twelve per cent. of sugar, eight-tenths of which could be rendered available. From experiments tried in New Jersey, 20 tons per acre may be considered an average crop; taking the yield at eight per cent., this would give 3,584 pounds of sugar to the acre. This is certainly above ordinary crops, as regards remunerativeness. The waste, or residue, after extracting the sugar, constitutes an excellent fattening food for cattle. Brandy and alcohol may be made from the molasses, and the residue of the distillation furnishes potash. The green leaves, collected at the time of harvest, are rich in ammonia, and when dried, can be most advantageously used as manure.

We are not aware how beets prosper in Canada, but have certainly seen some which would be very hard to beat in regard to size. The climate of New Jersey is not dissimilar to our own, and it is probable that if the attention of our capitalists could be directed to the production of beet sugar, much profit would ensue to the manufacturer and the country generally. We should, at all events, be independent of our neighbors, in case political relations were changed, and Cuban insurrections would no longer be regarded with domestic solicitude.

We shall endeavor to keep our readers posted in regard to the main facts and details, but regret that our space forbids giving the articles in question in full.

TRICHINA SPIRALIS.

The occurrence of this parasite in the human subject, is becoming, unfortunately, quite common in Canada. A case was brought before the public, a short time ago, in which a whole family were attacked by the disease, after partaking of pork for dinner, and which resulted fatally to one of the number. Under such circumstances the revival of the Mosaic restriction, regarding swine, would be of service, but, we fear, could never be enforced. Although pigs are both common and unclean—to judge from the specimens which we see promenading the streets of Toronto—yet a morning rasher, or slice of ham, are by no means to be despised. Notwithstanding this, pork is beginning to be regarded with considerable suspicion; and sausages—at all times rather mystical compounds, suggestive of flesh, other than that of swine—are now invested with a deadly interest, not at all calculated to provoke appetite.

Dr. Letheby, in his last lecture "On Food," delivered before the Society of Arts, England, alluded to the dreaded *trichina*, and its effects on man in the following terms:—

"As regards the injurious quality of meat infected with parasitic disease there can be no question; and, perhaps, of all such infections, the most terrible is the *trichina* of pork.—Fortunately, it is a rare affection in this country, although it is often common in Germany. The pork infected with the worm is generally darker than usual, on account of the irritating or inflammatory action of the creature lodged in the muscles; and when the parasite is encysted the meat presents a speckled appearance—the minute white cysts containing the worm being just visible to the naked eye. Here are specimens of it in both its encysted and non-encysted conditions; and this diagram represents the appearance of the worm when it is examined under the microscope. It is, as you see, a minute thread-like worm, about the thirtieth of an inch in length, coiled up in a spiral form; hence its name, *trichina spiralis*. It is generally found in the human subject in an encysted state, when it has passed beyond its dangerous condition and has become harmless. In most cases, when thus discovered, there is no record of its action, and therefore it was once thought to be an innocent visitor; but we know that while it was free—that is, before nature had barricaded it up in the little cyst, its presence was the cause of frightful disorder—killing about 50 per cent of its victims in terrible agony. In Germany there have been frequent outbreaks of the disease, which, for a time, baffled the skill of the most experienced physicians; in fact, we hardly know how long or how often the disease has attacked the pork-feeding population of Europe, for its actual nature was unknown until the year 1860, when Dr. Zencker, of Dresden, discovered the pathology of the disease. Since then there have been several visitations of it, as at Plauen, in Saxony, in 1862; at Hettstadt, near Eisleben, in 1863; and at Hedersleben, near Magdeburg, in Prussian Saxony, in 1866. In all these cases the same symptoms, or nearly the same, were observed; there was sometimes immediate disturbance of the digestive functions, but more commonly a day or two elapsed before any particular symptom was noticed, and then there was a feeling of lassitude, with a loss of appetite, and pains in the head and back. Then followed a serious disturbance of the alimentary canal with vomiting and diarrhœa. This lasted for a day or two; and by the end of a week after the worm had been eaten, fever had set in, which became more and more severe, and by that time the young worms which had been hatched in the body had migrated to the distant muscles, causing the most excruciating pains, so that the patient, fearing to move his inflamed muscles, would lie motionless upon his back; and if he did not die in this state of the disorder, nature came to the rescue, and imprisoned the creature by surrounding it with a fibrinous cyst, where it lives for years, being ready at any moment to acquire activity when it is swallowed and released from its cell. Indeed, the way in which it becomes dangerous is this—flesh infected with the parasite is eaten; and the cyst being quickly dissolved by the gastric juice, the creature is set free. Finding itself in the midst of nourishing food, it rapidly grows, so that in two or three days it is three or four times its original size, and may be easily seen, like a bit of fine thread, with the naked eye. The worms are of different sexes, and they rapidly come to maturity—each female giving birth to from 300 to 500 minute thread-like worms, which immediately set out upon their travels, piercing the walls of the intestines and migrating to distant parts of the body, where they produce the terrible mischief I have described. Although the pig is the animal which is most commonly infested by it, yet it has been found in the muscles of dogs, foxes, badgers sheep, moles, hedgehogs, rats, mice, frogs, and most carnivorous birds, all of which must have been subjects of the disease, but none appear to suffer from it like man; even children are less affected by it, for they seem to sleep it away. Fortunately, there is an easy method of discovering its presence in animals, for the most certain seat of the creature is in the muscles of the eye; we have therefore only to examine these muscles with the microscope to declare whether the meat is infected or not; and, at the present time, the sausage-makers of Germany have the pork examined in this manner before it is used for food."

THE CHEMISTRY CLASS.

DISTRIBUTION OF PRIZES.

The presentation of prizes to the members of the various classes, in connection with the Mechanics' Institute, and also the chemistry class of the Pharmaceutical Society, took place on Monday evening, April 12, in the Music Hall, of this city. A large and highly respectable audience were in attendance.

The Hon. G. W. Allan took the chair, and with him on the platform we noticed Mr. W. H. Dunspaugh, Mr. Sheppard, Mr. J. T. Shapter, Mr. J. Withrow, and other leading members of the Institute, and Pharmaceutical Society.

After a short address by the Chairman, and the reading of the annual report of the Institute by Mr. Sheppard, the distribution of prizes was proceeded with. These were awarded for book-keeping, mathematics, drawing, proficiency in the French and English languages, and chemistry.

Mr. Dunspaugh, in answer to an inquiry made by the Chairman, said that he was exceedingly sorry that the President of the Pharmaceutical Society was prevented by important business from being present to award the prizes, but that Dr. May would act in his place. A letter had been received from Mr. Elliott, which Mr. Shapter read to the meeting. After expressing regret at his unavoidable absence, the writer went on to say:

"I would express my congratulations to those students who have at the same time honored themselves and the Society of which they are members, by the interest and diligence they have manifested, and have thus earned the marks of approbation they are to receive. And there is every reason to believe that many others of the class who have not been fortunate enough to gain a prize, nevertheless deserve commendation for the pro-

gress they have made in the highly important science of chemistry.

"Had I been able to attend the meeting this evening, I should have endeavored to state the objects had in view in the formation of the 'Canadian Pharmaceutical Society of Ontario.' I may take this method of doing so in very few words. The great object has been to promote a high standard of knowledge on the part of all those in any way employed in the dispensing and compounding of materials used in medicine, and to prevent those not properly qualified engaging in the sale of articles of a dangerous and poisonous character. Every person will at once perceive that those objects are calculated to further the well-being of the community generaly, and especially those whose misfortune it is to be afflicted with illness in any form.

"I am happy to say that those who have been the promoters of this Society, have received very great encouragement in their design. Although the Society has been in existence only about twenty months, it has on its books about two hundred and fifty members, consisting of the most intelligent druggists and apothecaries and their assistants, in the Province of Ontario. The Society has established a monthly periodical, called THE PHARMACEUTICAL JOURNAL, which is furnished to every member, and which has, in addition, a large outside circulation.

"The Society has also sent about twenty-five students to the Chemistry Class in the Mechanics Institute during the past winter, who have, I believe, done both themselves and their teacher great credit.

"A Bill was prepared for the purpose of incorporating the Society, but in consequence of the shortness of the session of the Ontario Legislature, it could not be got through in time.

"I think, therefore, that as our Society is desirous of adding its mite to advance the general well being of this "Canada of ours," it should, and will, receive the countenance of the whole community."

After the close of Mr. Elliott's letter, Dr. May was called upon to distribute the prizes, and in doing so, he alluded to the indefatigable diligence displayed by the students, and also alluded to the fact that Prof. Croft had made their test papers equal to those used in the first year at the University, and that the ordeal had been passed in the most creditable manner. The successful competitors then received the following awards :—

1ST. PRIZE.—*Pareira's Materia Medica, and Brande and Taylor's Chemistry.*
WILLIAM ROSE.

2ND. PRIZE.—*U. S. Dispensatory:*
ROBERT BREDIN.

3RD. PRIZE.—*Redwood's Supplement to the Pharmacopœia:*
JOHN BLOGG.

4TH PRIZE.—*For Punctual Attendance: Garrod's Materia Medica and Therapeutics.*
KENNETH MILLER.

Dr. May said that Prof. Croft had found it exceedingly difficult to distinguish between the proficiency manifested by the above students in their examination papers, and that Mr. Blogg was only three marks behind the recipient of the first prize. In regard to Mr. Miller, he said that in addition to proficiency, he never missed a lecture.

One of the most interesting features of the evening was the presentation of a clock, accompanied by an address, to Dr. May, by the students of the chemistry class. These were tendered by Messrs. Youmans and Russell. Dr. May thanked the students in a very happy manner, and after speeches by several gentlemen, the meeting terminated.

EDITORIAL SUMMARY.

IT is said that some persons in England, who regard the letter of the law more than the spirit thereof, are taking advantage of the clause in the Pharmacy Act, exempting dealers in patent medicines; to present laudanum, under new and attractive titles, as a proprietary remedy. It will be well for us to take a hint.

NEW TEST FOR NITRIC ACID.—A solution of sulphate of aniline has been proposed by M. Braun, as an exceedingly delicate test for nitric acid; it is to be regretted, however, that the reaction is the same as with hyponitric acid, so that these two substances cannot be distinguished by these means. To prepare the solution, 10 drops of aniline are mixed with 50 c. c. of dilute sulphuric acid (1 to 6). This solution is added, drop by drop, to twice its volume of sulphuric acid (sp. gr. 1·84). A glass rod is dipped in the solution to be tested, and then into the aniline solution. The presence of nitric acid is indicated by red streaks on stirring; a larger proportion of acid causes the whole liquid to become carmine red. By this means any contamination of sulphuric by nitric acid is instantly shown, and the presence of nitric acid in rain water, after a storm, is plainly indicated.

ACID. NITRO-HYDROCHLORIC: DILUT.—From experiments made on this preparation by W. A. Tilden to determine whether the process of the British Pharmacopœia possessed any advantage over that usually employed, he arrives at the following conclusions :—"That there is a loss sustained in following the directions of the Pharmacopœia, sufficient to render the nitro-hydrochloric acid a preparation variable in quality; also that there is no purpose served in delaying the addition of the water, unless the diluted product as administered has been quite recently prepared. He therefore recommends that the acids be diluted at once with the water, and stated that if the strong acids employed be of the prescribed degree of concentration, the result of such mixture will agree pretty accurately with the tests of density and saturating power indicated by the Pharmacopœia; far more nearly so, in fact, than the dilute acid prepared strictly according to official instructions.

LEAVES.—The changes which take place in the color of leaves, in autumn, have been investigated by Wharton. Starting from the supposition that chlorophyl, the green coloring matter, is a compound color, and must therefore have for one of its elements a vegetable blue, capable of being reddened by acids; he argues that the juices of leaves, kept in a neutral condition by the vital forces, or by alkaline matter brought in the sap from the the earth, when circulation ceases, become acidified by the oxygen of the air, and therefore capable of reddening the vegetable blue of the chlorophyl. If this blue should be thus reddened, it ought to become blue again on being subjected to the action of an alkali; and Mr. Wharton's experiments prove this to be the case. Autumnal red leaves were exposed to an atmosphere containing ammonia, and in most cases the green color was restored. Frost probably plays no other part in causing the autumnal tints than merely in cutting off the circulation between the leaf and the tree.

DECOLORIZING EFFECT OF ANIMAL CHARCOAL.—At the close of a discourse delivered before the Chemical Society, by Dr. Wallace, "On the Chemistry of Sugar Refining," the President enquired if any gentleman present could inform the meeting whether the color-absorbing power of animal charcoal remains the same after the phosphate of lime contained in it has been removed by hydrochloric acid? Dr Hugo Müller said that he had found from his own experiments in filtration, that the pure charcoal, though actually stronger in its action than the ordinary bone charcoal, is not so in proportion to the quantity; in fact, that the same quantity of charcoal, when the bone-phosphate is removed from it, is not so strong as if it contained the bone-phosphate. Mr. Williams said that he could fully corroborate this statement from repeated experiments of his own; that though the pure charcoal will of course do more than the common charcoal, bulk for bulk, there is no comparison in the real per centage action of the carbon in each case.

THE PHARMACIST, *Published by the Chicago College of Pharmacy*.—We have received the third number of this periodical, and are much pleased with its appearance. It contains a number of original articles on subjects of interest to druggists, two of which will be found in our present issue. We hope sufficient encouragement will be given to warrant the appearance of the *Pharmacist* as a monthly paper.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.—Our worthy contemporary is advancing in wisdom with its years, and when we announce No. 2145, this is saying a good deal. The present numbers are replete with interest, and to the medical practitioner particularly so.

CANADIAN PHARMACEUTICAL SOCIETY.

The regular monthly meeting of the Society was held at the usual place on the 7th inst. On motion of the Treasurer, Mr. Shapter took the chair. After reading and adoption of the minutes of previous meeting, the following gentlemen were elected members of the Society:—

PRINCIPALS.

William A. White,.....Hamilton.
J. C. Holden, ...Belleville.
John A. Tidey,.....Norwich.
E. H. Menzie,. ....Chfton.

A discussion was then entered into by the members present, as to the requisite qualifications for membership; some maintaining that the Society should insist on the applicant being endorsed as a qualified Druggist, by a member of the Society, while others showed that by the Constitution of the Society, any Chemist or Druggist doing business in Canada is eligible for election, at any meeting of the Society, and that it was for the members present at the meeting to say whether he should be enrolled as a member or not.

In accordance with notice previously given, Mr Henderson introduced a motion to the effect—"That Article III of the Constitution be suspended; and that members be admitted, without examination, until such time as decisive action shall have been taken by the Legislature, with regard to the Pharmacy Act." This motion was seconded by Mr. Rose, and carried unanimously.

The Lecture Committee reported, through their Chairman, that the Course of Lectures for the season had terminated; that the examinations had been held on Monday evening, by Prof. Croft, who had kindly given his services gratuitously; and that a full report would be given at a future meeting.

The Printing Committee reported that, at a meeting held on the previous week, it was decided to terminate the present engagement with Mr. Trout, the Publisher, and that when the accounts, &c., had been audited, a more complete report of the first year's result of the Journal would be prepared. The Chairman said he regretted there was no paper on the list to be read, and hoped that the members would show their interest in the well-being of the Society, by using their best endeavours to have some interesting paper at every meeting of the Society. It was said that there were many members of the Society outside of Toronto who could be of great benefit to the Society by furnishing instructive letters on subjects of general interest, any such, would receive the best consideration and thanks of the Society.

Meeting adjourned.

H. J. ROSE, Secretary.

Miscellaneous.

Animal Charcoal.

We have abstracted the following interesting facts from Mr. Wallace's lecture on Sugar Refining, recently delivered before the Chemical Society, London:

Animal charcoal, when new, consists of carbon, calcic phosphate and carbonate, and minute quantities of some other substances; the composition is a little variable, but the following results of analysis of three varieties will convey a good idea of its usual constituents, A being made from ordinary bones, collected in this country; B, from South American shank bones, and C, from what are called camp bones, which are frequently buried for some years before they are collected:

	A.	B.	C.
Carbon, nitrogenous....	9·71	7·64	10·37
Calcic phosphate, &c .	80 48	84·05	78 70
Calcic carbonate.....	8·82	7·61	8·05
Calcic sulphate.....	·34	·20	·53
Alkaline salts...	·30	·25	·58
Ferric oxide..... . .	·12	·15	·21
Silicious matters...	·23	·19	1·56
	100·00	100·00	100·00
Cubic feet per ton (dry)	51	49	47

The above analyses represent the charcoal as being dry, in order that they may be compared with one another, but practically the article is always sold with about 10 per cent. of water.

The so-called carbon in animal charcoal is not by any means pure, for it contains a very notable amount of nitrogen, and a small proportion of hydrogen, the quantities of both of these elements depending upon the degree of heat to which the charcoal has been exposed in the process of manufacture. Generally the quantity of nitrogen is about one-tenth part of the total carbonaceous matter, but sometimes I have found it considerably more. The proportion of hydrogen in well-burnt animal charcoal is exceedingly minute, being in one particular case (new) only ·034 per cent. Old charcoal which has been frequently used in refining, and reburned, contains less nitrogen, and the proportion appears continually to decrease. I have found it as low as ·3 per cent., and as the charcoal which gave this amount was not excessively old, I have no doubt it may be reduced even further. I believe that the nitrogen is an important and essential constituent of animal charcoal, and it is certain that no description of charcoal which does not contain an appreciable quantity of nitrogen is a good decolorizing agent. Wood charcoal, for instance, although eminently porous, and an excellent absorbent of gases, is a very poor decolorizing agent, and is practically useless Red-hot animal charcoal quenched with water evolves ammonia, and I believe that the practice of cooling charcoal in this way pursued by some refiners is a highly injurious one.

New charcoal always contains traces of ammonia, but the amount is extremely minute, being in a particular case only ·011 per cent. The effect of this minute quantity, and of traces of sulphide of ammonium is readily seen in the sugar run over new charcoal, which should never be used until after it has been well washed and reburned. New charcoal also contains invariably a minute quantity of sulphide of calcium, and gives off the odor of hydric sulphide when treated with an acid, and even when moistened with water. In a particular case a sample of new charcoal gave ·08 per cent. of hydric sulphide when treated with an acid. Charcoal, both new and old, retains appreciable quantities of gases which escape when cisterns containing it are filled with liquor, and these gases frequently explode when a light is brought near the top of the cistern.

The power which charcoal is capable of exerting in removing coloring matter from solutions is truly astonishing. A very good lecture-room experiment consists in pouring into a funnel, filled with good animal charcoal, an aqueous solution of cochineal, when it comes through perfectly colorless, and its presence in the charcoal in an unaltered form may be illustrated by boiling the charcoal with alcohol, when it gives up the coloring matter to that liquid. Port wine may be used for the same purpose and with a like result. Charcoal has also the power of absorbing vegetable albumin, gum, oxide of iron, calcic carbonate and hydrate, and calcic sulphate. In sugar we have vegetable albumin, extractive matters, and invariably some salt of calcium, and all these, as well as the coloring matter, are removed by the charcoal; and not only so, but their removal is important and essential, so that if we could practically bleach sugar by ozone, chlorine, sulphurous gas, or any other chemical agent, we should still require to use charcoal to purify the sugar.

The active ingredient in animal charcoal is unquestionably the nitrogenous carbon, for if the charcoal is burned perfectly white, not only on the outside of the grains, but to the very centre of each particle, it no longer retains the slightest trace of decolorizing power. But it is quite evident that the carbon owes its extraordinary powers to its extreme porosity, the carbon being infinitely comminuted and kept assunder by admixture with ten times its weight of calcic phosphate.

The Burden of Memory.

Appleton's Journal contains in its first number a calculation, by Berthelot, the eminent French organic chemist, of the number of combinations which may be made of acids with certain alcohols. He says, if you give each compound, thus possible, a name, and allows a line for each name, and then print a 100 lines on a page, and make volumes of 1,000 pages, and place a million volumes in a library, you would want 14,000 libraries to complete your catalogue.

The science of chemistry is perhaps the most striking example of the rapid accumulation of facts so characteristic of the present age.—Hosts of investigations in every field of research are unearthing treasures of knowledge and adding them to the accumulated scientific wealth of the world. The burden which the memory is called upon to bear is already so

heavy, that it could scarcely be possible for any man, however gifted by nature, to carry with certainty, those pertaining to any one department of science, even though his entire life were devoted to it.

This fact explains the increasing demand for works of reference. Encyclopedias, hand books, compilations of tables, and various and multiplied helps to memory abound; new books of like character are constantly issued, and those which already exist, need constant revision, to keep pace with the march of discovery.

It is quite evident that only a small fraction of the mass of facts can ever be stored up in any individual memory; the attempt to remember them would occupy thrice the years allotted to the life of mankind. If only part can be remembered, it becomes important to know what *ought* to be remembered, and what must be left to the works of reference.

While facts are almost numberless, principles are few. We can then, easily remember principles, and a knowledge of general principles is the key to research in books for facts we do not know; it is also the means whereby we can test the truth or falsity of the statements contained in such works. It would be strange indeed that errors should not creep into any extended work of reference; nay, it is strange that so few errors are committed. But if a fact be erroneously stated, the error will almost surely be discovered by considering it with reference to the principles which underlie it. We should therefore first seek to remember principles, and after them, just as many facts as we can.

But to every individual there is a choice in the facts which are to be remembered. Those which are of the most frequent application in his business or profession, are the ones he will be most likely to choose to remember, and with good reason. The life-long student (there are a few such still to be found) will choose such facts as he must frequently refer to in his studies. But facts to be most easily remembered, require thorough and careful classification.

To classify properly is however a task of skill—skill only acquired by a proper appreciation of the true end of all classification, namely, convenient reference. A business man classifies his notes, receipts, letters, etc., and places each kind of document in its proper pigeon hole; but this classification might be carried so far as to utterly defeat the purpose it is designed to subserve. The pigeon holes might be so multiplied that a letter, or note, or receipt could be picked out of a single bundle sooner than a particular pigeon hole could be found among the entire number. Of course this is supposing a very extreme case, but it illustrates the point we wish to make, namely, that too much classification is as bad as too little.

A great many people have too many pigeon holes in their memories; more have too few; and a few, those who seem largely gifted by nature in power of memory, have neither too many nor too few; but no single man has room in his memory for everything. All must more or less have recourse to their book shelves.

A poor recourse it is in many cases. Down comes a huge volume, the title of which in broad letters on its back, shows that the fugitive fact we are after, is or ought to be within its covers. We turn to the back part to find the index, but we don't see it. Perhaps it is at the beginning. We hopefully turn over the leaves of the book to find it there, and discover nothing but a meager table of contents. We throw down the book in infinite disgust; if we have got to hunt two hours for that fact, unless it be of great importance, we conclude to do without it. We relieve our feelings by heaping anathemas upon the author, who maliciously thought to force us to read his entire work, before we should have our fact. We look for another book.—Ah how different! A copious and carefully compiled index—by its help we unearth our fact, in less time than we occupied in searching for an index in the former one. Good! We dust it carefully and place it close to hand, and put the other away among the rubbish. As action is the soul of eloquence, so an index is the soul of a book of reference, and we admire both large souled men, and large souled books.

Books of reference are a necessity of the age. In fact all books on scientific or technical subjects, are books of reference and are more or less used as such, according to their worth. Authors should not lose sight of this fact. It is not enough that the subject should be able handled, it should be so arranged that any passage may be found with the greatest facility. When this last and essential requisite is added to merit in other respects, it is a well-tempered, well-sharpened professional tool, which, if lost, or destroyed, is certain to be replaced, to the profit both of the one who manufactured, and him who uses it.—*Scientific American.*

Medical Products of the Pine Tree.

M. H. Schmidt & Missler's products of the pine tree, forest wool, and other substances are in active developement in Paris. Vegetable wadding preserves all the properties of of the pine; it evolves an aroma, eminently wholesome. Dr. Schillback, recommends it as a most harmless, but efficacious remedy in cases of catarrh, bronchitis, asthma, sore throat, etc. Raw vegetable wool is one half cheaper than the ordinary wool mattress. These stuffed with this wool do not attract humidity; its odor and the ozone, due to its resinous principles, keep off or kill the insects. Schmidt, recommends flannel by reason of the resin, the tannin, and the formic acid it contains, aids the exercise of the important functions of respiration, absorption and prespiration, in a greater degree than ordinary flannels. It is at the same time, a preservative and corrective agent, which merits to become popular as it is in Germany, and can be woven into any of the forms for which flannel is used for clothing. Etherated pine oil employed in friction, has given unexpected results; in the commencement of paralysis and apoplexy; in the case of recent burns, etc., some German doctors give a few drops in sugar and water for cramps in the stomach internal worms, neuralgia, dropsy, etc. There are also the solid extract of leaves of the pine, the pine spirit and pine soap.—*University Journal.*

Extraction of Odoriferous Principles of Plants by the Use of Glycerin.

We are in receipt of inquiries in regard to the methods employed, in the extraction of the odoriferous principle of flowers by the use of glycerin. The process is that of simple contact. The substance when pure is devoid of odor, and not liable to turn rancid, and is therefore much superior to oils or fats for the purpose, not excluding the best olive oil.

The plan of extracting certain delicate and fugacious odors which are destroyed by ordinary distillation, used to consist in placing flowers between oiled or greased cloths or plates of glass prepared with oil or grease, after which, the essential oils were washed out from the oily matters by means of alcohol, which thus charged with perfume became an essence or extract.

The extraction of odiferous oils with glycerin is performed by introducing the flowers, such as those of the jasmine, hyacinth, narcissus, lilac, syringa, violet, rose, etc., into a vessel filled with glycerin, in which they are allowed to remain for three weeks. At the expiration of this time, the liquid is strained off, and contains the odiferous principles of the flowers. The glycerin has been converted into a delightfully perfumed extract, which may be used as it is, for hair dressing, or it may be dissolved in all proportions in water or alcohol, forming various highly perfumed and variously scented liquids or washes. Some of the less volatile essential oils may also be transferred to ether, and from it to alcohol.

Reducing Aluminum from its Ore.

A Boston chemist has patented the following method of extracting aluminum. He mixes alumina with gas tar, resin, petroleum or some such substance, making it into a stiff paste, which is divided into pellets; and pellets or balls are dried in a drying oven, then placed in a strong tube or retort, which is lined with a coating of plumbago. They are then exposed to a cherry-red heat. The retort must be sufficiently strong to stand a pressure of from twenty-five to thirty pounds on the square inch, and be so arranged that, by means of a safety valve or tube, the necessary amount of hydrocarbon gas can be introduced into the retort among the heated mixture, and the pressure of from twenty to thirty pounds on the inch be maintained. Hydrocarbon gas is generated and pumped into the retort, and as it is consumed the supply is maintained. By this process the alumina is reduced and the metallic aluminum remains as a spongy mass, mixed with carbon. This mixture is then remelted with metallic zinc, and when the aluminum has collected in the metallic state, the zinc is driven off by heat. The reduction is due to the action of the hydrocarbon under pressure. The time for reducing one hundred pounds of aluminous earth, cryolite or other compounds of aluminum, should not be more than four hours; and when hydrocarbon gas can be obtained in a heated and compressed state, the reduction takes place in a still shorter perod.

Theory of Nitrification.

In a paper on this subject by S. W. Johnson, in the *American Journal of Science*, the writer announces his belief, that in nature, free nitrogen enters into combination, in all cases, by oxydation, that the agent of oxydation is ozone, that in the soil this ozone originates, for the most part, in the slow oxydation of organic matters, and that ammonia and the organic nitrogen of humus, peat and coal are the result of the reduction of oxyds

of nitrogen either in the living organism in the acts of nutrition, or by the organic matters of the dead plant or animal. The union of atmospheric nitrogen and oxygen under the influence of electrical tension has been shown by Meissner to be preceded by the production of ozone. By a long series of critically conducted observations, Daubeny (Jour. Chemical Soc., 1867,) has made probable that ozone appears in the vicinity of active foliage exposed to sunlight, and concludes that the oxygen set free from combination in the plant, is partly ozonized, as is true of that which separates in the decomposition of permanganates and chromates by oil of vitriol. The plant, then, appears to be an agent of nitrification when living as well as when dead, and ozone is the result of a molecular change which accompanies the decomposition as well as the formation of oxygen compounds.

Hoof Ointments.

The following receipts are communicated by W. Hunting, M.R.C.V.S., in a paper on the subject, in the March number of the *Chemist and Druggist*:

Hoof ointments, for convenience, must have a certain consistency, so as not to spill like oil, if accidentally upset, and yet not to be so hard as to require warming for use. They must not be "sticky," as then the brush with which they are applied gets clogged, and straws and dirt stick to the foot; for this reason, wax should not be added to any hoof ointment. They must be of a dark color, and for this purpose tar is a useful ingredient, besides its beneficial action upon any "thrushes" which may exist. Lastly, they must wash off, so as not to interfere with the ready cleaning of the horse, when necessary. This last quality is not absolutely essential to a good protecting hoof ointment, but its advantage must not be overlooked by those who wish to sell an eligible article. Perhaps, in giving formulæ, it would be better to divide them into two varieties—

Those which are used for bad feet as a protecting agent, and contain no saponifying ingredient: and

Those which are used regularly as preventives, and like hair dyes and pomatum, "beautifying agents."

The following are good of the first class.—

1.—Barbadoes Tar, Burgundy Pitch, Russian Tallow } equal parts.

2.—Stockholm Tar ..... 2lb.
Russian Tallow ..... 1lb.
Venice Turpentine ..... ½lb.

In mixing these, melt the two last ingredients together first, then add and thoroughly mix the tar.

The following preparations are about the best I know of as samples of the second class:

1.—Stockholm Tar ..... 3lb.
Soft Soap ..... 4lb.
Fish Oil ..... ½ pint.

2.—Stockholm Tar ..... 4lb.
Soft Soap ..... 4lb.
Tallow ..... 2lb.
Fish Oil ..... 1 pint.

I prefer the latter, as being of the better consistence.

I am quite aware that strong alkalis injure horn, but in these forms the excess of fats prevents any marked effects

Glycerine with fats would obviate all objections, but I know as yet of no mixture with the proper consistence and color that would wash off pretty easily. Soft soap by itself is not a good application, as it tends to make the hoof brittle.

Extract of Valerianate of Ammonia.

Some years ago, M. Guyot Daunecy published a process for the preparation of extract of valerian, which consisted in lixiviating the root in a displacement apparatus with solution of carbonate of ammonia of a certain density, and reducing the liquid by careful evaporation. This preparation represented all the active principles of the root used, and gave very great satisfaction. M. G. Dannecy has since recognized the fact that many patients have evinced great repugnance to the medicine in the form of extract, and this has led him to seek a method of reducing its bulk, so as to admit of its being administered in the form of gelatinous capsules. He ultimately adopted the following process:

Valerian root in coarse powder 100
Alcohol (60 per cent) 80
Liquor ammoniæ (22 per cent) 20

Treat the valerian root in a displacement apparatus, with the mixture of alcohol and ammonia. When this shall have percolated, introduce a quantity of alcohol (60 per cent) sufficient to bring the weight of the ammoniacal tincture to the same figure as that of the valerian employed; evaporate, with continual agitation, at a temperature not exceeding 160° F., to a syrupy consistence. This extract is enclosed in gelatinous capsules, each of which contains about seven or eight grains.

By making the extract with alcohol, in the manner above detailed, a large amount of inert matter is excluded, and thus it is possible to obtain the active principle itself—viz., the valerianate of ammonia in as small a bulk as possible.—*Chemist and Druggist.*

Blacking.

Boneblack, by being treated with about 45 per cent. of the strong, and a correspondingly larger weight of the weaker oil of vitriol, separates the animal black in that fine state of division free from grittiness which is an essential point in polishing, and the phosphoric acid mixed with the material undoubtedly likewise aids in accomplishing the "shine." A larger proportion of sulphuric acid, however, could only act injuriously on the leather to which the blacking is applied. Sometimes the phosphates are extracted by muriatic (100 of black to 30 of acid), afterwards using hot water (300); the black residue is then treated with (25) concentrated oil of vitriol. The more thoroughly the black has been decomposed by the acid the more will it take up of the adhesive agents which give the brightness. These are syrups of molasses of various kinds, varying in weight from ½ to 1½ times the weight of the original black. Finally, some oil or grease is added, to preserve the leather soft, in variable proportions up to half the weight the black. Gum, glue, and similar substances will in part replace the syrups. The color may sometimes need improving. This can be done by means of lampblack stirred up with spirits or benzine, by means of Prussian blue by a decoction of galls or other tanning material mixed with a solution of copperas, or some extract of logwood with a trace of bichromate of potash. The Prussian blue is made of equal parts of yellow prussiate and copperas, the solution of which in four times their weight of water are mixed, the precipitate after settling stirred up, and after a time washed with water.

A superior blacking is certainly the following, though we think it doubtful whether the fact of rendering the leather impervious to water is to be called an advantage: 3 lbs. of lampblack and ½ lb. of finest boneblack are made into a uniform paste with a gallon of molasses. To this is added a hot mixture of ½ lb. fused gutta percha, ¾ lb olive oil, and 1-5 lb. of stearine, and to this, lastly, a solution of ¾ lb, gum senegal in a quart of warm water. A good restorative of patent leather is a solution of stearic acid, 5 parts, in 7 of turpentine, mixed with 3 of fine lampblack, to be applied with a woolen rag, and rubbed dry with a clean white rag.—*Ex.*

Ozonic Ether.

The substance called ozonic ether, and which is now creating so much interest in the profession, is peroxide of hydrogen in ether. The mixture thus formed was first made by myself. I was testing the action of the peroxide of hydrogen on various substances, organic and inorganic, and having one day added a strong solution of the peroxide to some ether, I was surprised, to find that a portion of the peroxide seemed to pass to the ether, the ether, when decanted off, having a very strong taste of peroxide, and yielding oxygen freely when treated with oxide of manganese. On being kept, the ether was discovered to undergo further change, the oxygen becoming more stable and fixed. The addition of a little alcohol to the ether facilitates the absorption of the peroxide. The combination of the oxygen with the ether and some water, although it is very slight, is persistent, for the mixture has been sent to Australia without deterioration. The compound is, without doubt, a useful agent. I think I may claim it as an addition to our list of remedies likely to hold its place.

I used it in the first instance for diffusion in the air of the sick room, dispersing it in the form of spray. It is quick in action and effective for purifying the air; it does not charge the air with moisture, and it does not irritate the breathing organs. The disadvantage of it is that it cannot be safely used near a light or fire. It should be sprayed through a glass tube.—*Dr. Richardson in Medical Times and Gazette.*

Cement for Leather.

The *Coachmakers' Journal* says, of the many substances lately brought very conspicuously to notice for fastening pieces of leather together, and in mending harness, joining machinery-belting, and making shoes, one of the best is made by mixing ten parts of sulphide of carbon with one of oil of turpentine, and then adding enough gutta-percha to make a tough thickly flowing liquid. One essential pre-requisite to a thorough union of the parts consists in freedom of the surfaces to be joined from grease. This may be accomplished by laying a cloth upon them and applying a hot iron for a time. The cement is then applied to both pieces, the surfaces brought in contact, and pressure applied until the joint is dry.

Quinine Pills.

Dr. Lowis E. Atkinson (*Med. and Sur. Reporter*, Sept. 19th, 1868) recommends *tartaric acid* as a means of making quinine pills by the following process, viz.:

Take of sulphate of quinia.....20 grains.
Tartaric acid..... 4 "
Water..... 1 minim.

Triturate the quinia and acid, then add the water, which will form a mass, to be divided as desired. If the acid is dry, the proportion of water is correct; if moist, it is too much. The advantages proposed by Dr. Atkinson are, first, tenacity of the mass easily worked; second, it does not readily lose its pilular consistence, like that made with elixir of vitriol, and may be manipulated without haste. Third, its bulk is not greater than by Parrish's formula, and lastly no specific skill is needful in its preparation.

Charcoal Pipes.

The use of charcoal in the preparation of pipe heads, a long time practiced, has lately experienced many improvements, so that now pipes are produced remarkable for a deep black, lustrous appearance, and of very great durability. The material consists of a mixture of two parts of the best charcoal black and one part of the best peaty earth, ground so finely that, when rubbed between the fingers, no trace of granules is perceptible. Two parts of this mixture are then united with one part of an equally well pulverized residuum of distilled cannel coal, containing still a portion of its bitumen, and the whole rubbed together thoroughly till all the three ingredients are uniformly combined. The mixture is then placed in iron boxes, in which are sunken moulds corresponding to the pipe heads, and while the boxes are then heated to the boiling point of water, stamps with rough surfaces are pressed under hydraulic pressure into the openings of the heads, so that this process, united with the increased temperature, not only combines the carbonaceous mass into compact pipe heads, but also produces a smooth exterior, and at the same time a rough inner surface.

India-rubber Tubing.

Ordinary vulcanized India rubber tubing becomes saturated with gas, which again evaporates at its outer surface, causing a most disagreeable smell. An invention for the prevention of this, by coating the india-rubber tubing with a varnish, has been made in England. The chief novelty in it is that the varnish is easily made, and it renders the substance of the tube impervious to gases. The varnish is composed of linseed oil, fine litharge, or white-lead, in the proportion of one quart of oil to one pound of litharge. These substances should be well boiled together until brought to a proper thickness or body, and while hot the compostion is applied by running it through the tube to be coated or lined. The varnish for the outside is made by mixing one quart of linseed oil with half a pound of litharge, and by adding to the same about a gill of gold size, these ingredients should be well boiled together, and while hot should be applied with a brush or a sponge.

Spontaneous Combustion of Silk.—M. J. Persoz has read a paper "On the Spontaneous Combustion of Silk." It is well known that silk, which in the operations of bleaching, cleansing, &c., loses considerably in weight, can be made to fill up again, or can be charged (especially black silk) so that the material will actually gain 100 to 300 per cent. in the weight by this treatment. The substances usually employed for this purpose are astringents, such as catechu, gall nuts, and certain salts, especially protosulphate of iron. A charged silk of this description was found to contain 22 per cent. of water, 11·0 to 11·5 per cent. of impurities. When dried at 110° to 115° C., it took fire spontaneously as soon as air got free access to it. This effect appears to be owing to the rapid absorption of moisture, during which oxidation occurs as rapidly.

New Treatment of Acute Rheumatism.—Dr. Sibson's plan of treating patients at St. Mary's embraces three points; *removal of pressure and tensure of joints*, to accomplish which, they must lie in bed, and then joints be muffled in cotton, wool and flannel, a cradle being placed where the weight of the bed clothes is painful, *an even and warm temperature*—the patient wears a flannel dressing gown, and the blankets touch the skin of the lower extremities, sheets being placed only over the upper part of the bed; and *removal or relief of pain* produced by applying the linimentum belladonna and covering over with wadding. When the pain is very excessive, inject subcutaneously, from an eighth to a quarter of a grain of morphia. If there be a gouty complication, give a little iodide of potassium. As regards food, the patient is allowed from the first roast meat, rice pudding and porter.—*University Journal.*

Manufacture of Vinegar.—Dr. Arust has discovered a process for making vinegar from Alcohol, which he says has proved entirely satisfactory. There is a very general complaint that the oxidization of spirits of wine in the vinegar process is far from complete, and that the results are not equal either in quality or quantity to what ought to be expected from the materials employed. Dr. Artus takes half an ounce of dry bichloride of platinum, and dissolves it in five pounds of alcohol; with this liquid he moistens three pounds of wood charcoal broken in pieces to the size of a hazel nut; these are put in a covered crucible, and afterwards placed in the bottom of a vinegar vat. Here the platinum in its finely-divided spongy state absorbs and condenses large quantities of oxygen from the air, by which the alcohol is rapidly oxidized. When the charcoal has been in use five weeks it should be again heated in a covered crucible.

Antidote to Carbolic Acid.—Dr. Grace Calvert states that the best antidote after the stomach pump is large doses of olive or almond oil, with a little castor oil. Oil is a solvent, and consequently a diluent of carbolic acid, and may be used to stop the corrosive effect of the acid when the action on the skin is too violent.

Bavarian Beer.—Liebig states that 1460 quarts of best Bavarian beer contain exactly the nourishment of a two-and-a-half pound loaf of bread.

White Gunpowder.—The composition of white gunpowder is as follows:

Chlorate of potash	48
Yellow prussiate ditto	29
Finest loaf sugar	23
Parts by weight	100

In manufacturing this powder the yellow ptussiate is dried in an iron ladle until it is as white as the chlorate. The ingredients are ground separately to very fine powder, and are then mixed by means of a conical sieve until they are thoroughly incorporated, shut not by trituration.

How to Grow Fat.—The food which has the greatest influence in the formation of fat, is that which is richest in starch, sugar, and in oily matters; in addition to these a general temperature, and moderate exercise, are indispensable. The following articles are found to have the greatest tendency to promote fat: Rare beef, mutton, bread, rice, Indian corn, peas, beans, potatoes, beets milk, butter and sugar; all articles containing starch, such as sago, tapioca, arrow-root, etc. Of course the above must not be used to produce the opposite effect, and a diet of tea (without sugar or milk) no butter, biscuits or dry toast, and any other meats than the above mentioned and thoroughly done be sustained.

Oreide.—Composition of the alloy termed "oreide":—Copper, 79·7 parts; zinc, 83·05; nickel, 6·09; iron, 0·28; tin, 0·09. This alloy, the two last constituents of which are purely accidental, resembles gold, and is used in Paris for imitating jewellery. A white alloy, very much resembling silver, consists of 69·8 parts of copper, 19·8 of nickel; 5·5 of zinc, and 4·7 of cadmium; it is a very hard alloy, which takes a beautiful polish.

Quinia a Preventative of Cholera.—A German writer urges the use of sulphate of quinine. He gives two grains every hour until twenty-four grains have been taken, then two grains three times a day for three weeks, then two grains twice a day as long as the epidemic lasts.

Carbolic Acid, it is stated, can be deodorized. Two parts by weight of gum camphor are mixed with one part of crystallized carbolic acid. After this compound has been well rubbed together, it is mixed with whiting, and in that form is said to be a valuable disinfectant and a good protection to furs in summer.

India Rubber Liquid Blacking.—Take of ivory black, sixty pounds, molasses forty-five pounds; gum-arabic, dissolved in a sufficient quantity of hot water, one pound; vinegar, twenty gallons; sulphuric acid, twenty-four pounds; India rubber, dissolved by the aid of heat in nine pounds of rape seed oil, eighteen ounces; mix them well together. This blacking may be applied by means of a small sponge, attached to a piece of twisted wire, like the well-known Japan blacking.

Thymic Acid.—Obtained from the Ess. oil of thymus vulgaris; proposed as a substitute for carbolic acid or creasote. It is a powerful antiseptic, emits no disagreeable oder, and should be dissolved in two parts of water with little alcohol. It may be used as a substitute for nitrate of silver as an escharotic in its concentrated form.

WHOLESALE PRICES CURRENT.—APRIL, 1869.

Drugs, Medicines, &c.	$ c.		$ c.
Acid, Acetic, fort	0 12	@	0 15
" Benzoic, pure	0 28		0 35
" Citric	0 85		0 90
" Muriatic	0 05		0 07
" Nitric	0 11½		0 15
" Oxalic do	0 26		0 32
" Sulphuric	0 04½		0 07
" Tartaric, pulv.	0 40		0 45
Ammon., carb. casks	0 17		0 19
" " jars	0 18		0 20
" Liquor, 880	0 18		0 25
" Muriate	0 12½		0 15
" Nitrate	0 45		0 60
Æther, Acetic	0 45		0 50
" Nitrous	0 22		0 25
" Sulphuric	0 48		0 55
Antim. Crude, pulv.	0 10		0 12
" Tart. "	0 50		0 60
Alcohol, 95%	1 67½		2 00
Arrowroot, Jamaica	0 21		0 22
" Bermuda	0 60		0 65
Alum	0 02½		0 03½
Balsam, Canada	0 32		0 40
" Copaiba	0 75		0 80
" Peru	2 90		3 00
" Tolu	1 20		1 40
Bark, Bayberry, pulv.	0 20		0 25
" Canella, "	0 17		0 20
" Peruvian, yel. pulv	0 40		0 45
" " red "	1 50		1 60
" Slippery Elm, g. b.	0 18		0 20
" " flour, pkt's	0 28		0 32
" Sassafras	0 15		0 18
Berries, Cubebs, ground.	0 30		0 40
" Juniper	0 06		0 10
Beans, Tonquin	0 60		1 10
" Vanilla	6 50		7 50
Bismuth, Alb.	6 20		6 40
" Carb.	6 20		6 40
Camphor, Crude	0 46		0 50
" Refined	0 60		0 68
Cantharides	0 90		1 00
" Powdered	1 00		1 10
Charcoal, Animal	0 04		0 06
" Wood, pow'd.	0 12		0 15
Chiretta	0 55		0 65
Chloroform	1 40		1 50
Cochineal, S. G.	0 90		1 15
" Black	1 30		1 75
Colocynth, Pulv.	0 50		0 80
Collodion	0 55		0 60
Elaterium oz.	4 50		5 00
Ergot	0 96		1 00
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 "	Variable.		
" Rhubarb	7 50		—
" Sarsap. Hon. Co	1 00		1 20
" " Jam. Co	3 25		3 70
" Taraxicum, Ang	0 70		0 80
Flowers, Arnica	0 26		0 35
" Chamomile	0 36		0 45
Gum, Aloes, Barb. extra	1 00		1 10
" " " good	0 50		0 55
" " Cape	0 15		0 20
" " " pow'd	0 25		0 30
" " Socot	0 80		0 90
" " " pulv.	0 90		1 00
" Arabic, white	0 42		0 65
" " " pow'd	0 57		0 65
" " sorts	0 34		0 37
" " " pow'd	0 50		0 60
" " com. Gedda	0 13		0 16
" Assafœtida	0 32		0 40
" British or Dextrine	0 13		0 15
" Benzoin	0 48		0 55
" Catechu	0 15		0 20
" " pow'd	0 25		0 30
" Euphorb, pulv	0 32		0 40
" Gamboge	1 40		1 60
" Guaiacum	0 32		0 50
" Myrrh	0 48		0 60
" Sang Dracon	0 60		0 70
" Scammony, pow'd	5 60		—
" " Virg. "	14 50		—
" Shellac, orange	0 31		0 35

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

Drugs, Medicines, &c. *Continued.*	$ c.		$ c.
Potash, Bi-chrom	0 15	@	0 20
" Bi-tart	0 25		0 28
" Carbonate	0 16		0 20
" Chlorate	0 40		0 45
" Nitrate	8 50		9 00
Potassium, Bromide	1 75		2 00
" Cyanide	0 70		0 75
" Iodide oz.	3 80		4 50
" Sulphuret	0 25		0 35
Pepsin, Boudault's oz.	1 65		1 80
" Houghton's, doz	8 00		9 00
" Morson's oz.	0 85		1 10
Phosphorus	0 75		0 85
Podophyllin	0 60		0 75
Quinine, Pelletier's	1 60		--
" Howard's	1 65		1 70
" " 100 oz. case	0 00		—
" " 25 oz. tin	0 00		—
Root, Colomba	0 14		0 20
" Curcuma, grd	0 12½		0 17
" Dandelion,	0 25		0 35
" Elecampane	0 14		0 17
" Gentian	0 08		0 12½
" " pulv.	0 15		0 20
" Hellebore, pulv.	0 20		0 25
" Ipecaac "	2 40		2 60
" Jalap, Vera Cruz	1 55		2 —
" " Tampico	0 90		1 —
" Liquorice, select	0 13		0 17
" " pow'd	0 12½		0 16
" Mandrake, "	0 20		0 25
" Orris "	0 20		0 25
" Rhubarb, Turky	5 25		5 50
" " E. I., China	1 50		1 75
" " " pulv.	1 60		1 85
" " " 2nd	1 30		1 50
" " French	0 75		—
" Sarsap., Hond	0 45		0 50
" " Jam.	0 75		0 80
" Squills	0 10		0 15½
" Senega	0 40		0 50
" Spigelia	0 35		0 40
Sal., Epsom	3 00		4 00
" Rochelle	0 30		0 35
" Soda	0 02		0 03
Seed, Anise	0 16		0 30
" Canary	0 06½		0 07
" Cardamon	2 10		3 00
" Fenugreek, gr'd	0 10		0 15
" Hemp	0 06		0 07
" Mustard, white	0 14		0 16
Saffron, Amer.	1 25		1 50
" Spanish	14 00		16 00
Santonine	11 50		12 50
Sago	0 07½		0 09
Silver, Nitrate, cash	14 90		16 50
Soap, Castile, mottled	0 12½		0 14
Soda Ash	0 03		0 04
" Bicarb. Newcastle	4 00		5 00
" " Howard's	0 14		0 16
" Caustic	0 04½		0 05
Spirits Ammon., arom	0 25		0 35
Strychnine, Crystals	2 65		3 00
Sulphur, Precip.	0 10		0 12½
" Sublimed	0 4		0 05
" Roll	0 03		0 04½
Tamarinds	0 15		0 20
Tapioca	0 20		0 23
Veratria oz.	0 25		0 30
Vinegar, Wine, pure	0 55		0 60
Verdigris	0 35		0 40
" Pow'd	0 45		0 50
Wax, White, pure	0 85		0 90
Zinc, Chloride oz.	0 20		0 25
" Sulphate, pure	0 10		0 15
" " com	0 06		0 10

Dyestuffs.

Annatto	0 40	@	0 60
Analine, Magenta, cryst	Variable.		
" " liquid	2 50		—
Argols, ground	0 15		0 25
Blue Vitriol, pure	0 08		0 10
Camwood, pure	0 06½		0 09
Copperas, green	0 01½		0 02½
Cudbear	0 16		0 25
Fustic, Cuban	0 03		0 04
Indigo, Bengal	2 40		2 50
" Madras	1 15		1 20
" Extract	0 28		0 35
Japonica	0 05½		0 06½
Lacdye, pow'd.	0 35		0 40
Logwood	0 02½		0 03

Dyestuffs—*Continued*	$ c.		$ c.
Logwood, Camp	0 02½	@	03½
" Extract	0 11		12
" " 1lb bxs	0 13½		—
" " ½lb "	0 14½		—
Madder, best Dutch	0 17		0 18
" " French	0 00		0 00
Quercitron	0 04		0 05
Sumac	0 06½		0 08
Tin, Muriate	0 10½		0 12½
Redwood	0 05		0 06

Spices.

Allspice	0 08½	@	0 10
Cassia	0 44		0 45
Cloves	0 13		0 14
Cayenne	0 18		0 25
Ginger, E. I.	0 12		0 14
" Jam	0 28		0 30
Mace	0 78		0 90
Mustard, com	0 20		0 25
" D. S	0 40		0 45
Nutmegs	0 45		0 75
Pepper, Black	0 11½		0 12½
" White	0 20		0 22

Paints, Dry.

Black, Lamp, com	0 07	@	0 08
" " refined	0 25		0 30
Blue, Celestial	0 08		0 12
" Prussian	0 65		0 75
Brown, Vandyke	0 10		0 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	0 90		1 00
" American	0 25		0 35
Whiting	0 85		1 25
White Lead, dry, gen.	0 07½		0 09
" " " No. 1	0 06½		0 08
" " " No. 2	0 05½		0 07
Yellow Chrome	0 12½		0 35
" Ochre	0 02½		0 03½
Zinc White, Star	0 10		0 12

Colors, in Oil.

Blue Paint	0 12	@	0 15
Fire Proof Paint	0 06		0 08
Green, Paris	0 32		0 37½
Red, Venetian	0 07		0 10
Patent Dryers, 1lb tins	0 14½		0 16
Putty	0 03½		0 04½
Yellow Ochre	0 08		0 12
White Lead, gen. 25lb tins	2 35		—
" " No. 1 "	2 10		—
" " No. 2 "	1 90		—
" " No. 3 "	1 65		—
" " Com. "	1 30		—
White Zinc, Snow	3 00		3 50

Naval Stores.

Black Pitch	4 50	@	5 50
Rosin, Strained	3 75		4 50
" Clear, pale	6 50		10 00
Spirits Turpentine	0 65		0 70
Tar Wood	4 00		5 00

Oils.

Cod	0 65	@	0 70
Lard, extra	1 25		—
" No. 1	1 12½		—
" No. 2	1 05		—
Linseed, Raw	0 76		0 82
" Boiled	0 81		0 87
Olive, Common	1 35		1 60
" Salad	1 95		2 30
" " Pints, cases	4 25		4 50
" " Quarts	3 60		3 75
Seal Oil, Pale	0 87½		0 00
" " Straw	0 75		0 80
Sesame Salad	2 40		1 75
Sperm, genuine	0 95		—
Whale, refined	0 95		1 00

Trade Report.

Business during the past month has, on the whole, been considerably better. Many large buyers having been down; these, though generally complaining of the scarcity of money, have bought pretty extensively, showing their confidence in an improved state of things for the summer months.

Goods have come forward slowly, causing, in some instances, very great inconvenience; the demand seeming always to be for those articles dealers were completely out of.

Prices, as a rule, remain steady, but some few leading articles have advanced considerably. Opium is held a little less firmly. Carbonate Ammonia is costing equal to two cents per lb. more, and still rising. Vanilla, of fine quality, is exceedingly scarce, both here and in London. Indigo has advanced one shilling, to one and six pence, sterling, per lb. American Oil of Pepperment could not now be laid down to sell at our former quotations. Assafœtida, Cantharides, Hond. Sassaparilla, and Quinine, are also higher; the latter has been very scarce in this market, but stocks are looked for very shortly.

Our list of articles which have fallen in price is not very extensive, the only ones worth noticing being Camphor, Croton Oil, and Olive Oil.

Notes and Queries.

Y.—CHLORODYNE.—There have been many formulæ published for this popular preparation, but which is the correct one, we are unable to say. The following is given in Squire's *Companion to the Pharmacopœia*:—

Chloroform	4 oz
Ether	1 oz.
Rectified spirit	4 oz.
Treacle	4 oz.
Ext. licorice	2½ oz.
Muriate of morphia	8 gr.
Oil of peppermint	16 m.
Prussic acid (2 per cent.)	2 oz.

Dissolve the muriate of morphia and the oil of peppermint, in the rectified spirit; mix the chloroform and ether with this solution; dissolve the extract of licorice in the syrup, and add the treacle; shake these two solutions together and add the prussic acid.

W. A. W., Hamilton,—Wishes to know "what would give an apple flavor to vinegar, in order to make 'cider vinegar' without the use of apples?"

An essence for this purpose may be made by mixing—

Amylic valerate	10 parts.
Sp. ether nitros	2 "
Glycerine	4 "
Alcohol	4 "

The amylic valerate is prepared by mixing—

Amylic alcohol	1 part.
Sulphuric acid	1 "

Allow the mixture to cool, and add—

Valerianic acid	1½ parts.

Digest in a flask with a gentle heat; add a little water, when the other will float as an oily layer; separate by means of a funnel, and wash the product with a solution of carbonate of soda. Rectification is not necessary.

Changes.

McCallum & Cameron have bought out T. G. S. Nevills, New Hamburg, and increased the stock.

Chamberlain & Gibbard are opening a new stock of goods in Strathroy, at Geary's old stand.

Magurn & Willmott, Brampton, have dissolved partnership. Business is now carried on under the style of Magurn & Bannister.

Blake & Culver, Delhi, have dissolved partnership. The business is continued by Mr. Blake.

Horatio A. Wilson, Paisley and Invernay, has disposed of the latter branch of his business to R. G. Robinson.

George Pringle continues the business formerly carried on by Pringle & Hawes, Cornwall.

W. Yates continues the business formerly carried on by Dawson & Co., at Prince Albert.

S. J. Foss & Co., Sherbrooke, have dissolved partnership. G. C. Foote goes out. The remaining partners continue the business under the old style.

A new store has been opened by G. J. B. Lang, at Owen Sound.

George Denham is about commencing business at Petrolia.

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