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Original Papers.

THE PURIFICATION OF BISMUTH.

BY E. B. SHUTTLEWORTH.

Read before the Canadian Pharmaceutical Society, at their Monthly Meeting, March 3, 1868.

As the bismuth of commerce is almost invariably contaminated with other metals, its purification constitutes an essential step in the preparation of any of its compounds for medical use. Nor should this process be partial in its results, at least, in regard to those impurities which are of a dangerous character. Several disastrous accidents are said to have arisen from the employment of the crude metal containing arsenic; and this element is very frequently present, to a greater or less extent. Lead is often found in commercial bismuth, and may find its way into the preparations also. With regard to copper, it is not probable that any serious result would ensue from its presence, as the proportion is very small; but it effectually spoils the appearance of liquor bismuthi, even when in minute quantity. A paper read recently before the Pharmaceutical Society of Great Britain, by C. H. Wood, states the amount of copper in different samples of bismuth to vary from 0·04 to 0·1 per cent., thus giving about the 5-1000ths of a grain to the dose of liquor bismuthi prepared from the most impure specimen. This is just sufficient to give a tinge of color, which, to a customer's mind, may be strongly suggestive of a bad preparation—but, as Mr. Altfield justly observes—"chemists and druggists, generally, depend too much on the eye and too little on the test tube," or in other words, they strain at the gnat—copper, and swallow the camel—arsenic. After all, however, appearance is something—and more especially, when a preparation, which should be colorless, turns out of a bright green or blue. Very recently, I dissolved a quantity of bismuth procured from an English house of good repute, and marked "purificatum," which strongly indicated a larger amount of copper than Mr. Wood's worst sample—as the solution was of a deep and decided emerald green. Moreover, I have remarked that liquor bismuthi, with even a tinge of copper, has a certain metallic and inky taste, which, if only out of consideration for the patient's palate, should be avoided. Silver is often associated with bismuth, in nature, and its occurrence in the oxychloride, prepared from the crude metal, has given rise to the statement to be found in many works on chemistry—that the compounds of bismuth darken by exposure to light—this only takes place, however, when they contain silver. The favorite cosmetic—pearl white—is sometimes composed, in part, of this impure oxchloride, and occurrences are not rare where the alabaster brow of a belle, has, after an afternoon's promenade, assumed a delightful lavender tint, or perhaps, a lead grey—a result not at all surprising to the chemist, but certainly calculated to provoke remark amongst the uninitiated. Of course the presence of arsenic in pearl white, proves absolutely dangerous to those employing it.

In addition to the impurities above mentioned there are others of less frequent occurrence, existing only in minute quantity, comparatively inoccuous, and therefore of minor importance to the pharmacist, such as gold, iron, sulphur, nickel, cadmium, thallium, etc. In regard to thallium, I may say, that if taken internally, it communicates an exceedingly offensive and disgusting odor to the person, which, if the patient perspire freely, becomes much aggravated. A certain doctor, whose name I forget, in experimenting with this element, found this disagreeable effect to continue for many weeks. Such a consequence might follow from the use of impure bismuth compounds, but is not very probable.

My remarks will be confined principally to the separation of arsenic and copper, but those desirous of obtaining the metal chemically pure can obtain all the necessary information by reference to the article "Bismuth," in Watt's *Dictionary of Chemistry*.

There are two ways employed by chemists for removing arsenic, which may be termed the *dry* and *wet* methods. I am not aware who originated the first, but it has been adopted by the *British Pharmacopœia*, and is recommended by Gmelin, Watts, and many other authorities. The latter mode was proposed by Wittstein, and subsequently brought into notice by Dr. Herepath, and is without doubt the best of the two, as far as practical results are concerned.

The Pharmacopœia process, if well performed, is effectual in removing arsenic, and also in diminishing the amount of copper, but is always attended with considerable loss of bismuth also. In inexperienced hands it is by no means economical, as by raising the heat a little higher than indicated, the metal is rapidly oxidized. As far as my own experience goes, I should advise that the fusion be made in an ordinary iron melting ladle, instead of the prescribed crucible; and that the quantity of nitre be increased to one-half the weight of the bismuth. By adopting this plan the heat is more perfectly under the control of the operator, as the ladle can be held over an ordinary fire, and instantly withdrawn if too hot. By imparting a gyratory motion every particle of the metal comes into contact with the nitre which

floats on the top. The additional quantity of nitre allows of the fusion being continued a much longer time than when a small portion is employed, but with a smaller loss of bismuth. One fusion will generally be found sufficient. By oft repeated fusions the copper may be so far diminished as to be inappreciable in a dilute solution, but the process is not to be recommended, as incurring too great waste.

It was formerly thought that by dissolving bismuth in nitric acid, and precipitating the sub-nitrate by the addition of water, that any arsenic that might be present would be found in the supernatant liquid. It has been found that such is not the case, as by the action of the nitric acid, the arsenic is converted into arsenic acid, forming with the bismuth an insoluble arseniate, which is precipitated with the sub-nitrate.

The method of Wittstein consists in dissolving the metal in nitric acid, and boiling with a solution of caustic potash, or soda—the bismuth is precipitated first as a hydrated oxide, which loses water by boiling, and is changed thus to anhydrous oxide. In this state it can be used for most pharmaceutical purposes, even with greater convenience than the metal itself.

There is still another method which may be pursued to advantage, namely, purification by crystallization. This plan is particularly applicable to the preparation of liquor bismuthi. By evaporation of the nitric solution to the crystallizing point, crystals of the ternitrate may be obtained of tolerable purity. By repeating the process the greater part of the impurities—and especially the copper—are left in the mother liquor.

There is only one method, of which I am aware, for the perfect separation of copper. It consists in forming a solution of nitric acid, and adding liquor ammonia until all the oxide is precipitated. It must be remembered that this oxide is soluble in ammonia, and care must be taken that the precipitant be not in excess. The precipitate must be well washed with water, and may be easily reduced to the metallic state, but for preparing the compounds of bismuth it is preferable to the metal itself. Liquor bismuthi made from this oxide is perfectly colorless, and well repays the trouble expended upon it—being a credit to the manufacturer—and this is, otherwise, seldom the case.

ALUMINUM.

BY PROF. C. A. JOY.

Forty years ago a few grains of this metal were prepared by Professor Woehler, at the University of Goettingen. He sealed the little pellets in a glass tube, and it was not thought that the metal could ever have any useful applications. The discovery rested dormant for thirty years, when attention was called to it by the eminent French chemist, Deville.

The circumstances were as follows: The Emperor Napoleon, anxious to display some interest in scientific matters, appropriated fifty thousand francs to defray the expenses of researches into the properties and uses of aluminum, and Henry St. Claire Deville was authorized to make the experiments. We happened to be in Paris when this took place, and were one day invited by Professor Deville to witness the preparation of the metal in the presence of the Minister of War, Professor Dumas, and of other celebrities. Deville, who is the most genial, popular, and successful of the French chemists, received his guests with great cordiality, and explained, in the clearest possible manner, every step of the operation. He extracted a pure, silver-white metal from a lump of clay. The way he did it was very simple. Chlorine gas was passed over heated clay mixed with charcoal, and the chloride of aluminum thus produced was driven over melted sodium. The chlorine first extracted the metal from the clay, and was in turn decomposed by the sodium. In chemistry, might makes right, and every compound can be attacked and forced to capitulate, if the proper weapons are brought to bear upon it. The aluminum was first seduced from its strong citadel of clay by the chlorine, and was then attacked and captured by the sodium.

The experiments, in a small way, having proved successful, extensive works were established in the neighborhood of Paris, where aluminum was manufactured on a large scale. At the Paris exhibition of 1867, Mr. Paul Morin exhibited numerous objects manufactured from pure aluminum and from its alloys.

The specific gravity of the metal is 2·67. It is tin white, fusible at a red heat, brilliant, malleable, ductile, sonorous, an excellent conductor of electricity, insoluble in dilute sulphuric acid, and in concentrated nitric acid; easily soluble in hydro-chloric acid and the alkalies. It does not decompose water, as was at first supposed, and does not oxidize materially in the air.

Professor Henry Wurtz, of New York, has recently discovered that if it be rubbed with mercury it oxidizes so rapidly as to produce great heat. It was at first found impossible to solder the metal, but this difficulty has been at length overcome. When fused with iron it forms a crystaline mass not malleable. Mixed with copper in the proportions of ten parts of aluminum, and ninety parts of copper, it forms a beautiful alloy, possessed of the color and many of the properties of gold. This alloy is called aluminum bronze, and is now frequently employed for the manufacture of watch cases, watch chains, and imitation jewelry. Nearly all the aluminum now manufactured is converted into the above alloy and the interest in it, which at one time began to flag, is once more revived, and several new establishments have arisen for its manufacture.

Four hundred pounds a month are now manufactured in France, and sold at twelve dollars a pound. It is largely produced in England.

Aluminum is one of the most abundant metals on the earth. It is found in brick and porcelain clay, in feldspar, in cryolite, in granite, in slate rocks, in the ruby and sapphire. When iron rusts, it turns to a red

powder, which can be washed away. When aluminium rusts, or is fused at a great heat among the crystalline rocks, it gives to us the precious stones called the ruby and sapphire.

As soon as the metal is required in large quantities, some method will be devised for producing it at a cheap rate; and when that time arrives we shall not have to fit out expeditions to go and search for the ore in remote regions, but we can dig for it under our feet, nearly everywhere, and make a mine of every stone quarry.

The beautiful tone of the metal has suggested its use in the manufacture of bells, and a successful application of it for this purpose has been made.

Aluminum has been employed by chemists as a reducing agent in the preparation of some of the rare metals, and we may have to record a more extensive use of it for this purpose.

There have recently been introduced into use in Paris two new allows of aluminum. The first is called aluminum silver, or third silver (tiers argent), and is composed of one-third silver and two-thirds aluminum. It is chiefly employed for forks, spoons, and tea service, and is harder than silver and more easily engraved. The second is called minargent, and is made of one hundred parts copper, seventy parts nickel, five parts antimony, and two parts aluminum. It is a very beautiful, permanent, and brilliant alloy, capable of replacing silver for many purposes.

It must be acknowledged that the applications of aluminum in the arts are not so numerous as was at first predicted, and its manufacture, as compared with other metals, can, at the present time hardly be called a metallurgical one. The metal is so light that a little of it will go a great way. A cubic foot of it weighs one hundred and sixty-eight pounds, whereas a cubic foot of gold weighs twelve hundred pounds, and silver weighs six hundred and fifty-six pounds, iron four hundred fifty pounds, and even granite weighs one hundred and eighty-six pounds to the cubic foot.

If the price of it were the same as that of silver, it would still be much cheaper, as only one-fifth as much would be required to cover the same space.

So abundant is this metal, that it is safe to predict that the day is not far distant when our houses may be built of it instead of bricks, and we shall use it for many purpose now unknown.—*New World.*

Carbolic Acid Plaster.

BY WILLIAM MARTINDALE.

Professor Lister, of the Glasgow Infirmary, having been led by the experiments of M. Pasteur, proving the germ theory of fermentation and putrefaction, and the action that carbolic acid has of destroying the vitality of these germs, has on these founded what is called "the antiseptic system of treatment in surgery," a series of papers on which he has published in the *British Medical Journal*. The principle on which he proceeds is, that after the operation, air shall, as much as possible, be excluded from the wound, and that the dressings applied shall yield a constant supply of carbolic acid in a state of vapor, so that any "germs of organisms" which might obtain access to the part would become inert, their vitality being destroyed. By this means no sloughing takes place, putrefaction is entirely arrested, and the formation of unhealthy *pus*, which in the ordinary treatment causes such a drain upon the patient, is avoided. It is, in fact, "healing by the first intent."

Among the dressings employed, one of the first he used was a carbolic acid putty, made by mixing boiled linseed oil and whiting, with the addition of one part of carbolic acid to four of the oil. But this he found a somewhat clumsy and inconvenient preparation. He next tried a carbolic acid plaster, made by mixing *emplastrum plumbi* with one-fourth of beeswax to give it sufficient consistence, and carbolic acid in the proportion of one-tenth of the whole. This is spread on calico, in a layer of about one-twentieth of an inch. It is, however, inconveniently soft, and cannot be kept spread in stock. He says, "I have since found that by increasing the proportion of litharge, the lead-soap may be made to any degree of firmness that may be desired, provided that water be not used in the manufacture. When the litharge and olive oil are in the proportions directed by the Pharmacopœia, a certain quantity of water must be added to promote the combination of the fatty acids with the oxide of lead, and even then the process is a very tedious one. But it is an interesting fact, chemically, that if a litharge is used in about four times the Pharmacopœial proportion, although no water be employed, the combination proceeds under a brisk heat with great rapidity. It is upon this fact the following method of manufacture is based:

"Take of

Olive oil 12 parts (by measure).
Litharge (finely ground) 12 parts (by weight).
Beeswax 3 parts (by weight).
Crystallized carbolic acid, 2½ parts (by weight).

Heat half the olive oil over a slow fire, then add the litharge gradually, stirring constantly till the mass becomes thick or a little stiff; then add the other half of the oil, stirring as before, till it becomes again thick. Then add the wax gradually, till the liquid again thickens. Remove from the fire, and add the acid, stirring briskly till thoroughly mixed. Cover up close and set aside, to allow all the residual litharge to settle; then pour off the fluid, and spread upon calico to the proper thickness. The plaster made in this way can be spread by machine, and kept in stock; and, if in a well-fitting tin sanister, will retain its virtues for any length of time."

But for almost all purposes the antiseptic lead plaster is superseded by his lac plaster, which is made in this manner:

"Take of

Shellac, 3 parts.
Crystallized carbolic acid, 1 part.

Heat the lac with about one-third of the carbolic acid over a slow fire till the lac is completely melted; then remove from the fire and add the remainder of the acid, and stir briskly till the ingredients are thoroughly mixed. Strain through muslin, and pour into the machine for spreading plaster; and, when the liquid has thickened by cooling to a degree ascertained by experience, spread to the thickness of about one-fiftieth of an inch. Afterwards, brush over the surface of the plaster lightly with a solution of gutta percha in about 30 parts of bisulphide of carbon. When the sulphide has all evaporated, the plaster may be piled in suitable lengths in a tin box, without adhering, or

rolled up and kept in a canister." The coating of gutta percha, through which the acid permeates freely, is given to prevent it adhering to the skin, as "it is desirable that such a dressing should adhere very slightly, if at all. It has this great advantage over the antiseptic lead plaster, that it cannot be softened either by a watery or an oily fluid." If made to contain much less than 25 per cent. of the acid, it is brittle, but this may be avoided by the addition of spirit of wine in an equivalent quantity, as this sample contains 12½ per cent. of acid and the same of spirit.

These plasters are generally kept applied to the part by means of ordinary adhesive plaster strapped round the edges of the piece employed. But to avoid any chance of germs getting access to the wound, to the adhesive plaster before spreading, he directs 1 per cent. of carbolic acid to be added.

Many other applications are used in this system of treatment, but these plasters being interesting pharmaceutical preparations, I have thought worthy of bringing under your notice this evening.

The samples exhibited were prepared in the Hospital Dispensary. — *Pharmaceutical Journal (Eng.).*

Hair and Hair Dyes.

The attention which we called some time since, to the new and perfect black hair dye which Dr. M'Call Anderson lately incidentally hit upon, produced a long series of commentaries from accomplished dermatologists and others, well qualified to speak on the not uninteresting subject. Mr. Erasmus Wilson, a leader amongst the professors of dermatology, now enters upon, and discusses the whole question in a series of very interesting observations in the *Journal of Cutaneous Medicine.* He observes, that the hair owes its property of dyeing to its porosity; which is evidently greater than its physiological structure would lead us to infer. Another of its properties, namely, the presence of sulphur in its constitution, renders it prone to darken under the use of certain mineral substances; for example, lead and mercury, whose compounds with sulphur are black. Thus if a weak solution of lead or mercury be brushed into the hair, a certain quantity of the solution will penetrate the hair, and a dark color will be produced in consequence of the formation of a sulphuret of lead or sulphuret of mercury. The depth of the shade of color will depend upon the quantity of sulphur present in the hair, and as red hair and light-colored hair contain more sulphur than dark hair, the result will in that case be comparatively greater. But where the amount of sulphur is too minute to produce the dye, science suggests the means of introducing more sulphur, as is illustrated, by a reversal of the process, in the following quotation from a paper by Dr. M'Call Anderson on *Eczema marginatum:* "During the treatment I accidentally discovered what promises to be the most perfect black dye for the hair which has been seen. After having used the bichloride lotion for some weeks, I changed it for the lotion of hyposulphite of soda and the morning after the first application, the hair of the part which before was bright red, had become nearly black. One or two more applications rendered it jet-black, while neither the skin nor the clothing was stained. I saw this patient a couple of weeks later, and there was not the least deterioration of color; although, of course, as the hair grows the new portions will possess the normal tint." The reason of the escape of the epidermis, while the hair was so thoroughly dyed, is that it contains no sulphur. Mr. Balmanno Squire, in a commentary on the above process, observes that if instead of the hyposulphite of soda one of the more common mordants be employed—say, for example, the sulphide of ammonium, "instead of a black, a bright red color will result. The *modus operandi* of Dr. Anderson's dye is this. The hyposulphurous acid, on being liberated from the soda, decomposes into sulphurous acid and sulphur. The sulphurous acid reduces the bichloride of mercury to the chloride, and the sulphur converts the chloride into (black) sulphide. The effect of the sulphide of ammonium on bichloride of mercury is to produce the (red) bisulphide which is the common vermillion of commerce." Another commentator on "hair dyes" observes that, with the barbers the "sheet-anchor appears to be lead and lime." And again it is recommended to "first wash the hair with a solution (ten grains to the ounce) of nitrate of silver; then use a weak solution of pyrogallic acid, and wash." An interesting article on the subject, from the pen of an able chemical writer, Dr. Scoffern, may be found in the May number of *Belgravia,* under the head of "Cosmetics for the Hair." Dr. Scoffern reminds us that the Persians employ indigo to procure a blue-black dye, and the Turks and Egyptians a "pasty writing ink," composed of pyrogallic acid in combination with a native ore of iron, while in the West the chief constituent of hair-dyes are metallic bodies and walnut-juice. The metals chiefly in use as "capillary chromatics" are silver, lead, and arsenic; while others applicable to a similar purpose are gold, bismuth, iron, copper, cadmium, titanium, uranium, and molybdenum. Lead, in its crudest form, is represented by the leaden comb; but as the process by this means is slow, a compound of oxide of lead or litharge, with lime, and made into a paste with water, is more commonly employed. This is smeared on the hair at night, the evolved gases being imprisoned by an oilskin cap, and in the morning the dried paste is brushed out, and the hair refreshed with pomatum. Or, if a so-called brown, a "smothered" or "fusty black" be required, the paste should be mixed with milk instead of water. The night is preferable for these remedies, because the hair is supposed to exhale more sulphur at this period than during the day. These preparations remind us of a lotion in common use at the present time, consisting of a drachm of acetate of lead with twice the quantity of sulphur to half a pint of water. The nitrate of silver is another common form of dye, but it is open to the objection of staining the skin, and, in fact, everything it touches, and also of becoming iridescent on exposure to light, producing, as Dr. Scoffern observes, a "chromatic play of tints," which is very undesirable. Bismuth presents the same characteristics as lead, but is not much used; and when iron is employed to produce a black tint, it requires for its mordants either the pyrogallic acid or the hydrosulphate of ammonia. Brown is produced by the chloride of gold alone, as also by a solution of sulphate

of copper with a mordant of the prussiate of potash (ferrocyanide of potassium); and titanium, uranium, and molybdenum, judged by their chemical behavior, would give rise to similar results. The "golden-yellow color," so much in fashion of late, is produced by a solution of arsenic with a mordant of the hydrosulphate of ammonia. And cadmium would probably give rise to a similar result. In the case of dyeing the lighter tints, however, it becomes necessary to submit the hair to a process of bleaching, which is commonly effected by a solution of one or other of the alkalies, by chlorine, by the chloride of soda or lime, or by sulphurous acid, bi-sulphate of magnesia or lime, or peroxide of hydrogen. In general, the dyes requiring mordants do not stain the epidermis. —*British Medical Journal.*

Note on the Adulteration of Precipitated Sulphur.

BY PROFESSOR ATTFIELD.

Why is precipitated sulphur still usually adulterated to a scandalous extent with what may be termed plaster of Paris,—hydrous sulphate of calcium ($CaSO_4$, $2H_2O$)? Nearly every book on chemistry and materia medica states that instead of being made by mixing hydrochloric acid and polysulphide of calcium, it is often prepared by the reaction of sulphuric acid and the sulphur salt, the result being precipitated sulphur (identical, so far, with the official article—*Sulphur præcipitatum* B. P.), but mixed with more than an equal weight of the calcareous mineral compound, which when well dried constitutes plaster of Paris. Every chemist and druggist therefore, knows, or ought to know, that precipitated sulphur is more likely to be impure than pure, and yet the employment of the adulterated variety seems on the increase. From the following table it will be seen that out of eight samples which I recently purchased (for quite another purpose) within an area of a mile, only one was pure, one contained nearly half its weight of calcareous matter, and each of the others was actually two-thirds impurity and only one-third precipitated sulphur. In explanation of this condition of things, the statement is commonly made that the public has become so accustomed to the satiny appearance of the impure article (due to the scientific character of the adulterant) as to regard the pure with suspicion, often refusing to purchase it. I cannot believe in the general application of this explanation. The public, surely, places too much confidence in a pharmacist's knowledge of drugs to persist in refusing a pure in favor of an impure chemical. Therapeutists cannot hope to arrive at a rational system of medicine unless the followers of pharmacy combine to crush the practice of adulteration. Precipitated sulphur is, doubtless, an exception to the general rule that drugs are less adulterated now than formerly, but clearly there is room for much improvement.

No.	Impurity in 100 parts of the "Sulphur."
1	66⅔
2	43⅓
3	66⅔
4	66⅔
5	66⅔
6	64⅓
7	pure
8	64½

Chemists and druggists, their customers, and medical practitioners, should refuse to purchase any precipitated sulphur which leaves a white ash when a little is burnt off on the end of a table-knife or spatula. (The sulphur does no more damage to the steel than a rub on a knifeboard will remove.)—*Pharmaceutical Journal* (England).

Note on Aromatic Sulphuric Acid.

BY PROFESSOR ATTFIELD.

A short time ago I was asked whether or not the official * aromatic sulphuric acid contained sulphovinic acid. Aromatic sulphuric acid is made by mixing gradually 3 volumes of sulphuric acid with 40 of rectified spirit, and then adding certain aromatics (cinnamon and ginger). Sulphovinic acid is also made by mixing sulphuric acid and spirit, but the volumes should be equal, the alcohol as nearly absolute as convenient, a temperature considerably above that of boiling water applied to the mixture, and the material allowed to digest together for twenty-four hours: even then the whole of the alcohol is not converted into sulphovinic acid. From these facts we should infer that sulphovinic acid is not formed to any considerable extent in making aromatic sulphuric acid. Still there is some rise of temperature in mixing 3 volumes of sulphuric acid with 40 of rectified spirit, hence the production of a small quantity of sulphovinic acid might be considered possible. To ascertain whether or not this were so, a portion of the diluted spirit was treated with carbonate of barium; the sulphate of barium separated by filtration, washed with water and acid, dried and weighed. The filtrate, which would contain suphovinate of barium, if sulphovinic acid had originally been present, was evaporated to a small bulk over a water-bath. The weight of the sulphate of barium corresponded with that of the sulphuric acid whence it was obtained; indeed, it was apparently somewhat greater —a result due, probably, to loss of alcohol during manipulation, and a corresponding increase of strength of the diluted acid. The filtrate from the sulphate of barium finally dried up without giving any sulphovinate of barium. These experiments were repeated, after the mixture of sulphuric acid and spirit had been set aside for fourteen days, with the same result; indicating that sulphovinic acid is not formed after a time. They were also repeated after due maceration with the aromatics, but, again, no sulphovinic acid was obtained. We are, therefore, now in a position to state that aromatic sulphuric acid, when made according to the Pharmacopœia, contains no sulphovinic acid.—*Pharmaceutical Journal* (England).

* The Pharmacopœia and all in it is official (*office*, Fr. from L. *officium*, an office) There are many things which in pharmacy are official (Fr. from L. *officina*, a shop) but not official. To restrict the word *officinal*, first to the contents of a pharmacist's shop, and, second, to that portion of the contents which is Pharmacopœial, is radically wrong, and in future should be avoided.—J. A.

Sulphur in Louisiana.

It is well known to the public that for some time past the work of boring for oil has been prosecuted in Calcasieu Parish, near Lake Charles, by an association under the title of "The Louisiana Petrolum and Oil Company." Recently, after reaching to a depth of 442 feet the labors of the company were rewarded by finding a strata of crystallized sulphur some two feet thick and very pure in quality. In boring further, it was found that for a distance of 90 feet the auger passed through lime rock which yielded about fifty per cent of sulphur, with occasional strata of 6 to 8 feet in thickness of pure sulphur. The treasurer of the company says that the boring has now reached to a depth of 600 feet. It is a great misfortune that the depth of these deposits of sulphur are so far below the surface of the earth, as the cost of mining will be so much enhanced in consequence.—We learn, however, that it is the intention of the company soon to commence the working of these mines, trusting that the wealth to be realized from the sale of a commodity in such general demand and of so great a market value, will amply compensate for all outlays. *New Orleans Price Current.*

Test for Illuminating Petroleum.

The Corry (Pa.) Kerosene Oil Works recommend the following as a simple manner of determining the fire test of kerosene oil: "Take a cup or tumbler, fill it nearly full of water (previously tested by the thermometer to be 110° or 111° Fah.), then take a tablespoonful of the oil, of which it is desirable to test the igniting point, immerse it in the water, and stir for a moment or two to permit the oil to reach the equal temperature of the water, pass a lighted match very closely over the surface of the oil once, which always floats on the water. If it does not ignite, it can be safely used, but if it does ignite, discard it, however low the price may be; this is a fair and sure test as far as safety is concerned. The other so desirable a point—does the oil burn brilliantly and without charring the wick?—the experience of every family will soon detect. Something depends upon the wick, and something upon the lamp; but properly manufactured oil is the main thing needed."

The Effect of Cold on Tin.

It is stated in a recent number of the *Comptes Rendus* that, according to Herr Fritsche, tin exposed at St. Petersburgh last winter to a temperature of forty degrees below zero was converted into a semi crystalline mass containing cavities like basalt. In masses of tin weighing from 55 to 65 pounds, these cavities in some cases had a volume amounting to nearly 24 cubic inches. According to M. Dumas, facts of this kind are not new in Russia; for instance, in one case the pipes of a church organ were so altered by the cold as to be no longer sonorous.—*Journal of Mining.*

Quicksilver.

It is asserted that the increased production of the California quicksilver mines has stimulated the workings of the old Almaden mines in Spain, and the Austrian mines in Idria, and that the price of this metal has fallen in consequence in London, where it is fifteen per cent. lower than it was four or five years ago. California now sends quicksilver to various places in the following order of their importance—the first mentioned taking the smallest quantity; British Columbia, Australia, South America, Great Britain, New York, Mexico, and, during the past year, China, which was the best customer.

PUBLISHERS' NOTICE.

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

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

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

W. H. DUNSPAUGH, *Chairman.*

J. T. SHAPTER. H. P. BRUMELL.
JOHN COOMBE. N. C. LOVE.
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E. B. SHUTTLEWORTH, *Editor.*

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

J. M. TROUT, PUBLISHER,
Canadian Pharmaceutical Journal,
Toronto.

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., MARCH, 1869.

POPULAR LECTURES AS A MEANS OF INSTRUCTION.

New York appears to be awaking to her scientific interests. During the winter, lectures have been delivered in the various departments of science, and apparently with great success. A new fashion of public taste has been developed which will undoubtedly lead to the best results.

We should like to say the same of some of our Canadian cities, as we regard popular scientific lectures as the most powerful means that can be used to build up an interest in scientific things. Details which would otherwise be accounted intolerably "dry," assume the most attractive shape in the hands of a clever lecturer; and facts of the mosts sterile and uninviting aspect to the popular mind are clothed with an interest which could, by no other means, be secured. When once a desire for knowledge is excited, the satisfaction of its cravings becomes a matter of necessity; and that desire is never so easily promoted as when approached under the guise of amusement. Where one seeks for instruction, a thousand clamor for pleasure, and the skilful lecturer, in gratifying one desire, is sure to implant the germ of the other, which will often spring up and bear abundant fruit. Many a scientific man of renown can trace the first dawnings of his greatness to a popular lecture. We regard lectures precisely as better men than ourselves regard sermons—as the best means of gaining proselytes—they, by "the foolishness of preaching," catch sinners, we, by similar appeals, make many converts to the great cause of science, in whose ranks we are employed.

It is highly necessary that something be done in Canada to awaken a scientific interest amongst our young men. The slumber is too profound for any spasmodic effort, or occasional lecture to be of any effect. Long and continued exertion is required, and the best talent in the country must be made available. We are occasionally surprised by a solitary lecture—perhaps on chemistry. There is the same invariable attendance—in the first seat the newsboys who circulated the handbills; then a few old fogies like ourselves, with an occasional sprinkling of antiquated females of blue-stocking proclivities and green spectacles. Where, we would ask, are our young men?—and indeed, our young women also? for we have seen, in other countries, thousands of both sexes thronging night after night to the lecture room, eager for instruction. Perhaps a stifling saloon or a sleepy fireside could answer our enquiry.

We have been asked what is the reason of this state of things. It is not that Canadians are less intelligent, or less energetic than other nations. It lies, we think, in the fact that Canada is a new country. Hitherto the struggle has been for existence—for a livelihood, or a competency. More important and necessitous matters have taken up the attention of the people—matters connected with the country and government, which demanded imperative settlement. Science has slight claims while the farm is uncleared and the house unbuilt. But now the time has come when there is time to think of intellectual improvement, and we hope the example set by New York will not go unimproved.

Our remarks have been, in part, provoked by a visit to the chemistry class held in connection with the Mechanics' Institute of this city, and to which our pharmaceutical students are attached. The attendance on the part of the public, represented by the Institute students, was of the most meagre description, the main part of the class being composed of young druggists, who, we are pleased to learn, have been pretty constant and diligent in their studies. At the request of the Professor, we gave the students an hours's "grind" with very satisfactory results. The session is now nearly over, and we hope, at its close, that our "pharmaceuticals" may come in for a lion's share of the prizes.

EDITORIAL SUMMARY.

The shipments of opium from Smyrna, for the last ten years, average 3,000 cases per year.

The term "pharmacist" is rapidly taking the place of "pharmaceutist," in England. It is certainly more euphonious.

Dr. Letheby states that in South America, at least two million beasts are annually slaughtered for the fat, skin and bones, alone.

CHERRY-LAUREL WATER.—This preparation has been made the subject of a paper by C. Umney, F. C. S., published in the *Pharmaceutical Journal*, (Eng.) It appears to be very uncertain and variable in composition, and especially in regard to the amount of hydrocyanic acid it contains. Three specimens of the water made at different seasons—March, July and November, yielded, respectively, 1·26—1·08 and ·64 grains of real acid in 1000. It is also stated that after the lapse of a week, the water has been found to be but little over half the original strength.

There is quite a *furore* in Scotland, arising from the discovery of gold in alluvial deposits, about ten miles from the village of Helmsdale, on the northeast coast. At present these diggings do not prove very remunerative—about 2s. 4d. per week being the average per man. Professional diggers, however, have strong hopes, and think that with improved methods, pursued on an extensive scale, something handsome can be realized.

Oleography.—This is a new term signifying the art of transferring the cohesion figures of liquids to paper or other material, so that they may be preserved. A very ingenious and simple process, for this purpose, has been devised by Dr. Moffat, of Glasgow, which consists in dropping the oil on the surface of water, and laying a sheet of glazed paper upon it for an instant, withdrawing it, and placing it upon a plate containing ink. On washing off the ink a perfect and beautiful representation of the figure will be found. By employing a solution of cochineal or any other coloring matter, the tint may be varied. We think this simple process might be made of great utility to druggists, as a means of testing the purity of their oil, balsams, &c.

Liq Opii.—The following formula is recommended by T. B. Groves, *(Pharmaceutical Journal)*, for the preparation of Liq Opii, free from narcotine and meconic acid. It bears a strong resemblance to Battley's solution :—

Powdered opium	1½ oz.
Prepared chalk	0½ oz.
Rectified spirit	5 fl. oz.
Distilled water	q. s.

Boil gently, for half-an-hour, the opium and chalk with one pint of distilled water; filter; wash up to fifteen ounces, and add the spirit. After a days repose, filter again. It improves much by being kept. The narcotine may be extracted from the chalk by boiling with rectified spirit, if thought worth recovering.—The liquor has the same strength as Tinct. Opii, P. B.

Ancient Pharmacy in Scotland.—At a recent festival of the Glasgow Chemists' and Druggists' Association, the chairman said that the late Act was by no means the first that had been passed in the West of Scotland.—As early as 1599, James the Sixth gave a charter to Maister Peter Low, and two other worthies, to call before them and examine all apothecaries ; "and if they be found worthy, to admit, allow and approve thame, give thame testimonial according to their airt and knowledge," "and to discharge thame to use onlie farder nor they have knowledge passing their capacity, laist our subjects be abusit." The penalty imposed on unlicensed persons was the "confiscutioune of the droggis."—Stringent regulations were enforced regarding the sale of poisons, as the Act says, "*Sexthie*—That nane sell ratoun poison asenick or sublimate, under the pane of one hundred merkis, except only the apothecaries, quha sal be bund to take cautioun of the byaris, for coist, skaith and damage." We are not Scotch enough to interpret this latter clause, correctly, but have no doubt it was a wise provision. This old Act bears a very close resemblance to the one now in force, and we strongly suspect that our present legislators are only copyists after all, and that the credit of originality is due to the "land o'cakes."

British Podophyllum.—From the experiments of W. G. Smith, of Dublin, on the root of mandrake grown in the Botanic Gardens of that city, it would appear that the yield of resin is about the same as is obtained from the American variety—about 4·5 per cent. This high yield is the more remarkable as the specimen was grown in a dry and exposed situation, and the plant naturally favors moist and shady places. Mr. Smith tried a number of experiments to determine its cathartic effect, and found that one grain was required to promote a decided action of the bowels. This corresponds with the strength of our Canadian resin, although we have found one quarter of a grain to act very energetically on some persons. The dose of pure podophyllin is often incorrectly stated at from one to three grains—it should be from one quarter to one grain. Cases have come under our observation where the administration of three grains has been attended with very dangerous consequences.

Carbolic Acid as a Poison.—An article on this subject, appeared in a late issue of the *Philadelphia Medical and Surgical Reporter*, by Joseph G. Pinkham, of Lynn, Mass. Our space will not allow of reprinting it in full, but we append a recapitulation of the leading points in the paper :—

1. Carbolic acid is a dangerous poison.
2. It is rapidly absorbed into the system.
3. It is rapidly eliminated from the system, chiefly by the kidneys, but probably, to some extent, also by the other emunctories.
4. The local action of the poison is that of a caustic irritant and sedative.
5. Its general action is that of a powerful neurotic, causing trembling convulsions, giddiness, headache, insensibility, a cold clammy surface, a feeble, intermittent, rapid pulse, great prostration, death.
6. Recovery in non-fatal cases is speedy and complete, when there has been no serious local lesion.
7. The post-mortem appearances are neither constant nor distinctive.
8. There is no known chemical or other antidote of value.
9. In treatment the chief reliance must be placed upon measures of evacuation and stimulation.
10. Aside from the actual detection of the poison in the body, preservation of the body is the most important medico-legal evidence of poisoning with carbolic acid.

The Canadian Builder and Mechanic's Magazine. London, Ontario. March ; Vol. 1, No. 2.

This is the title of a new periodical devoted to the interests of builders and mechanics generally, and containing information of value to all. We hope the attempt to establish a paper in this connection will prove successful.

CANADIAN PHARMACEUTICAL SOCIETY.

The regular monthly meeting of the Society was held at the usual place, on Wednesday evening, 3rd inst., with the Secretary in the chair.

After reading and adoption of the minutes of last meeting, the following gentlemen were proposed as members :

PRINCIPALS.

J. G. King, Kingston.
A. T. Trickey, Lyn.

ASSISTANTS.

Wm. H. Lutz, Galt.
Chas. Lugsdin, Toronto.
Wm. Johnson, Toronto.

With regard to the progress made towards Legislation, the Chairman said that since the last meeting he had received a visit from the President of the Montreal Chemists' Association, Mr. Kerry, who informed him that Col. Bernard at Ottawa, acting under instructions from Sir John A. Macdonald, was now drawing up a Bill based on the recent Pharmacy Act of Great Britain, which would be submitted to the Dominion Parliament at its next session ; but he could not say what alterations in it, if any, would be introduced.

Communications were read as follows:—From Mr. Lowe, Amherstburg, which was referred to the editor of the Journal ; from Mr. C. R. Jones, Ottawa, handed to the Cor. Secretary for reply ; and from John Bond, Aurora, given to the editor of the Journal.

The subject broached at the last meeting, of offering prizes to non-resident junior members of the Society, was then discussed by the meeting, and it was decided to leave the matter in the hands of the Council of the Society to take such action as was thought best.

Mr. E. B. Shuttleworth then read an instructive and practical paper "On the Im-

purities of Metallic Bismuth," and at its close received a vote of thanks.

Meeting adjourned.

JNO. HENDERSON,
Cor. Secretary.

Correspondence.

Poisonous Aniline Dyes.

To the Editor of the Canadian Pharmaceutical Journal.

SIR,—I perceive you have an article in the JOURNAL for February, headed "Poisonous Aniline Dyes," in which Mr. Crooks states that they have, for several years, ceased to use arsenic in aniline colors. The following extracts from Reimann's "Handbook of Anilines (1868), proves that arsenic is still used. At page 38, it says that "none of the methods we have hitherto spoken of are now employed in practice, having been superceded by a method that especially excels in the cheapness of the materials used in the reactions. The process of preparing magenta (fuchsine), by means of nitrate of mercury, is, however, still used in some cases, but its employment is very limited, and I know only two manufactories where it is practically effected. Magenta is now only made by treating aniline with arsenic acid (As O_5)."

Again, in the Appendix (which contains the report on the coloring matters derived from coal tar, shown at the French Exhibition of 1867), at page 114, we find it stated that of all the numerous agents, which at the outset of the aniline color industry, were recommended for the commercial production of rosaniline, arsenic acid, alone, has maintained its position, and is now almost exclusively used.

I am, yours, &c.,
R. W. PUDDICOMBE.

LONDON, ONT., March 4, 1869.

NOTE.—The statement of Riemann, quoted by our correspondent, is confirmed by J. A. Wanklyn, Professor of Chemistry in the London Institution, in a recent communication which appeared in the British *Medical Journal*. We append that portion relating to magenta, as it will, no doubt, prove of interest to our readers.—ED.]

Magenta, the well-known red dye—which is, moreover, the basis of beautiful violets and blues, that are prepared from it by well-known processes—is of arsenical origin. All the magenta made at the present time, and, with a very insignificant exception, all the magenta which has ever been manufactured, is a product of the action of arsenic acid on commercial aniline. At first, and, indeed, even when the manufacture had become largely developed, the dye was sent into the market in a highly arsenical condition. In 1863, I examined beautiful crystals of magenta, samples of the dye produced by a very large continental firm, and found them to contain something like 25 per cent. of arsenic acid. Many tons of solid dye, such as that which I analysed, found their way into the maket. At the present time, it is unlikely that much magenta of this quality is manufactured; but it is in the highest degree improbable that any magenta is quite free from arsenic, and more than probable that some of the varieties which are manufactured contain a very considerable quantity. In fine, we are justified in regarding fabrics which are dyed with magenta as having been more or less impregnated with arsenic. On the other hand, it will be urged that that there can be no absorption of arsenic from a fabric dyed with magenta, inasmuch as the arsenic is chemically combined with the dye-stuff, which, with the fibre coloured by it, constitutes an insoluble compound, and is, therefore, out of the reach of the process of absorption. Unfortunately, however, magenta fades, and is fugitive; it is, in fact, one of the least permanent of all the coal-tar colours; and, as the organic part of the dye decays, the arsenic will be set at liberty, and presented in a form most suitable for absorption. In addition to the possibility of arsenical poisoning from the employment of coal-tar colours, there are other varieties of poisoning to be apprehended. The organic part of these new dyes is unquestionably more or less poisonous. One of the yellow dyes, in particular, is said to be an irritant of a most formidable character. On this subject, and with the object of opening the eyes of the public, I cannot, perhaps, do better than quote what has been said by a manufacturer when reproached with the poisonous nature of his dyes: "They are not more poisonous than arsenic." As a set-off against the fact that the dyes are powerfully poisonous, must be placed the equally certain fact that the quantity of dye-stuff taken up by a shirt is very small. Whilst deprecating any degree of public excitement on this subject, I would urge the necessity of having the whole subject investigated. Possibly the result of investigation may be, that the risk of sock and shirt poisoning is small—something like the risk of railway travelling; possibly, however, the reverse; and possibly we may have to abandon the use of coal-tar dyes for the colouring of such articles of clothing as are to be worn in immediate contact with the skin.

Physical and Chemical Properties of Carbolic Acid.

We extract the following from Dr. Pinkham's paper on "Carbolic Acid as a Poison," *(Philadelphia Med. & Surg. Reporter)*:—

Pure carbolic acid (HC_6H_5O) is found in commerce in two forms, a glacial or crystalline and a liquid form. Glacial carbolic acid is a colourless solid, of low specific gravity, consisting of broken acicular crystals, which melt at a temperature of 95° F., and become liquid on the addition of a small quantity of water. Liquid carbolic acid has a specific gravity of 1·065, is easily volatalized, and boils at a temperature of 35°F When pure, it is colourless, but as usually seen, its colour is a light pinkish-brown. Its odour resembles that of creasote, but is less penetrating and disagreeable. Its taste is hot and pungent. When brought in contact with the tissues of the body, it acts as a caustic, producing a white slough. Its vapour also powerfully attacks the mucous membrane of the eyes, nose and lips.

Carbolic acid coagulates albumen, gluten, and casiene. It is called an acid, but it belongs more properly among the alcohols. It does not redden blue litmus paper, and the compounds it forms with bases, even those the most powerful, are unstable. With sulphuric acid it unites, forming a colligated acid. It forms with water a crystallizable hydrate, soluble in water and alcohol. Its compound with potassa, potassa carbolate, is a colourless crystallizable substance, easily decomposed by heat and the acids, which might possibly prove a valuable substitute for potassic hydrate as a caustic.

Carbolic acid dissolves in all proportions in alcahol, ether, glycerine, the fixed oils, and strong acetic acid. In regard to its behaviour with water, authorities differ. My own observations lead me to the following conclusions:—

1. With twenty times its weight of water (the minimum) carbolic acid forms a solution, or, more properly speaking, a permanent emulsion.

2. With twelve times its weight of water, it forms, on agitation, a temporary emulsion, which, for all practical purposes, is equivalent to a solution.

The taste of the aqueous preparations and of dilute solutions in certain other menstrua, is warm, and not unpleasant while the odour is feeble. The impure acid, sold chiefly for disinfecting purposes, is of various degrees of strength and purity. Its colour is dark, and its odour much more marked than that of the pure acid. It may be well, at this point, to state that several preparations of different strength have been sold in the market under the name of "saturated solution of carbolic acid." To avoid mistakes, it would be well for physicians, when prescribing the drug for medicinal purposes, to write for the pure acid, dictating the menstruum if a solution be required. Carbolic acid is known by several different names, as phenol—more appropriate by far than the one it now generally bears—phenylic alcohol, phenylic acid, phenic acid, hydrate of phenyl, etc. It occurs in coal tar, associated with creasote, and the two have often been mistaken, the one for the other. Cresylic acid, a substance also found in coal tar, resembles carbolic acid in properties, and has been considered by some identical with it. Williamson regards it as a distinct compound, and gives its formula as H^7C, H_7O.

Carbolic acid may be recognised by its odour, by its action on the animal tissues, by its behaviour with water, and by the following chemical test:

A splinter of deal, dipped first into the acid, and then into strong nitric or hydrochloric acid, will become blue on drying.

Nuremberg Violet.

A new color, recently discovered by Leykauf, is prepared by fusing pulverized black oxide of manganese, in an enamelled iron vessel, with phosphoric acid, and boiling the frit, after it is cold, with water and ammonia; then filter and evaporate the filtrate to dryness, and heat the residue to fusion. The result of the second melting is again to be well washed, and the remaining violet powder dried. If, instead of manganese, an iron compound is employed, a blue color is obtained, and thus, by mixing a little iron with the manganese, a violet color results, having a more or less blue shade. The color is said to be fast, and of value in cotton printing, wall-paper, and other purposes.—*Journal of Applied Chemistry.*

AN APROPOS SOLILOQUY.

BY A GIRL OF THE PERIOD.

To dye, or not to dye, that is the question —
"Whether 'tis nobler in the mind to suffer"
Th' outrageous color of Dame Nature born,
The very "head and *front* of my offending"
Against the fiat of chameleon Fashion,
Or summon Art to aid me? Shall I end
This heart-ache by the hazard of a dye"
That Fashion dooms my hair to?—Dye:—a wash:
No more:—Poison, perhaps? ay, that's the rub
To bring paralysis the *'harmless wash'*
With lead, and sulphur, from the depths profound
Of Acheron, is loaded: and who knows
But when I shuffle off last season's coil,
And tone the little hair I call my own
To match my latest chignon's altered hue,
Disease in my 'frizzettes' may lurk unseen,
Stride my back-comb, or stalk like cat-like tread
Along the parting? Let me pause, and think
How much respect to chemistry be due—
For who would bear the sneers and up-turned nose
Of female friend, the criticising eye
Of street cad,—when (as all the papers tell)
She can herself the remedy procure
For thirteen stamps,—but that a hazy dread
Of something that may happen cramps the will,
And knowledge makes a coward of the purse?
'Tis too much proved.—yet I obey thy call,
Stern mother of invention! Truehtt in thy orisons
Be all my fears remembered . . . . . .

The Tomahawk.

ON HAIR RESTORERS.

BY HENRY MATTHEWS, F. C. S.

The following valuable report on the various hair preparations now in use is taken from the last number of the *Chemist and Druggist*, and will, no doubt, be received with interest by our readers:—

The use of various preparations for darkening or otherwise altering the color of the human hair is extremely ancient, and it appears, from the number of dyes, washes, &c., now sold, that the practice of modifying or improving the natural color of the hair is at the present time considerably on the increase.

The hair from its porosity, and from the fact of its containing a considerable proportion of sulpher, is capable of being easily altered in color by the use of various metallic salts, the color produced depending upon that of the corresponding metallic sulphide; for instance, salts of lead and silver would blacken or darken the hair, while those of arsenic, cadmium, and antimony, would tend to produce a yellow, golden, or red color.

This property which the hair possesses of being affected in color by the use of certain metallic salts, has given rise of late years to a new class of preparations for the hair, called "Hair Restorers." It is intended in this report to treat especially of these, leaving the preparations used to produce "golden locks" for future consideration. It will be seen that in many cases the labels of these "Hair Restorers" state that the preparations referred to contain no dye, while now and then a declaration appears on the label to the effect that the particular compound is not a dye. The truth of these statesments very much depends upon what is understood by a dye. According to the common acceptation of the meaning of the word *Dye*, we must admit that most of these mixtures contain a dye, but if the word *Dye* is used in contradistinction to the term *Pigment*, we may then say that these "Restorers" do not contain a dye, and that the "restoration" is effected by the formation of a pigment in the very substance of the hair itself. A number of the best known or most advertised of these preparations have been submitted to a chemical examination, the results of which are subjoined:—

1. ROSSETTER'S HAIR RESTORER.

The label of this article asserts that "this preparation will restore grey hair to its original color," that "it is not a dye," that it "acts directly on the roots of the hair," and that consequently "its effects are gradual." In the directions for use we are told that it "must be used daily until the hair assumes its natural color," which will be "in periods varying from one to three weeks."

The sample examined consisted of a colorless fluid, and a greyish yellow deposit. The deposit consisted almost entirely of sulphur, with a minute quantity of carbonate of lead. The solution contained acetate of lead and glycerine.

In a bottle containing 10 fluid ounces, 44·8 grains of sulphur, and lead corresponding to 21·87 grains of acetate of lead, were found.

2. MRS. S. A. ALLEN'S WORLD'S RESTORER.

The label and wrapper of this preparation state that "it never fails to restore grey hair to its natural color and beauty," that "it is not a dye," and that it "will not soil the skin, or the most delicate head-dress." We are further assured that this "Restorer" is the best, because it contains no nitrate of silver (*sic*) nor any other injurious ingredient.

The bottle examined contained 8½ fluid ounceces of mixture, composed, like the last, of a colorless fluid, and a yellowish grey powder, this latter consisting of sulphur, with a trace of carbonate of lead, the solution containing acetate of lead and glycerine.

The results of an analysis of the contents of the 8½ ounce bottle indicated 75·6 grains of sulphur, and an amount of lead corresponding to 87 grains of acetate of lead.

3. F. E. SIMEON'S AMERICAN HAIR RESTORER.

This on its label and wrapper is "warranted infallible to restore original color to grey hair," also "not to contain any nitrate of silver, or any of the injurious substances which enter into the composition of ordinary hair dyes."

Like the preparations previously noticed, this consisted of a colorless fluid, and a yellowish grey deposit, and also contained the same ingredients, viz., sulphur, acetate of lead, and glycerine, the deposit in this case being pure sulphur.

A bottle containing 8 fluid ounces furnished 31·8 grains of sulphur, and lead corresponding to 45·1 grains of acetate of lead.

4. HALL'S VEGETABLE SICILIAN HAIR RENEWER.

The label of this "Renewer" states that "the proprietors are entirely confident that it will bring back the hair to its original color," and that "it cures all diseases or humors of the scalp."

This preparation was found to be similar to the others, the deposit containing sulphur, sulphate of calcium, and a trace of sulphate of lead; the solution containing acetate of lead, glycerine, and a trace of acetate of calcium. In distinguishing this preparation by the epithet "Vegetable," the maker has allowed his inventive faculty to overstep the bounds of truth, and has given moralists another instance of the common commercial practice of calling things by the wrong names.

A bottle containing 6 fluid ounces furnished 70·2 grains of sulphur, mixed with sulphate of calcium (milk of sulphur having evidently been used in this case), also lead corresponding to 50.8 grains of acetate of lead.

5. HELMSLEY'S CELEBRATED AMERICAN HAIR RESTORER.

By the label we are assured that "this is not a dye, but is prepared for the purpose of restoring grey hair to its original color."

The preparation consists of a depost and a colorless fluid. A bottle containing 6·5 fluid ounces gave 37·8 grains of a deposit, consisting of sulphate of lead, sulphate of lime, and a small proportion of sulphur, while the residual solution gave lead corresponding to only 0.3 grains of acetate of lead. The solution also contained acetate of calcium and glycerine. The sulphur used in this case was evidently impure milk of sulphur, and containing much sulphate of calcium, double decomposition having taken place between this last and the acetate of lead used in preparing the compound.

6. AGUA AMERELLA.

This preparation is referred to on its wrapper as "this miraculous fluid," and on its label as "this truly wonderful discovery." The label states, moreover, that it "restores grey hair to its original hue," and that it "is free from all the dangerous and disagreeable properties of hair dye."

This, like the others, consists of sulphur (containing sulphate of calcium) acetate of lead and glycerine.

A 6 ounce bottle furnished 25·7 grains of deposit consisting of sulphur and sulphate of calcium, also an amount of lead corresponding to 1·5 grains of acetate of lead.

7. MELMOTH'S OXFORD HAIR RESTORER,

Or, according to the label, "Capillary Liquid for Restoring Grey Hair to its Original Color." This also "is not a dye."

Here again we find sulphur, acetate of lead, and glycerine.

A bottle containing 4½ fluid ounces gave a deposit of 47·2 grains of sulphur, and lead corresponding to 30·8 grains of acetate of lead.

8. ALEXANDER ROSS'S GREAT HAIR RESTORER.

The label of this states that "it contains no dye," and will restore grey hair to its pristine hue."

This preparation was found on examination to differ considerably from the others, inasmuch as it contained no sulphur and no glycerine, but consisted entirely of solution of oxide of lead in a solution of potash, with a trifling deposit of carbonate of lead.

An 8 ounce bottle gave 3·8 grains of oxide of lead.

9. PELLETT'S HAIR RESTORER.

This, according to its label, "is not a dye," "is perfectly harmless, contains all the latest discoveries," and "will restore grey or white hair to its original color."

This is a somewhat similar preparation to most of those previously considered, containing sulphur with sulphate of calcium and sulphate of lead, acetate of lead and acetate of calcium, but no glycerine.

A bottle containing 5½ fluid ounces furnished a deposit consisting of sulphur mixed with sulphates of lead and calcium, weighing 40·7 grains, and lead in the solution corresponding to 127·8 grains of acetate of lead. In this case, as in No. 5, adulterated milk of sulphur had been used, and double decomposition had occurred between the lead and calcium sorts.

10. (NO LABEL).

This sample was forwarded for analysis by a client, and consisted of sulphur, acetate of lead and glycerine. A bottle containing 9¾ fluid ounces furnished 58·7 grains of sulphur, and lead corresponding to 83·5 grains of acetate of lead.

It should be mentioned that the above preparations, with the exception of Nos. 5 and 8, contained, besides the ingredients mentioned, rose water, lavender water, or other perfume.

On looking at the composition of these preparations one is necessarily struck by their great similarity of composition, and is inclined to think that the makers of hair restorers are like the actors in "The Critic," seeing that "when they do agree their unanimity is wonderful," for with trifling exceptions, the constituents of all these restorers are the same, the proportions only varying.

With regard to whether they are dyes or not, this, as I have said before, depends upon what is considered to be the meaning of the word *dye;* but most persons would take a common-sense view of the subject, and regard them, as the writer does, if not as dyes, as something very closely allied to dyes.

All these preparations are said to restore grey hair to its original color, but as their effect is due to the formation of the black sulphide of lead in the hair, it is difficult to understand how these restorers will carry out the professors on their labels, in cases where the original color has been red or auburn, or any other light shade of color.

The constant use of these preparations containing lead cannot but lead to serious if not fatal results, being calculated to produce various diseases analogous to lead-painter's or plumber's colic, lead-poisoning, and even palsy. In one or two of the preparations examined, much merit is claimed on account of their containing no nitrate of silver, and so not being liable to stain the skin. It is quite true that they contain no nitrate of silver, but then preparations of lead, although they do not stain the skin, are much more injurious to health than silver compounds.

The amount of sulphur contained in most of these preparations appears to be useless, that contained in the hair being generally sufficient to convert the lead into sulphide. The sulphur is probably intended to supply a deficiency of sulphur in the hair should such exist, and, perhaps, also as a curative agent for any affection of the skin which may exist. No exception can be taken to the use of glycerine in hair washes.

Two advertisements, which recently appeared in the daily papers, undertook to forward a recipe for a hair wash on receipt of a certain number of stamps. These recipes are as follows, the first being accompanied by a testimonial from the late Dr. Herapath:

I. ROSE HAIR WASH FOR RESTORING GREY HAIR TO ITS ORIGINAL COLOR.—This wash, by being applied every morning by ladies, with a small sponge in each of the partings in the hair, and by gentlemen well rubbing it into the scalp, will, in about fourteen to twenty days, restore grey hair to its original color, and by constant use will produce a brilliant and lasting gloss, and prevent the hair from falling off without without the aid of grease, oil, or any cosmetic. (See Dr. Herapath's Opinion.)

"Old Market, Bristol, 30th June, 1868.

"MY DEAR MR. ——,—I have carefully analysed your preparation for restoring grey hair to its original color, and pronounce it a most invaluable preparation, from the fact of its being free from all preparations of lead or silver, which are so injurious to the system by constant use; your hair wash will become a most valuable addenda to a lady's toilette, its use being so simple, its effect so great and lasting. Wishing you every success, I am, my dear ——, yours sincerely,

"W. HERAPATH, M. D."

The Recipe.—Take of milk of sulphur, 1 drachm; mix it as you would mustard, then add 12 oz. of distilled rose water, and 3 drachms of pure glycerine. Strain through fine muslin; shake well before using. Mix the ingredients yourself, as I have seen several bottles of the wash with the sulphur floating on the top, from the ingredients not having been properly mixed and strained.

II. THE FORMULA (from a correct analysis) for making, at the cost of one shilling (which usually costs six times the amount), a bottle of the most popular and effectual Hair Restorer of the day:—Acetate of lead, 45 grains; precipitated sulphur, 60 grains; glycerine, half a fluid oz.; rose water, one fluid oz.; distilled water, to fill up to 10 oz.

Directions for Making.—Well rub the acetate of lead with the precipitated sulphur in a mortar, gradually add the glycerine, and lastly the rose and distilled waters, and keep in a well corked bottle.

Directions for Use.—Well shake the bottle; then with a small brush apply it to the hair from roots to ends. The restorer must be used every day until the hair becomes its natural color, which will be in about seven to fourteen days; afterwards once or twice a week will be sufficient. A bottle may be obtained at the price mentioned above.

The second recipe, it will be seen, is adapted to produce a mixture of precisely the same character as the "Restorers" I have analysed. The product of the first recipe, however, contains no lead.

In conducting the investigation recorded above, I have been assisted by Mr. H. Bassett, F.C.S.

Preparation of Permanganate of Potassium.

M. Stoedales communicates the following method of preparing permanganate of potassium to the *Journal de Pharmacie.* By the ordinary method of decomposing the manganate of potassium by ebullition with water, a third of the manganese is lost by precipitation as hydrated peroxide:

$$3MnK_2O_4 + 3H_2O = MnKO_4 + MnO_2H^2O + 4KHO.$$

Manganate. Permanganate.

By the intervention of chlorine the permanganate may be procured without loss of manganese:

$$MnK_2O_4 + Cl. + MnKO^4 + KCl.$$

Manganate of potassium prepared according to the ordinary method, is treated with its own weight of water, and a similar quantity of water added after it has thus been disintegrated. A current of chlorine is now passed through the solution, accompanied with continuous stirring, until it has become red, when it is diluted with four parts of water; it is then allowed to stand, filtered through powdered glass, and evaporated to one-fifth, when the permanganate of potassium crystallises on cooling.—*Chemist and Druggist.*

A New Styptic Collodion.

Efforts have been made to perfect collodion as an hæmostatic by the addition of substances which cause an instant coagulation of the blood, such as the perchloride of iron, but such mixtures have not been easy to make, and hence have not proved satisfactory. Carlo Parvesi communicates the following formula for a new collodion to the *Giornale di Farmacia di Torino:*—

Collodion	100 parts.
Carbolic acid	10 "
Pure tannin	5 "
Benzoic acid	5 "

Agitate until the mixture is complete.

This preparation, which has a brown color, leaves, on evaporation, a pellicle exactly similar to that of ordinary collodion. It adheres strongly to the tissues, and effects the instantaneous coagulation of the blood and albumen. Tannin effects a consistent coagulation of the blood, while benzoic acid has a cicatrizing effect upon the tissues.—*Chemist and Druggist.*

Essence of Musk.

Take, Grain musk, 1 oz.; distilled water (boiling) ½ pint. Digest them together, in a close vessel, with frequent agitation, until quite cold; then add of alcohol 3½ pints; water of ammonia (·880), ½ fl. oz. Having closely corked or stopped the vessel, and securely tied it over with bladder, digest the whole for one or two months, with frequent agitation, in a room exposed to the sun in summer, or in an equally warm situation in winter. Lastly, after repose to settle, decant the clear portion, and filter it if necessary. A little essence of ambergris is commonly added to the filtrate, or one or two drachms may be put into the vessel before closing it, and after adding the spirit. This makes a very fine preparation. The residue can be used for an article of inferior quality. Ammonia is added to increase the solvent power of the spirit, and the intensity of the odour. Sometimes carbonate of potash is employed for the same purpose, but its use is not judicious, because it has a tendency to produce partial decomposition of the mixture. For the sake of economy the musk may be rubbed down with powdered glass or lump sugar, which makes the extraction more complete. —*Chemists' and Druggists' Almanac and Pharmaceutical Text Book,* 1869.

PETROLEUM FOR VULCANIZING INDIA RUBBER.—Petroleum is now used in London in vulcanizing India rubber, as it is capable of dissolving chloride of sulphur as rapidly as bisulphate of carbon. Ordinary petroleum must, however, be completely deprived of its water, by means of the addition of ten per cent of concentrated sulphuric acid, and the two shaken rapidly together. The acid then settles, and the petroleum is to be poured off into a very dry receiver, and caustic lime added to the petroleum, as well as some oxide of manganese, and distilled. The petroleum so prepared is, on the one hand, cheaper, and on the other, much less injurious to the health of the workmen, than the bisulphate of carbon.

Guyot's Concentrated Tar Solution.

In the current number of the *Journal de Pharmacie* is a paper by Dr. Jeannel on a preparation of tar known in commerce as "Guyot's Concentrated Tar Solution." From an analysis of this liquid, the author has deduced the following formula for its reproduction :—

Bicarbonate of Soda.....	22 parts.
Tar (from wood).....	25 "
Water..... 1000	"

Macerate together for eight days, shaking the mixture several times each day.

The decanted fluid is identical in all respects with the commercial article ; it has the same color, transparency, and alkalinity ; it possesses the same power of mixing with water without turbidity, and contains the same proportion of tarry matter.

M. Jeannel considers this liquor as very inferior, therapeutically and practically, to the emulsion of tar which he originally devised. This emulsion was made with

Tar,	
Carbonate Soda, āā.....	10 parts.
Water.....1000	"

And, according to the author, contains four times less saline matter, and four times more tar, than Guyot's preparation.

The latter (Guyot's) solution, diluted with sixty or eighty times its volume of wate, forms a clear tar-water for internal administration ; in a less diluted condition it is also employed as a lotion.—*Pharmaceutical Journal.*

Chloroform in the Urine.

The urine of patients who have inhaled chloroform, when tested with sulphate of copper and potash, gives a copious indication of the presence of sugar. The result, however, is not due to sugar, but to the chloroform. Traces of the latter substance in the urine cause a reduction of the oxide of copper in precisely the same manner as glucose. The presence of chloroform in urine may be detected by causing a current of air to bubble through the urine, then to traverse a red-hot porcelain tube, and finally to pass through a Liebig's bulb containing a solution of nitrate of silver. The vapour of the chloroform diffuses into the stream of air, is decomposed in the heated tube, and the resulting chlorine precipitates the silver solution.*

The "Lancet" on Smoking.

A certain number of persons are so constituted that tobacco is a veritable poison to them in any dose, even the smallest. Such persons are never free, throughout their whole career as smokers, from symptoms which incontestably evidence the existence of a process of narcotic poisoning. Even if they conquer the tendency to nausea which at first affects them, they suffer, although smoking ever so moderately, from chronic languor, giddiness, dyspepsia, cold feet, or even from decided, though perhaps slight, symptoms of paralysis of sensation. It is of no use for such persons to suspend smoking for a time, their only safety lies in giving it up at once and for ever. We feel sure that the too prevalent habit of excessive smoking does debilitate and demoralise a large number of men by producing a general enfeeblement of the nervous system. We are certain that it is improper to subject the organism to the action of tobacco at all during its period of development, and especially before and during the establishment of puberty. And we cannot ignore the fact, that over and above its graver physical effects, excessive smoking tends to withdraw men from the field of steady and serious action into that of dreamy self-enwrapped meditation, and it too often militates against the performance of those unselfish duties of social intercourse which make up the happiness of home life.

* Extracted from the Journ. de Pharm d'Anvers

Montreal Chemists' Association.

The regular monthly meeting was held March 4th, in Toupin's Building, McGill street, J. Kerry, Esq., President, in the chair. After routine business, the paper of the evening was read by Mr. Gardner, on "The Prescription Business." In the course of his remarks, the author commented on the injustice frequently done to the trade by medical men directing their patients to take the prescriptions to some one establishment in particular, although the patient may have been in the custom of dealing elsewhere, thereby depriving the family Chemist of a portion of his business, and casting a doubt on his competency.

After the reading of the paper, for which a vote of thanks was accorded, considerable discussion ensued. The proposed "Ontario Pharmacy Act" was then read to the meeting. The President, however, having informed the meeting that Parliament would introduce a Bill for the whole Dominion, it was considered advisable, that the Council should at once draft suggestions to the framers of it.

Several donations to the Library and Museum were announced from Dr. Edwards and Dr. Kollmyer. The meeting then separated. —*Montreal Paper.*

Metallic Hydrogen.

In one of our recent reports of the meetings of the Lyceum of Natural History, note was made, though not at length, of Professor Graham's reported discovery of metallic hydrogen, one of the most important scientific events of the century. Professor Graham, of the Royal Society of London, it will be remembered, made in May, 1867, his opinion as to the occlusion of hydrogen gas in meteoric iron, demonstrating that meteoric iron comes from hydrogen. Professor Graham, having thus gained a clue to occluded hydrogen, has recently concluded a paper taking grounds that palladium with occluded hydrogen is an alloy of hydrogenium. Prof. Joy, of Columbia College, at the recent meeting of the Lyceum, entered into the operation of Prof. Graham's experiments at considerable length. He was led to the discovery of hydrogenium by some observations concerning the occlusion of hydrogen gas, as to which experiments had been previously made in Germany. In fact the probability that hydrogen might combine under conditions with a metallic base, forming a new body with new properties, is due, as Professor Tyndall holds, to the investigations of a Berlin Professor concerning the cooling property of hydrogen. A platinum wire heated to white heat was first brought in contact with the atmosphere, which only reduced it to a state of red heat. Contact with hydrogen, on the other hand, was found to liberate the heat instantaneously, leaving the wire in a condition to require five times the heat for reheating. It was then proved by further experiment that the hydrogen had combined with the metal, forming a new metal with a very different susceptibility to heat.

Prof. Graham's experiments, instanced by Prof. Joy, are in the same direction, proving that hydrogen may combine with metals, producing alloys somewhat in the same manner as one metal combines with another Prof. Graham is sanguine that he has discovered the metallic hydrogen, the importance of which, in fact, cannot be over-estimated. —*Am. Jour. of Mining.*

Black Varnish for Iron Work.

Take of asphaltum 48 pounds, melt and add 10 gallons of boiled oil, 14 pounds of litharge, 3 pounds of sulphate of zinc; boil them together for two hours, and add of amber 8 pounds, hot linseed oil 2 gallons, and boil for two hours longer, and add 30 gallons of oil of turpentine. For the iron work of carriages, architectural iron work, etc., this varnish is superior to most kinds.

Iodide of Silicium and Silicidioform.

M. Friedel has prepared the iodide of silicium by passing a mixture of the vapor of iodide and carbonic acid over heated silicium. It is a very volatile substance ; burns in the air the same as carburetted hydrogen, and, when mixed with oxygen, it produces a highly explosive compound.

The same chemist has also prepared silicidioform, a chloroform in which the carbon is replaced by silicium, and having the formula, $Si^3 HI_3$. Whether this compound can be substituted for chloroform remains to be tested by future experiments.—*Jour. of Chemistry.*

Artificial Beeswax.

Take of yellow rosin 16 parts; stearine 8 parts; palm oil 2½ parts, melt them together. This compound is often used as a substitute for common beeswax in the preparation of various ointments.

Nitrous Oxide.

Laughing gas is coming into such general use as a uniformly effective and safe agent for subduing pain, that the English medical journals suggest that a bottle be made strong enough to hold the gas in a liquid form, and of such weight and dimensions that it may be easily carried by the surgeon in his daily rounds. At present it is used by dentists from large gas-bags into which it is placed as soon as made. Laughing gas is composed, according to the new notation, of two atoms of nitrogen and one of oxygen. These two elements are the principal constituents of common air. Laughing gas or nitrous oxygen can be liquefied under a pressure of 750 pounds per square inch when at the temperature of 45 degs. Fahr. The most convenient and safe receptacle for the liquid would be a brass or copper tube, not more than a foot in length, and of such thickness as to resist a pressure of at least 1,500 pounds, or several small tubes of the ordinary thickness might be united side by side and made entirely safe.—*Journal of Applied Chemistry.*

Influence of Bile on the Salts of Quinine.

In the *Archives de Médecine* we find that a mixture of bile and sulphate of quinine gives rise to a rapid and reciprocal decomposition ; sulphate of sodium, glycocholate of quinine,

and an excess of glycocholic acid resulting from the reaction. Glycocholate of quinine has the appearance of a resinous, dense mass, insoluble at ordinary temperatures in water and diluted acids, soluble in ammonia and alcohol, and difficultly soluble in caustic potash, although a double combination is effected by the prolonged action of this alkali. If a mixture of glycocholate of quinine and a strong acid, such as sulphuric acid, is heated, the quinine separates, and coloïdic acid appears to be formed. The salts of quinine may be absorbed by the stomach; if they pass into the intestine they are rendered ineffectual, in consequence of the insoluble compound they produce when mixed with bile.—*Chemist and Druggist.*

Liquor Strychniæ.—Mr. Deans writes to the *Lancet*:—I wish to call attention to what I consider a grave defect in the liquor strychniæ of the British Pharmacopœia. I find that in cold weather, when the thermometer is 45 or 40 degrees, the strychnia is deposited in crystals at the bottom of the bottle, which crystals are again dissolved at a higher temperature. I think this is due to the small proportion of acid, or to the acid being hydrochloric, as when the solution is effected by means of sulphuric acid I have not noticed that any deposition has taken place. What is the reason, too, of the red discoloration and muddy deposit which occurs in the syrupus ferri phosphatis when it has been made for any length of time? Does it in any way interfere with its therapeutetic action?—*Chemist and Druggist.*

How Popular Science is Written.—In a letter on "Poisonous Dyes," recently sent to the *Times*, commenting on the highly explosive nature of the dye which was supposed to be used, Mr. Crookes wrote: "It is almost as explosive as nitro-glycerine, and has already destroyed one factory, with loss of several lives. Should the dye retain this character in the fabric, the wearers of these socks would be able to vary the excitement they are now indulging in in a highly sensational manner." This harmless little jokeling, perpetrated two months ago, has this week been disinterred by the editor of a contemporary which occasionally dabbles in popular science, and now appears in the following shape: "Mr. Crookes has recently asserted that woollen stockings dyed with picrate of potash are liable to explode on the feet of those who sit too near the fire.—*Chemical News.*

Hydrargyri Subchlorid and Ammon. Carb.—J. Robinson (Chester-le-street) writes—"Perhaps you will allow a "beginner in chemistry" a small space in your valuable journal to make a few remarks. I had an order from a surgeon for a few chemicals, among which were dydrar. subchlor. and ammon. carb. Never dreaming of any decomposition, I put them all into one parcel. A few days after the calomel was returned, marked "wrong," and on opening the packet I found a dingy grey powder. I at once suspected the ammonia had something to do with it, so I put a little calomel into a wineglass, and added about ʒss. liqr. ammoniæ, which immediately deposited a black precipitate (black oxide of mercury.)

I have written the above, as I thought some of my brother chemists might, having similar orders, put them up in the same style as I did, and so lose a parcel of calomel. To remedy this evil I would recommend it to be put into a bottle.—*Chemist and Druggist.*

A New Alarm.—A Berlin mechanic has invented an ingenious apparatus for giving an alarm in case of the presence of carbonic oxide or coal gas in a room. It consists of a galvanic battery with a bell and a glass tube filled with chloride of palladium. This metallic salt is extremely sensitive to the pressure of carbonic oxide gas. A small quantity of the gas will at once throw down some of the metal from the solution, and this precipitate collecting in the bottom of the tube at once establishes a connection in the current of electricity, and the violent ringing of a bell will warn the sleeper of his danger.

Therapeutic Effects of Lupuline.—M. Méhu finds that the resin of hop, in the dose of twenty to thirty grains, produces often an immense headache; sometimes a nausea, and even slight vertigo; and always a state of insensibility, lasting several hours, but without hallucinations such as hashchish causes. Each time he has found a subsequent and notable increase of appetite.—*British Medical Journal.*

New Process for Obtaining Nitrogen.—A new and elegant method of preparing nitrogen gas has been made known by a distinguished Italian chemist, Signor Massimo Levi. It consists in heating bichromate of ammonia in a retort; the salt is thus resolved into green oxide of chromium, water and nitrogen gas.

To Remove Old Putty.—Dip a small brush in nitric or muriatic acid and with it anoint or paint over the dry putty that adheres to the broken glass and frames of your windows. after an hour's interval, the putty will have become so soft as to be easily removeable.

—The *Moniteur des Interests Materials* estimates the total production of copper in the world at large at 93,415 tons. The United States contributed 14,490 tons.

—Gun cotton explodes when metallic sodium or metallic potassium is brought in contact with it. The amalgams of these metals do not produce the same effect. Finely divided arsenic requires percussion before it explodes the cotton.

—To remove the bitterness of sulphate of magnesia, which is the chief drawback of this useful saline aperient, it suffices, according to the *Bulletin de Therapeutique*, to boil a little coffee in the solution of the sulphate; the flavour of the coffee masks that of the medicine. The flavour of the decoction of senna may be covered in the same way.

The amount of petroleum remaining unsold in the United States on the 1st of January last, is stated at 520,588 barrels; afloat and in Europe, 439,668 barrels; total 960,256, showing a decrease of 312,925 barrels as compared with the 1st of January, 1868.

An Illinois beet sugar company uses fifty tons of beets a day, and will soon increase its consumption to sixty tons.

New Method for the Separation of Silver from Gold.—At a late meeting of the Chemical Society of London, Mr. F. B. Miller read a paper on the application of chlorine gas to the toughening and refining of gold. The process devised by the author consists in passing a stream of chlorine gas through the melted gold covered with borax. In a few hours the whole of the silver present is converted into chloride, which floats on the gold. The borax prevents the loss of silver by absorption or volatilization. As soon as the gold has become solid, the still liquid chloride of silver is poured off, and the gold is now found to have a fineness of 993 parts in 1.000; the loss of gold is about the same as in the ordinary process.

CANADIAN MEDICINAL PLANTS.

PRIZES.

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

1st Prize—Fifteen Dollars—a copy of *Griffith's Medical Botany*, and *Certificate.*

2d Prize—Ten Dollars—a copy of *Wood's Class-Book of Botany.*

3d Prize—Five Dollars—a copy of *Wood's Class-Book of Botany*, and *Certificate.*

Conditions of competition to be—

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

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

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

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

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

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

Address—Collections,

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

WHOLESALE PRICES CURRENT.—MARCH, 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 01½		0 07
" Tartaric, pulv.	0 40		0 45
Ammon., carb. casks	0 16		0 18
" " jars	0 18		0 20
" Liquor, 880	0 18		0 25
" Muriate	0 12½		0 15
" Nitrate	0 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 65		0 75
" 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		9 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 00		7 50
Bismuth, Alb.	6 20		6 40
" Carb.	6 20		6 40
Camphor, Crude	0 46		0 50
" Refined	0 65		0 75
Cantharides	0 82		0 99
" Powdered	0 90		1 00
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, Aug.	1 12		1 25
" Henbane, "	2 40		2 60
" Jalap	5 00		5 50
" Mandrake	1 75		2 00
" Nux Vomic. oz	0 60		0 70
" Opium "	Variable.		
" Rhubarb	7 50		—
" Sarsap. Hon. Co	1 00		1 20
" " Jam. Co	3 25		3 70
" Taraxicum, Aug	0 70		0 80
Flowers, Arnica	0 26		0 35
" Chamomile	0 36		0 45
Gum, Aloes, Barb. extra	1 00		1 10
" " " good	0 50		0 55
" " Cape	0 15		0 20
" " " pow'd	0 25		0 30
" " Socot	0 80		0 90
" " " pulv.	0 90		1 00
" Arabic, white	0 42		0 65
" " " pow'd	0 57		0 65
" " sorts	0 32		0 37
" " " pow'd	0 50		0 60
" " com. Gedda	0 13		0 16
" Assafœtida	0 27		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, orango	0 31		0 35

Drugs, Medicines, &c. *Continued.*	$ c.		$ c.
Gum, Shellac, liver	0 24	@	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
" " Saccharated	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.	21 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 60		2 00
" Cloves, Aug.	1 00		1 10
" Cod Liver	1 40		1 50
" Croton	2 80		3 00
" Geranium, pure, oz.	2 00		2 20
" Juniper Wood	0 90		1 00
" " Berries	6 00		7 00
" Lavand, Aug.	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, Aug.	16 00		17 00
" " Amer.	4 80		5 50
" Rose, virgin	6 50		6 80
" " 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	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 53		—
" Howard's	1 63		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 14		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 40		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 02½		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	$ c.		$ c.
Annatto	0 25	@	0 45
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	0 00		1 00
" 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	@	0 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 60		0 65
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 45		1 60
" Salad	1 95		2 30
" " Pints, cases	4 25		4 50
" " Quarts	3 60		3 75
Seal Oil, Pale	0 85		0 00
" " Straw	0 75		0 80
Sesame Salad	1 60		1 75
Sperm, genuine	2 40		—
Whale, refined	0 95		1 00

Trade Report.

Since our last we have nothing of importance to note, business having, until the last few days, remained very dull. We are happy, however, to be able to say that at the present moment the prospects of a fair spring business being done are very good, as buyers are either here themselves, or sending down their orders pretty freely. This, we hope, will continue, as we cannot see any reason why it should be otherwise—stocks in the hands of retailers being light.

Our advices from Europe show that, on on the whole, prices will be a little in favor of retailers, although there is no special change to notice, excepting in Quinine, Ergot, and Indigo, which have all advanced considerably.

Our remarks in last issue respecting Aniline Dyes will still hold good; new stocks, although daily expected, not having arrived. This will also apply to a great many articles, of which the market is entirely bare; such as Iodide and Bromide of Potassium, Quinine, Citrate of Iron and Quinine, Ergot, Magenta Crystals, Olive Oils, etc., etc. Many of these are detained either at, or on the way from, Portland, by the unusual quantity of snow which has fallen during the past month.

We are informed that over nine hundred cars with goods for Montreal and Toronto are snowed up at different parts of the line. Such an unlooked-for event has placed a great difficulty in the way of importers filling orders. This difficulty, we trust, will soon be overcome.

The high prices of Opium and Morphia are still maintained, and in all probability will remain about their present figures until July, when we shall have pretty satisfactory indications of what the Opium crop is going to be.

Naval Stores, with the exception of Turpentine, has advanced somewhat, and is now held firmly at an advance of five cents on our last quotation.

It will be noticed that Alcohol, Camphor, Tartar Emetic, and Olive Oil are quoted lower.

Notes and Queries.

W.—LIQUID DYES.—We append the forms you desire for all the colors except black. There is no good aniline black which can be applied to wool, or at least, that can compete with logwood and copperas, or blue vitriol.

MAGENTA.

Magenta crystals.....1 lb.
Alcohol, 45 o.p.....3 gals.
Shake repeatedly, and add
Boiling water.....3 gals.

BLUE.

Blue de Lyon.....1 lb.
Alcohol, 65 o.p.....8 gals.

Dissolve by the aid of a gentle heat, in a closed vessel, agitating frequently.

VIOLET AND PURPLE.

Same strength and treatment as Blue, using Parme, and Hoffman's Purple.

ORANGE.

Phosphine ..... 1 lb.
Alcohol, 65 o.p ..... 5 gals.
Dissolve with a gentle heat.

CANARY.

Picric Acid ..... 1 lb.
Alcohol, 65 o.p ..... 2 gals.
Dissolve in the cold.

SCARLET.

Coralline ..... 1 lb.
Alcohol, 65 o.p ..... 2 gals.
Dissolve with heat.

GREEN.

Night Green ..... 1 lb.
Alcohol, 65 o.p ..... 5 gals.
Dissolve with heat.

One half of the above quantity may be conveniently made in a five-gallon tin, immersed in a pot of hot water.

Subscriber. — PASTE FOR LABELLING TIN VESSELS. — Make ordinary flour paste, and add as much dilute sulphuric acid as will give it a strong sour taste.

J. P. R. — STENCIL INK FOR MARKING LINEN.—

Prussian Blue (in fine powder .2 parts.
Refined Lamblack ..... 3 parts.

Grind together with neatsfoot oil to the consistence of varnish. By substituting linseed oil varnish for the *neatsfoot oil*, the preparation will dry more rapidly.

SYR. FERRI IODIDI. — Friend Ruston, of the establishment of Lyman, Elliott & Co., tells us that he has tried the formula of M. Jeannel, for this syrup, published in our last issue, but that the preparation was quite cloudy, depositing, after some days, a flocculent precipitate. Sugar was substituted for the honey; on adding the tartaric acid, the liquid immediately became quite dark; on being exposed to the light, granular, garnet-red crystals were deposited, which, we presume, were tartrate of the protoxide of iron The syrup, however, became quite clear on standing, and remarkably colorless, but was, of course, reduced in strength. Perhaps the impurity of the honey may have something to do with the want of success in pursuing Jeannel's formula. The use of fictitious honey containing starch would be attended with marked results.

Communications received from Thomas Carre, John Lowe, Charles G. Wilson and John Bond, regarding conflicting clauses in Pharmacy Act, are awaiting the decision of the Legislative Committee.

Changes.

A new store has been opened by William Stewart, in Yonge street, Toronto.

Thos. Cumines, formerly of Yorkville, has commenced business at Welland.

The business formerly carried on by H. A. Wilson, of Inverness, has been transfered to H. McClennan.

S. Key, of Port Dover, has sold out to E. G. Hart, his former partner.

A. T. Martin, Oshawa, has absconded in the direction of the United States.

The store of J. Colclough, Mount Forest, has been destroyed by fire. Insured for $2,000.

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