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CANADIAN

PHARMACEUTICAL JOURNAL

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Original and Selected Papers.

OLEIC ACID AND OLEATE OF MERCURY.

BY H. MACLAGAN, LINDSAY, ONT.

Having been called upon a short time since, to prepare some oleate of mercury, and thinking it likely to become a popular preparation, I have transcribed my experience, hoping it may prove of service to those who may have to perform a similar operation.

The first step in the process was to obtain olin, and the expressed oil of almonds, which consists almost entirely of that substance, was chosen, as being sufficiently pure for the object in view, without further preparation; the object being to obtain a definite chemical compound of mercury and an oleaginous body, and not a mere mechanical mixture. The oil was saponified with potash, and to the resulting soap hydrochloric acid was added, with constant stirring, until the mixture had acquired a decidedly acid reaction. It was then poured into a glass funnel, stopped at the bottom with the finger, and allowed to rest until the oily portion of the liquid (oleic acid) had risen to the surface; the finger was then partially re-

moved and the watery portion permitted to run slowly off, the funnel being again closed. When this was nearly completed, more water was added, the mixture agitated, allowed to rest, and the water run off as before. This operation was repeated several times until the acid was thoroughly washed. It was then transferred to an evaporating dish and gently heated to separate perfectly the remaining water, and, after resting a short time, the supernatant oily liquid was carefully poured off. About three ounces of acid were obtained from four of the oil.

The oleic acid being prepared, the rest of the process was simple. It consisted in merely dissolving in it peroxide of mercury, which is easily accomplished by the aid of a *gentle* heat. A high temperature must be avoided, or the peroxide will be reduced and become insoluble. The peroxide used was prepared by decomposing a solution of pernitrate with potash; the commercial article being said to be difficult to dissolve. Three solutions have been spoken of, containing severally five, ten and twenty per cent of peroxide, but I think it would be better, as well as more economical, to make as strong a solution as possible, and dilute to the necessary strength with olive, or other oil. A preparation thus made would fully answer the required purpose, as there is no particular virtue in the excess of oleic acid, and I think it would be more stable, and also less liable to cause irritation.

It seems to me that this would be an excellent substitute for that very unsatisfactory preparation, *Red Precipitated Ointment.*

ON THE AMOUNT OF ALKALOIDS CONTAINED IN SOME COMMERCIAL ELIXIRS.

BY OTTMAR EBERBACH.

(*Concluded from page* 287.)

At the suggestion of Professor Albert E. Elbert, the writer will present to the Association several formulæ for this class of preparations.

After numerous experiments with the aromatic tinctures of cinchona, obtained by displacing different mixtures of Calisaya bark and aromatics with alcohol and water mixed in various proportions, and treated with ferric hydrate, the writer was convinced

that this process was not only too tedious to be practised, but also altogether unsatisfactory in its results. In the first place cinchona bark cannot be completely exhausted with weak alcohol; and secondly, after treating with ferric hydrate, the natural combinations of the cinchona alkaloids are broken up, and a considerable amount of the alkaloids is retained by the ferric hydrate, which can to a certain extent be recovered by treating the residue with alcohol.

These considerations induced the writer to employ the unbleached alkaloids of Calisaya bark, as obtained by precipitating an infusion of Calisaya bark made with acidulated water, with an alkali.

In regard to the nomenclature for the elixirs given below, the writer would suggest the following: First, an elixir proposed as a vehicle to render such medicines as the physician may prescribe palatable and acceptable to the stomach; this is to be called the "Simple Elixir." Secondly, one to represent the simple elixir of Calisaya bark; to be termed "Elixir of Calisaya." Thirdly, one to replace the variety of elixirs of bark and iron, to be styled "Ferrated Elixir of Calisaya." Fourthly, one to suppress the large variety of elixirs, under the names elixir bark, iron, and strychnia, Calisaya, iron, and strychnia, phosphate iron, quinia, and strychnia, &c.; to be named "Ferrated Elixir of Calisaya and Strychnia." Fifthly, one named "Ferrated Elixir of Gentian," and sixthly, one to discard the large number of poor so-styled elixirs of valerianate of ammonia; to be called "Elixir of Valerianate of Ammonia."

SIMPLE ELIXIR.

Take of—

Moist Fresh Orange-Peel	2 drachms.
Star Anise in fine powder	½ drachm.
Cardamom " "	20 grains.
Strong Alcohol	sufficient.
Water	"
Simple Sprup	6 ounces.
Caramel	10 grains.

Reduce the orange-peel to a fine pulp, then add the star anise and cardamom in fine powder, pack quite firm into a glass percolator, and pour on a mixture of equal parts alcohol and water, until six ounces of tincture have passed. Then add the syrup with caramel and water sufficient to the measure of one pint, and filter.

ELIXIR OF CALISAYA.

Take of—

Unbleached Alkaloids of Calisaya	48 grains.
Citric Acid	12½ "
Simple Elixir	16 ounces.

Triturate the Alkaloids with the citric acid until thoroughly mixed, then with the elixir, and filter.

FERRATED ELIXIR OF CALISAYA.

Take of—

Unbleached Alkaloids of Calisaya	48 grains.
Citric Acid	12½ "
Pyrophosphate of Iron	128 "
Simple Elixir	sufficient.
Water	"

Triturate the alkaloid with citric acid until thoroughly mixed, and then with twelve ounces of the elixir. Dissolve the pyrophosphate of iron in half an ounce of water, and stir in gradually the solution of the alkaloids, then add sufficient simple elixir to bring to the measure of one pint, and filter.

FERRATED ELIXIR OF CALISAYA AND STRYCHNIA.

Take of—

Ferrated Elixir of Calisaya	16 ounces.
Strychnia	2 grains.
Citric Acid	6½ "

Rub the strychnia with the acid to a fine powder, mix with one ounce of the elixir, apply heat, and when complete solution has taken place, mix thoroughly with the remaining elixir.

FERRATED ELIXIR OF GENTIAN.

Take of—

Gentian in fine powder	1 ounce troy.
Licorice Root in fine powder	1 " "
Moist Fresh Orange-Peel	2 drachms.
Star Anise in fine powder	½ "
Cardamom " "	20 grains.
Pyrophosphate of Iron	128 "
Strong Alcohol	sufficient.
Water	"
Syrup	6 ounces.

Bruise the moist orange-peel to a fine pulp, add the gentian, licorice-root, star anise, and cardamom in fine powder, pack into a glass percolator, and pour on a mixture of equal parts alcohol and water until six ounces of precolate have passed. Dissolve the pyrophosphate of iron in water, add sufficient water to the measure of four ounces, add the syrup, mix with the percolate, and filter.

ELIXIR OF VALERIANATE OF AMMONIA.

Take of—

Valerianate of Ammonia	256 grains.
Simple Elixir	16 ounces.
Water of Ammonia	sufficient.

Dissolve the valerianate of ammonia in two ounces of elixir, carefully neutralize with water of ammonia, then mix with the remainder of the elixir, and filter.

ANN ARBOR, MICH.

CONVERSION OF THE SULPHATES OF THE ALKALIES INTO THE CARBONATES, TARTRATES, ETC., IN THE MOIST WAY.

BY J. LAWRENCE SMITH.

Having had occasion more than once to convert small quantities of the sulphates of the alkalies into carbonates, I have for several years employed a process that has been found both certain and convenient; in some recent investigations it has been used, and as it has never been described, it may not be unimportant to explain the nature of the process and its results. The agent used to produce the conversion is carbonate of baryta, made by precipitation; where precise results are required, the carbonate should be prepared by carbonate of ammonia. The manner of producing the decomposition is as follows: Dissolve the sulphate of potash in water, using about twenty or thirty grammes of water to every gramme of the sulphate, and saturate the solution with carbonic acid by passing a current of carbonic acid into it; or, what is better, dissolve in the beginning the sulphate in water already saturated with carbonic acid; now add to this solution precipitated carbonate of baryta, in the proportion of about one and a half of the carbonate to one part of the sulphate. It is always best in adding the carbonate to rub it up in a mortar with a little water so as to form a thick cream, for by so doing it mixes well in the solution.

This operation is performed in a bottle that can be well corked with a cork or gum stopper; now agitate the bottle frequently, or, what is still better, attach to a piece of machinery that will agitate the bottle. Many laboratories have such, and it is a very useful one in many experiments. In a longer or shorter space of time, the decomposition will be completed, pour the solution into a capsule and heat to the boiling point; the solution will then contain only carbonate of potash.

The reaction is readily understood; the carbonic acid in the water dissolves a little carbonate of baryta, which is immediately re-precipitated in the form of sulphate, carrying down a portion of the sulphuric acid of the soluble sulphate, and replacing the same with carbonic acid; this is rapidly repeated through the agency of the free carbonic acid, until the decomposition of the sulphate is complete.

Among many experimental results, I will give the following: Five grammes of the sulphate of potash, dissolved in carbonic acid water, to which was added seven grammes of precipitated carbonate baryta, after four and a half hours' shaking (being attached to a suitable piece of machinery), on testing showed not a trace of sulphuric acid, care being taken to wipe the neck of the bottle near the end of the stopper before pouring out the liquid.

Other experiments, varying in proportion, gave similar results. I tried to substitute the natural for the precipitated carbonate of baryta, but with very unsatisfactory results.

Directions for Conversion of the Alkaline Sulphates into Tartrates, Oxalates, etc.—As the tartrate and oxalates of baryta are but very slightly soluble in water, we cannot form the alkaline salts of these acids by direct double decomposition of the sulphates of the alkalies and the tartrate, etc., of baryta, as in forming the alkaline chlorides from the sulphates; but it is easily done by the following indirect process:—

Add to the alkaline sulphates in solution, in a porcelain capsule, carbonate of baryta rubbed up into a thick cream in the proportion of about five of the sulphate to seven of the carbonate of baryta; heat the mass and add little by little the requisite quantity of tartaric or oxalic acid; solution of the baryta and precipitation of the sulphuric acid take place rapidly, and the decomposition is soon completed.

I have used this process of forming the bitartrates in the process of separating potassium, rubidium, and cæsium, that were in the form of sulphates.

The carbonate of the alkalies can also be formed by first forming these organic salts from the sulphates, evaporating the solution to dryness, and burning the residue; in fact, I frequently find it more convenient to convert the sulphates of the alkalies into their carbonates by this last instead of the first process. And, finally, I would remark that where magnesia is present with the sulphates, this is also separated from the alkalies.

COD LIVER OIL AND LACTO-PHOSPHATE OF LIME.*

BY EDWARD CHILES.

This remedy is being quite extensively prescribed by physicians, and a considerable inquiry has been made as to an eligible mode of prescribing it, I will give my experience in the manufacture of the article, and also a simple process for making syrup of lacto-phosphate of lime.

For a long time I have had demand for a tasteless cod liver oil, and have been in the habit of preparing it in the form of an emulsion with gum arabic and water, and covering the odor with a few drops of essential oil of bitter almonds.

Over a year ago I found physicians were prescribing cod liver oil and lacto-phosphate of lime, and I devised a formula for it, based on my experience with the simple emulson and the syrup of lacto-phosphate of lime, for which a considerable demand had sprung up. The formula I then devised has been followed by me up to the present time, and has invariably given satisfaction, and produces an article which does not separate or become rancid.

I think, however, it should be prepared extemporaneously as prescribed by physicians, and I have not kept it on hand, but prepare it as wanted, thus always giving a perfectly sweet article.

Take of Gum arabic	℥ij ℥ij.
Water	f℥ij.
Syr. lacto-phosphate of lime	f℥vi.
Cod liver oil	f℥viij.
Essential oil bitter almonds	six drops.

Rub the gum, water and syrup together, until a smooth mucilage is made, then add the oil gradually with constant stirring, and, lastly, the oil of bitter almonds.

Thus made, each tablespoonful of cod liver oil and lacto-phosphate of lime contains four (4) grains lacto-phosphate of lime and 50 per cent. of cod liver oil. The gum in the above should be selected, ground and passed through a seive of 60 meshes to the inch. Cod liver oil and lacto-phosphate of lime, prepared in this manner, forms a preparation free from unpleasant taste and odor, and enables the practitioner to administer these valuable remedies without repugnance on the part of the patient.

Syrup Lacto-Phosphate of Lime.

Take of Chloride of calcium	℥i.
Phosphate of soda	℥iv.
Concentrated lactic acid	℥i.

Dissolve the chloride of calcium and phosphate of soda separately, and mix the solutions; wash the precipitate and dissolve in the acid. Filter and mix with sufficient syrup to make two and one-half pints.

FORMULAS FOR POULTICES.*

The article "Cataplasm" in the new *Dictonnaire des Sciences Medicales* has been worked up by M. Brochin as completely as possible to the actual state of our knowledge of this ancient method of treatment. Amongst the opinions of authors and the modern modes of compounding cataplasms, M. Brochin cites those of Cayol, Broussais, Réveillé-Parise, and especially Velpeau and Trousseau. The editor of the *Journal de Medecine*, from whom we quote this article, observes that he has had the opportunity of following the last-named illustrious physician for some years, and never heard him order either a bath or a cataplasm; occasionally, however, and with a certain air of solemnity, he would order the the poultice. This was made nearly as follows:—

Extract of Stramonium, or
Extract of Belladonna;
Extract of Opium;
Camphor in Powder;
Water. Of each 10 parts. Mix.

A bread poultice having been made, some camphorated alcohol is to be boiled with it; the paste should then be enclosed in a little muslin or tarletan, and the surface watered with the above mixture. It is then to be applied, and covered with some impervious cloth and a large piece of flannel. M. Brochin leaves out the camphor in powder, and replaces it with ten parts of ether. This topical application which is rather expensive, can be retained in place several days. Trousseau only employed it in grave cases, such as mono-articular arthritis with acute osteitis and puerperal arthritis. He prescribed calomel simultaneously, and insisted on perfect immobility of the limb. The following is a narcotic poultice prescribed by MM. Bouchat and Després:

Powdered Hyoscyamus Leaves;
" Conium Leaves;
" Belladonna Leaves;
" Solanum Tuberosum Leaves;
Linseed Meal. Of each 20 parts.
Decoction of Poppyheads, q. s.

*Practitioner, from the 'Journal de Medecine; Published in the Phar. Jour. of London.

Conium is also used in poultices specially intended for the relief of superficial cancers :—

Bruised Carrots, 500 grains ;
Powdered Conium Leaves, 30 grains ;
Powdered Opium, 1-20 grain.

The following is intended to act as a diuretic poultice :—

Bruised Squill, 100 parts ;
Nitrate of Potash, 10 parts.

And this to render the emission less painfull :—

Bruised White Onions, 6 in number ;
Leaves of Parietaria, 50 parts ;
Decoction of Marshmallow, q. s.

Both may be applied over the pubis.

CHLOROFORM AS A MEANS OF SEPARATING POISONOUS VEGETABLE SUBSTANCES.

I. Nowak has instituted a series of experiments which prove that chloroform quickly and perfectly extracts the following long list of vegetable substances from alkaline solutions, viz: Strychnine, quinine, quinidine, chinchonine, caffeine, theobromine, emetine, atropine, hyoscyamine, aconitine, veratrine, physostigmine, narcotine, codeine, thebaine, nicotine and conine. It dissolves brucine, colchicine, and papaverine more slowly. Sabadilline is only taken up by it when warm, while narceine is taken up from alkaline solutions in small quantities only. Picrotoxine is acted upon by chloroform more readily from acid than alkaline solutions. Morphine and solanine do not dissolve in chloroform, either from acid or alkaline solutions.

Further experiments also show that all those substances which are taken up by chloroform from aqueous alkaline solutions are again given up by it on shaking repeatedly with acidulated water, while fatty and other foreign substances mixed with them remain in the chloroform. A systematic course of search for poisonous vegetable substances, founded on the above facts, was instituted, and its practicability tested by actual experiments as follows: A weighed quantity of different poisons was mixed with pieces of flesh selected for the purpose, and then tested for. The results obtained showed that in many cases the whole quantity of the poison mixed with the flesh was recovered, and in most cases the greater part was found. The results gave general satisfaction, especially on account of the great purity of the alkaloids obtained from the chloroform, so that the reactions for identifying them could be made at once.—*Jour. of Applied Chemistry.*

VALUE OF APOTHECARIES WEIGHTS IN THOSE OF THE DECIMAL SYSTEM.

The following table taken from *Hager's Commentary* on the *German Pharmacopœia*, and published in the *Pharmacist*, will be useful in saving calculations:

TROY WEIGHT	GRAM. WEIGHT.		TROY WEIGHT	GRAM. WEIGHT.	
	Decimals.	In Words.		Decimals.	In Words.
Grain 1-10	0.006	6 Milligrm.	Grain, 96	6.0	6 Grm.
" $\frac{1}{8}$	0.0075	$7\frac{1}{2}$ "	" 100	6.25	$6\frac{1}{4}$ "
" 1-6	0.01	1 Centigrm.	" 120	7.5	$7\frac{1}{2}$ "
" 1-5	0.012	12 Milligrm.	" 150	9.5	$9\frac{1}{2}$ "
" $\frac{1}{4}$	0.015	$1\frac{1}{2}$ Centigrm.	" 160	10.15	10.1-7 "
" $\frac{1}{3}$	0.02	2 "	" 180	11.0	11 "
" $\frac{1}{2}$	0.03	3 "	" 200	12.25	$12\frac{1}{4}$ "
" $\frac{2}{3}$	0.04	4 "	" 240	15.0	15 "
" $\frac{3}{4}$	0.045	$4\frac{1}{2}$ "	Drms. 5	18.75	$18\frac{3}{4}$ "
" 1	0.06	6 "	" $5\frac{1}{2}$	20.75	$20\frac{3}{4}$ "
" 2	0.12	12 "	" 6	22.5	$22\frac{1}{2}$ "
" 3	0.18	18 "	" 7	26.25	$26\frac{1}{4}$ "
" 4	0.24	24 "	" 8	30.0	30 "
" 5	0.3	3 Decigrm.	" 9	33.75	$33\frac{3}{4}$ "
" 6	0.36	36 Centigrm.	" 10	37.5	$37\frac{1}{2}$ "
" 7	0.42	42 "	" 12	45.0	45 "
" 8	0.5	5 Decigrm.	" 14	52.5	$52\frac{1}{2}$ "
" 9	0.55	$5\frac{1}{2}$ "	" 16	60.0	60 "
" 10	0.6	6 "	" 18	67.5	$67\frac{1}{2}$ "
" 12	0.72	72 Centigrm.	" 20	75.0	75 "
" 14	0.85	$8\frac{1}{2}$ Decigrm.	" 24	90.0	90 "
" 15	0.9	9 "	Ozs. $3\frac{1}{2}$	105.0	105 "
" 16	1.0	1 Grm.	" 4	120.0	120 "
" 18	1.12	112 Centigrm.	" $4\frac{1}{2}$	135.0	135 "
" 20	1.25	$1\frac{1}{4}$ Grm.	" 5	150.0	150 "
" 24	1.5	$1\frac{1}{2}$ "	" $5\frac{1}{2}$	165.0	165 "
" 30	2.0	2 "	" 6	180.0	180 "
" 32	2.12	212 Centigrm.	" $6\frac{1}{2}$	195.0	195 "
" 36	2.36	236 "	" 7	210.0	210 "
" 40	2.5	$2\frac{1}{2}$ Grm.	" 8	240.0	240 "
" 48	3.0	3 "	" 9	270.0	270 "
" 50	3.12	312 Centigrm.	" 10	300.0	300 "
" 60	3.75	$3\frac{3}{4}$ Grm.	" 11	330.0	330 "
" 72	4.5	$4\frac{1}{2}$ "	" 12	360.0	360 "
" 80	5.0	5 "	" 16	480.0	480 "
" 90	5.57	$5\frac{3}{4}$ "			

CURIOSITIES AND USES OF THE VEGETABLE KINGDOM.*

Prof. Day, in opening, said his object was not so much to offer instruction as to interest his hearers with something in the vegetable world, which perhaps might not be very familiar to them. He had prepared a number of large illustrations of some curious and interesting plants, and his remarks were by way of explaining these illustrations.

After stating the difficulty of defining the line of demarcation between the vegetable and animal kingdoms, he said it was due rather to our own knowledge than to any real confusion of the essential characteristics of the two classes. As our means of observation are perfected, doubtful points clear up. Perhaps the power of spontaneous motion, either with or without an apparent object, we are most inclined to ascribe to an *animal*. Behind this motion we recognize a mind, and we respect it.

Plants are usually deficient in the power to move, but to this there are some interesting exceptions. Prof. Day then explained an illustration of the "*Vaucheria geminata*," giving much pleasing information regarding the peculiar motions shown in its efforts to reproduce itself.

The motions of *Oscillaria spiralis*, *Protuccus nivalis*, *closterium*, and other microscopical plants were explained, as were also the movements of various sensitive plants.

The "*Desmodium gyrans*" or "Telegraph Plant," was shown by illustration, and its singular motions described in detail.

The fly-catchers were illustrated, the selections being the "Venus' fly-trap," and some specimens of the Sundew family, and the peculiar method of entrapping and disposing of their victims was related.

The motions of flowers in expanding and closing, their regularity of habit, and its causes, were explained; the habits of the *Victoria Regia* were also alluded to.

Climbing plants seek to rise higher and obtain a fuller exposure to the light. Some climb by means of roots, like the ivy; their stems, as they grow, press against their support, and adhere by means of little rootlets which they throw out. Others grow by twining; the hop and many of the honey-suckle family twine with the sun, from right to left, while the morning-glory, and most of its family, turn against the sun, *i. e.*, from left to right. When the stem has grown beyond its support, it is seen to be outstretched and thrown over to one side horizontally. If you find it pointing to the

*[Brief extracts from a Lecture by W. De F. Day, M. D., Prof. of Materia Medica and Botany, New York College of Pharmacy.] Published in the Druggists' Circular, March.

north, in an hour or so it will point to the south, and in an hou more it will point to the north again. That is, it has the power c "swinging around the circle," and it keeps on growing as it turns although the turning is independent of the growth, and is often s rapid that several turns may be made, without any perceptibl lengthening of the stem.

Some plants climb by their leaves, either by the blades, or mor commonly the petiole coiling round somcthing within reach; other climb by their tendrils. When a fresh and active tendril comes i contact with a neighboring stock, it hooks or coils its end aroun it, then having secured its hold, it shortens by coiling up its whol length or a good part of it. This draws the climbing stem neare to its support, and makes it easier for the younger tendrils to secur their hold.

After detailing the action of the various kinds of tendrils and their "modus operandi," Prof. Day referred to Darwin's statement, "that some tendrils exhibit a most remarkable power of selection, which would be called *instinct* in an animal."

To the pharmaceutist this kingdom is of especial interest. It furnishes most, and those the most important of his drugs. This interest is a pecuniary one, but we all are interested in it as being sure at some time or another in our lives to require its assistance in restoring us to health. Animals rely upon vegetables for their food, and this office of furnishing food to the animal kingdom is the most important that plants fulfil. They are the sole producers of nourishment. They alone transform mineral and chiefly atmospheric materials into organized tissues, which are consumed by animals unable of themselves to produce anything directly from the mineral kingdom.

The constitutents of plants are of two kinds, the earthly or inorganic, and the organic. The earthly matters dissolved in the water of the soil and absorbed by the roots are at length deposited in the wood, and chiefly in the leaves of the plant; they form the ashes left behind when we burn it. There are many of them useful to the plant, but they exist in small quantities, and are not essential to simple vegetation. Those which are essential to vegetation, and make up 88–99 per cent. of every vegetable substance, are called the "Universal Organic Constitutents of Plants,"—carbon, hydrogen, oxygen, nitrogen. These, of course, must be furnished to the plant in the gaseous or liquid form from the earth and the air.

The oxygen and hydrogen are derived principally from water, and which is absorbed by the roots. Nitrogen is obtained from several sources. Nearly 79 per cent. of the atmosphere consists of this gas in a free state, or merely mingled with oxygen. Now, it is to some extent soluble in water, and so becomes a constituent of rain-water, each drop bringing its share. Ammonia, too, which is merely a compound of nitrogen and hydrogen, exists in considerable

quantities in all soils, and is, besides this, a product of the decay of all organic matter, whether animal or vegetable.

The carbon is now to be accounted for. The plant needs much of this; but carbon is a solid, and is insoluble in water; and so, under its own form, the plant cannot appropriate it. But carbonic acid gas exists in the atmosphere, is freely soluble in water, is imbibed by the roots after showers, and is even to some extent received through the leaves. Thus we see that the atmosphere contains all the elements necessary to plant-life, and that these exist under the fluid or gaseous form, the form best adapted for absorption; and we see, too, that while the atmosphere contains the food, the plant derives it mainly from the soil.

From such materials as these, Nature furnishes an enormous variety of food. It must vary according to the countries which animals inhabit. In northern countries the cereals, particularly wheat and corn, largely supply our daily bread; but, to secure the ripening of the wheat, there must be frost, otherwise it grows rank and bears no seed. In warmer countries there is no winter. In proportion as we approach the equator the seasons are less sharply defined. When wheat no longer ripens, other vegetables take its place. Their name is legion. A very curious one is the bread-fruit tree of Otaheite—a tree about 40 feet in height. Its fruit is globular, the size of a child's head, consisting of a thick green rind covered with hair. Its pulp, when ripe, is yellow, succulent, and gelatinous. The fruit ripens during eight consecutive months in the year, and is the main food of the natives. They bake it in an oven, and when ready to be eaten it is said to be white, tender as the crumb of French rolls, and differing but little in taste from wheaten bread.

In 1829, a traveler in Guiana met with a tree, of whose juice he says: "I had in the morning a glass of this milk for my coffee, and it proved so good a substitute for cow-milk that no one could have told the difference." It seems almost unaccountable that none of our enterprising New England sea-captains have attempted to graft the bread-fruit upon the milk tree. The advantages of such an undertaking are sufficiently obvious without further mention. On the banks of the Niger the natives gather their butter directly from a tree (*Pentadesma butyracea*), and sell it in their markets.

Another office of the vegetable kingdom is found in its purifying influence upon the air. Carbonic acid gas is a deadly poison. Those who desire to "shuffle off this mortal coil" can succeed by inhaling the fumes of burning charcoal. In a far less degree we all experience its bad effects. Bad air is one of the objections to the theatre. The best of us are liable to go to sleep in church; it is doubtless due as much to the carbonic acid as to the sermon; for I have observed in this very room, which the trustees have been solicitous to ventilate properly, some of the best and most industrious

students succumbed to the influence of this noxious gas before my lecture was half completed.

Now, animals are constantly inhaling carbonic acid gas in the process of respiration, and poisoning the air with it. It is necessary to get rid of it. What they want is oxygen. The process of combustion and decomposition, and other causes, conspire to deprive the air of its life-giving oxygen. On the other hand, vegetation needs carbonic acid gas just as much as we want oxygen. It therefore withdraws it in great quantities from the air, appropriates its carbon, and because it has no use for it it gives back its oxygen to the air.

It has been estimated that every six pounds of carbon in plants have withdrawn twenty-two pounds of carbonic acid gas from the atmosphere, and replaced it with sixteen pounds of oxygen gas occupying the same bulk. We see then the wise adjustment of these two great natural kingdoms with reference to the air. Each taking from it that which, while it is necessary to its own life, would be fatal to the existence of the other.

And lastly, gentlemen, the influence of plants upon man, in an æsthetical point of view, is worth mentioning. This influence was doubtless intended. Their unobtrusive voices may teach us many lessons, if we will attend to them, lessons of patience, of humility, of faith. They are not insignificant things.

A former teacher, now a prominent college president in New England, once walking with some friends, stopped to examine a modest, unattractive wayside flower, and replied, on being rallied by his friends for his simplicity, that if "God thought it worth while to make it, he might be excused for studying it." "Flowers," said a quaint old writer, "through their beauty and variety of color, and exquisite form, do bring to a liberal and gentle mind the remembrance of honesty, comeliness, and all kinds of virtues; for it would be an unseemingly thing for him that doth look upon and handle fair and beautiful things, and who frequenteth and is conversant in fair and beautiful places, to have his mind not fair also."

Flowers are our friends through life. They meet the infant as it enters the world, a type of its innocence and helplessness. In maturer life they surround our steps, leading our thoughts away from care, while at last hands of love weave them into symbols of Faith, Hope and Conquest, for our bier, and lay upon our grave a wreath of immortelles.

EXPLOSIVE MIXTURE OF NITRATE OF POTASH AND ACETATE OF SODA.*

BY M. VIOLETTE.

An accident in the author's library made known to him a singular re-action between nitrate of potash and acetate of soda, which, under the influence of heat, constitutes an explosive mixture equal in force to gunpowder. In some researches upon saltpetre he had heated moderately in a small phial a few grams each of nitrate of soda and acetate of soda, both previously fused and anhydrous. The two salts melted formed a colourless and transparent liquid, which gave off a few gaseous bubbles. At the same moment, a violent explosion occurred, accompanied by flame and smoke, which scattered the phial in fragments all over the laboratory; a fresh gaseous combination between the elements of the salts had taken place, leaving a slight residue of alkaline carbonates.

In repeating the experiment a gram of nitrate of potash was melted in a small platinum capsule at a gentle heat, and a gram of acetate of soda previously fused added to it. At a temperature of about 300° C. the mixture remained fluid, transparent and without alteration as long as the temperature remained constant; upon rising it to about 350° C. there was a slight ebullition followed instantly by a loud explosion, with light and smoke, similar to that of gunpowder. As before, there was a slight residue of alkalines carbonates. The same result followed when a substance in ignition without flame was plunged into the liquid at 300° C.

If the melted mixture be poured upon a cold surface a white substance is obtained, which is hard, brittle, rather hygroscopic, more fusable than nitrate of potash, and being melted explodes violently. In the solid form it does not burn when placed in contact with an ignited body; but reduced to fine powder, it deflagrates violently upon the application of a flame.

The explosive properties of the mixture are only developed when the nitrate of potash and acetate of soda are present in certain proportions,—from 50 to 100 parts of the acetate to 100 parts of the nitrate,—the most explosible mixture being 100 parts of the fused nitrate to 60 parts the fused acetate. When the nitrate is in excess, the combustion is only partial and of short duration; when the acetate is in excess, the mixture burns slowly and similarly to a light wood.

A mixture of nitrate of soda and acetate of potash was found to have the same explosive properties, but to be more hygroscopic. Mixtures of nitrate of potash with the acetates of copper and baryta did not yield an explosive product.

* Journal de Pharmacie et de Chimie, xvi. 333—in Phar. Jour. and Trans., Jan. 11, 1873.

NEW REACTION FOR CARBOLIC ACID.*

BY CHARLES RICE.

The following reaction for carbolic acid, which occurred to me some time ago, accidentally, is very decided and quite delicate.

Into a five-inch test-tube place about 10 grains of powdered chlorate of potassa, pour upon it strong hydrochloric acid to the depth of about one inch, and allow the action and evolution of gas to proceed for about one minute. Then dilute with 1½ volumes of water, and remove the gas contained in the upper part of the test-tube by blowing it out with a bent glass tube. It is advisable not to omit this precaution, since otherwise the subsequent addition of ammonia is frequently accompanied by a vivid flash of light. Pour upon the liquid in the tube solution of ammonia, without shaking, so that the latter will float upon the liquid to the depth of about a half inch, and remove the white clouds of chloride of ammonium by blowing gently through a glass tube as before. Now add a few drops of the liquid suspected to contain carbolic acid, by pouring it down the sides of the tube. If any be present, the upper previously colorless ammoniacal layer will assume a color varying from the darkest brown through all the shades of red brown, blood red, rose red, according to the quantity of carbolic acid present. The color appears first, either at the top, when much acid is present, or below at the point of contact of the two layers of liquid, when the quantity of acid is small, in the form of a colored ring. One part of carbolic acid in 12,000 may yet be distinguished. The same reaction is produced with creasote; but I have not been able to produce it with any other substance. In the meantime this test will no doubt prove useful as a negative one: the failure of the reaction proving the absence of a notable quantity of carbolic acid.

BETEL NUT CHEWING.

The Eastern correspondent of the *New York Mail* writes to that paper:—"There is a fascination in betel nut more extraordinary than in a tobacco passion. The consumption of the latter in chewing alone, in the United States, is a modern phenomenon. An inveterate chewer must have moral resolution enough to break off the habit, though it rarely happens that an effort is made to do so, as an apology is found for continuing a practice that is positively destroying the foundations of health. Once addicted to chewing

*From the American Journal of Pharmacy, March 1873.

tobacco, to abandon it is an achievement few have the happiness to perform, notwithstanding the melancholy mortality of men in the meridian of life who are constantly being destroyed by the subtle influence of that strange plant on the nervous system. Thus, sudden palsy of the heart, palsy of a limb, palsy of one-half the tongue, and even instantaneous death, are traceable by physicians to excessive use of tobacco. But the vice of betel-nut chewing, however, is still more remarkable. When the habit is established, there seems no retreat. Each victim wears out his teeth, gums, digestion, and dies with an unsatisfied longing for another quid. The betel-nut-tree thrives in most parts of tropical India, the Indian Archipelago, and the Philippine Islands, growing up gracefully about thirty feet, rarely more than eight inches in diameter. It is the *Areca catechu.* Penang is the universal name of the nut in those places where it is produced; hence Pulo Penang means a betel-nut island. At six years of age, the tree commences bearing nuts of the size of a small pullet's egg, of a bright yellow colour, enclosed in a husk similar to the cocoa-nut; within is a spherical nut very much like a nutmeg. Broken, a bit of it is wrapped up with a piece of unslaked lime in a peculiar leaf, the siri betelpiper, extensively cultivated for that purpose, The gums and mucous membrane of the mouth are quickly stained a brick-red; the teeth crumble to a level with the gums; and in that condition an inveterate betel-chewer is wretched without a supply, There are large plantations of betel-nut trees in Java to meet the demand for home consumption and distant provinces. To augment the pleasure, those who can afford it add tobacco to the lime.—*British Medical Journal.*

ETIQUETTE OF THE SHOP.

The following sensible article, from the pen of Mr. J. O. Wild, published in the *Druggist's Circular*, may be read with advantage by our younger members and may not prove unacceptable to those of more matured experience:

The above subject is one of much importance to apothecaries; for upon the etiquette of a store depends much of its reputation—more, in fact, than is generally acknowledged. And yet the subject is one that you will not find much written upon in our books, and so we will write a few words, hoping they may benefit some, if not all. And first: There should be no difference in your treatment of customers, on account of age, color, or position. No *gentleman* would make a distinction, neither should you. A courteous and kindly disposition, with an even, cheerful, and happy temperament, are worth much more than the trouble to acquire them. Boisterous mirth or a sullen temper are equally to be avoided. When customers enter your store, recognize them by a bow, or a pleasant Good

Morning, Afternoon, or Evening, as the case may be. And remember you are not recognizing them personally, but as a customer of yours for the time being and until they leave the store. For this reason, you should not presume to recognize a person on the street upon your store acquaintance with him. When a person is making known his wishes, pay strict attention to what he may say, so as to avoid if possible the necessity of asking him to repeat his words. If a lady or elderly gentleman, and it will require a few moments to fill the order, state the fact and offer a seat. Never smile before a customer unless they are aware of the cause of your mirth. People have a great dislike to be laughed or even smiled at, and if they are not aware of the cause, may think you are smiling at them. I know it will be difficult at times to guard against this, but you must do it. When a customer is in the store, avoid, if possible, having any conversation with any one but him. Devote your attention strictly to him. It does not sound well for you to keep a conversation with any one else, neither is it polite so to do ; also avoid talking over business matters, in the presence of customers. Avoid as much as possible making known your customers' wishes to any one else. Some persons are very sensitive in this regard. If you wish to ask a question of your employer or others clerks, go to them, not ask it across the shop or in a voice that others can hear. This will apply in all cases, but more particularly in those of ladies, and especially when they wish medicines or articles of a private nature. In such cases you will have to deal very gently and prettily with them so as to avoid giving offence. When a medicine is wanted of a private nature, avoid showing by your actions or speech that you are aware of the uses of it. Persons do not like to be reminded of their private diseases, and especially by those they favor with their patronage. Never mention the names of customers for medicines that are at all private in their nature, and especially before other customers, for they reason rightly that you are not as careful of the secrets of your store as you should be, and that if you mention the names of others you will do the same to them. One more very important and to be remembered point : never to make known to *any one* the occurrences of the shop, not in the shop nor outside, not even the smallest thing, for you do not know when it may come back to you again. A word once spoken cannot be recalled, however much we may wish it. Remember, the secrets of the shop are yours to keep inviolate, not for the public to know. Always thank a customer for his purchase, and after ascertaining if it is the extent of his wishes, bid him Good Day ; if a lady, unaccompained by a gentlemen always accompany her to the door, opening and closing it. It is a small favor, but much appreciated. Avoid familiarity with your customers, as it tends to lower you in their estimation. Be rather more reserved than forward, as it gives an impression of knowing more than you speak. And with these words we will close. "Always do unto others as ye would that they should do to you."

MORBID EFFECTS OF ALCOHOL AS SHOWN IN PERSONS WHO TRADE IN LIQUOR.*

This is the title of a paper read before the Royal Medical and Chirurg. Soc. (Oct. 22, 1872,) by Dr. W. H. Dickinson, which the author offered as a contribution to the morbid anatomy of alcoholism founded upon a comparison of post-mortem appearances between persons trading in liquor and persons occupied independently of it, and not known to have been drunken. The assumption that people who get liquor for nothing drink more than those who have to pay for it, is, the author said, justified by the common tendency of mankind, as well as by the notorious inebriety and liability to delirium tremens of potmen, waiters, cellarmen, draymen, brewers, barmen, and publicans—the chief members of the liquor-trading class. The paper is based upon an analysis of the post-mortem and case books of St. George's Hospital for a period of thirty years. This comprised the particulars of the examination of the bodies of 149 traders in liquor. For comparison there were taken from the same source the same number of examinations of persons otherwise and very variously employed, chosen by rule so to afford a fair standard. The full details were tabulated and laid before the Society. Tabular abstracts, representing the condition of each organ in the two classes, were incorporated in the paper.

The general conclusions of the inquiry were summed up by the author as follows:

"Alcohol causes fatty infiltration and fibroid encroachments; it engenders tubercle, encourages suppuration, and retards healing; it produces untimely atheroma, invites hemorrhage, and anticipates age. The most constant fatty change, replacement by oil of the material of epithelial cells and muscular fibres, though probably nearly universal, is most noticeable in the liver, the heart, and the kidneys. The fibroid increase occurs about the vascular channels and superficial investments of the viscera, where it causes atrophy, cirrhosis, and granulation. Of this change the liver has the largest share; the lungs are often similarly but less simply affected, the change being variously complicated with, or simulative of, tubercle; the kidneys suffer in a more remote degree. Alcohol also causes vascular deteriorations which are akin both to the fatty and the fibroid. Besides tangible atheroma there are minute changes in the arterial walls, which show themselves by cardiac hypertrophy and cerebral hemorrhage. Drink causes tuberculosis, which is evident not only in the lung but in every amenable organ. Drink promotes the suppurative at the expense of the adhesive process, as seen in the results of pneumonia, of serious inflammations, and of accidental injuries. Descending from general conditions to the individual

* American Journal of Medical Sciences.

organs, the effect of alcohol upon the nervous system must be looked upon as special, and taken by itself. Apart from changes which, like delirium tremens, are more evident during life than after death, the brain pays a large reckoning in the shape of inflammation, atrophy, and hemorrhage. With regard to the other organs, they are damaged by alcohol much as they stand in its line of absorption. Next to the stomach the liver suffers, by way of cirrhosis and fatty impregnation. Next the stress falls upon the lung, taking every shape of phthisis. A large share in the pathology of intemperance is also taken by the arterial system, as seen in its results—atheroma, cardiac, hypertrophy, and hemorrhage. Lastly, the kidneys, more remotely exposed, have a smaller participation in common damage of alcoholism. They undergo congestive enlargement, fatty and fibroid change, but they do not suffer commensurately with the bloodvessels, or as frequently as the other viscera.

"So far we have seen only the ill which alcohol produces. It may be asked: Is there none which it obviates? Apart from its medical action, which the evidence before us does not touch, has it no *per contra* of prevention? It is not easy to answer this enquiry. Some active inflammation, such as pneumonia and endocarditis, are diminished in the alcoholic trades; but it must at once be seen that the increase of the alcoholic disorders must necessarily cause an apparent diminution in all which are unaffected by this agent. A man may be saved from pneumonia, or acute rheumatism, not because alcohol is antagonistic, but because it kills him prematurely in another way. He can die but once. Therefore, though under alcohol some forms of disease are comparatively infrequent, we must use much caution in concluding that it has a directly preventive influence. Nevertheless, it may be laid down as an axiom that any drug which can do harm can do good. Disease is most various, and may, or rather *must*, represent contrary conditions. It may be positive or negative, plus or minus. Too much or too little of any of the shapes of heat, food, and work, may spoil the equipoise of health. If a drug promotes one change, it may prevent its opposite. Alcohol certainly gives an asthenic type to disease. Although we can not say that it defibrinates, yet it retards adhesive and plastic processes. This influence may be beneficent if it hinders the developement of acute inflammation, and obviates the formation of coagula where, as in acute rheumatism, the process is harmful. It is possible that by some such antagonism we may explain the remarkable paucity of endocarditis in the alcoholic series. But, at the best, the protecting is less certain and less effective than the deteriorating influence. In brief and final enumeration, alcohol replaces more activity vital materials *by fat* and fibrous tissue; it substitutes suppuration for new growth; it promotes caseous and earthly change; it helps time to produce the effects of age; and in a word, is the genius of degeneration."

Dr. Anstie said that the paper contained facts of high interest, but which required consideration as to how far the number of cases warranted the conclusions; those cases only having been included where alcohol had been taken in excess, and thus a large number of persons subject to chronic alcoholism have been included. He did not agree with the conclusion as to the suppurative form of inflammation being the more common. With regard to the frequency of cirrhosis, Dr. Anstie would say, from his experience of over thirteen years, in which he had seen a large number of patients suffering from the effects of chronic alcoholism, that it was rarely met with; he had only seen thirteen cases in which there were symptoms of cirrhosis, though some of the patients had been under observation for ten years. He agreed with the prominence given to nervous changes and symptoms; they were always in advance in the effects of alcohol. It was interesting to note how frequently inflammatory changes, such as slight attacks of inflammation on the brain, occurred, with delirium and convulsions, and from which the patient recovered. He thought the effects of alcohol, long continued, tended to the fibroid form of phthisis. He was pleased to see that the tables showed that kidney disease on a large scale, was not increased by alcohol; this had been shown by statistics collected in Glasgow. He believed the notion arose from false ideas of the elimination of alcohol by the kidneys—too much work was thrown upon them, so causing degeneration.

A NEW METHOD OF PREPARING CAUSTIC SODA.*

The greatest part of the caustic soda prepared in soda works is manufactured from the mother liquor obtained by boiling down the crude soda lye. Soda obtained in this manner, as well as that made with quicklime, is contaminated by the presence of carbonate of soda, cyanogen compounds and sulphur compounds, which latter especially are to be removed before a marketable article can be prepared from it. Formerly saltpetre was added, and at a suitable tempeature oxidized the sulphide of sodium to Glauber salts, which were not considered injurions. The employment of metallic oxides for removing the sulphur has not proved practical on account of expense, and its use did not last long. The attempt to oxidize the sulpur by blowing air into the solution before it became of a sirupy consistency did not answer, as it oxidized slowly and imperfectly.

The method proposed by Wm. Helbig goes one step farther than the last, for instead of introducing air into the solution, he forces the air into the melted soda at a red heat. His process is as follows:

*Journal of Applied Chemistry.

The caustic lye is evaporated as before in cast iron kettles. At first a degree of concentration is arrived at where the cyanides are decomposed, the solution foams up, ammonia is liberated, and graphite deposited; the foam subsides and the contents of the liquid become thick. When this point is reached the heat is increased and the mass brought to redness, which renders it thin and fluid. The kettle is covered with a sheet iron lid, which has a little chimney, and near it a hole for inserting an iron tube which reaches to the bottom of the kettle, and through this a blast of air is forced into the fused mass. The graphite now floats on the surface and may be skimmed off, or more commonly is allowed to burn up, for its crystalline form renders it unsuited to the manufacture of lead pencils. The oxidation of the sulphur compounds begins at once, and is controlled by the appearance of samples taken from time to time. The air is forced in so violently as to prodnce strong ebullition, and is continued untill almost all or quite all the sulphur is oxidized, according as a white or bluish product is desired. While the kettle and contents are still at a red heat the fire is removed, the slide closed, the mass allowed a few hours to settle, and then the soda is dipped out in the ordinary manner. The thick iron tube which conducts the air into the kettle is bent at right angles, and is supported at the bend by a chain running over the wheel or roller. The end which dips in the kettle is closed, and in the sides are four small openings, through which the air escapes in fine streams. The other end is connected with the stop cock of the air pump by a rubber tube for convenience of handling.

The first experiment with this process was made in the spring of 1869, and immediately succeeded so surprisingly well that it has been introdueed in nearly all soda works in Europe, so that the general use of saltpetre, of which 2 to 10 per cent, to the 100 lbs of caustic soda was required, has considerably decreased.

NEW PROCESS FOR THE EXTRACTION OF THE PRECIOUS METALS CONTAINED IN COPPER PYRITES.*

The copper pyrites of Spain and Portugal all contain silver and gold, but so extremely small in amount that it has not been supposed it could be extracted with profit. The most careful analyses have estimated from 0·0020 to 0·0028 per cent., or from 20 to 28 grammes of silver in one ton of roasted pyrites, that is, pyrites which have yielded their sulphur for the manufacture of sulphuric acid. But

* Comptes Rendus, in Am. Chemist.

even in this minute proportion, since the consumption of sulphuric acid has led to the importation of 400,000 and 500,000 tons of pyrites per annum, and is still increasing, it did not appear to me impossible to extract with profit the thousands of kilogrammes of precious metals contained in these pyrites.

The roasted copper pyrites were originally sold to the smelters of copper ores, who used them as a flux for the smelting of quartz ores; but then all the iron, which constitutes almost the entire amount of the pyrites was lost. Since the extraction of copper has been effected in the wet way, and since this treatment has been applied to the pyrites of Spain and Portugal, the sulphur, the copper, and the iron of pyrites have become available; I have succeeded in discovering an advantageous process for the separation of the gold and the silver also. This process is based upon this fact, that argentic iodide is almost completely insoluble in a solution of sodium chloride at the ordinary temperature.

It is at the works, which Mr. J. A. Phillips and myself have established at Windnes, near Liverpool, for the extraction of copper from the residues of pyrites, that the application of the new process has been made; of which I will now give a summary description.

The ores, having been ground, sifted, and then roasted in a reverberatory furnace at a low temperature, with the addition of sodium chloride, are placed in a large double bottomed tank (forming a filter), where they undergo several washings with water acidulated with hydrochloric acid; these wash-waters contain sodium sulphate and cupric chloride, which are formed during the operation of roasting; they should contain also the argentic chloride which is formed. When the operation is conducted only for the extraction of the copper, these wash-waters are run into other tanks, in which some fragments of iron have previously been placed; ferrous chloride is thus formed, and the copper is precipitated in the metallic state, bringing away with it the small quantity of silver which was dissolved in the waters. The precipitate of copper is immediately melted down and refined in order to bring it to the condition of merchantable copper.

In applying my process for the extraction of the precious metals, I take the waters of the three first washings, which I have proved to contain 95 per cent. of all the silver dissolved; these are run into a wooden cistern, where they are allowed to remain in order to separate the solid matters brought away; the clear solution, after having been titered, is passed into another tank; then the quantity of potassium iodide, found to be necessary by the assay, dissolved in a quantity of water, equal to about one tenth of the quantity of copper-liquor, is poured into it; the liquid is well agitated, then allowed to remain for forty-eight hours; the supernatant liquor is then clear; it is drawn off, the tank is filled again for repeating the

operation and so on.* Every fortnight, all the sediment, which has accumulated, is collected; it is principally composed of sulphate of lead, iodide of silver, and the salts of copper; these last are easily separated by washing with dilute hydrochloric acid. The sediment, thus freed from the salts of copper, is decomposed by metallic zinc, which, in presence of water, reduces the silver completely and rapidly by combining with the iodine and forming the soluble iodide of zinc. There is thus produced: 1st, soluble iodide of zinc, which, separated by filtration, is titered and employed as a substitute for the potassium iodide in subsequent operations; 2d, a sediment rich in silver, composed in great measure of lead, both in the metallic state and as a sulphate, and containing other substances, of which the following analysis of a dried specimen may be given as an example:—

Silver	5·95
Gold	0·06
Lead	62·28
Copper	0·60
Oxide of zinc	15·46
Oxide of iron	1·50
Lime	1·10
Sulphuric acid	7·68
Insoluble residue	1·75
Oxygen and loss	3·62
	100·00

But there is also gold in the ore; it appears that, in the operation of roasting, chloride of gold is formed, which, rendered more stable by the presence of chloride of sodium, is not reduced at the low temperature of roasting; it is afterwards dissolved with the silver, and, like it, is precipitated by the iodine.

It is now easy to separate from this product the precious metals, by the ordinary processes employed by the smelters of gold and silver.

This process, in our works at Windnes, has been applied during the year 1871, to 16,300 tons of roasted ores, from which has been extracted 333·242 kilogrammes of silver. and 3·172 kilogrammes of gold, representing a little more than 20 grammes of precious metals to the ton, and has yielded 80,800 francs in value, deduction being made for the cost of refining.

The special expense in the separation of the precious metals has amounted to 10,400 francs, and has been covered by the value of the gold alone. In this expense 137 kilogrammes of iodine is included, representing the loss of this substance.

* These liquors which are drawn off contain still a small quantity of dissolved silver, about 5 grammes per cubic metre; for, as we said, iodide of silver is not absolutely insoluble in these waters. It is hardly necessary to add that it reappears afterwards in the usual process for the extraction of copper.

The expense of iodine, already costly enough, has become more considerable by the anomalous increase in the price of this substance, and has called my attention to the direct use which can be made of the washings of kelp, in place of potassium iodide. Recent experiments, which we have made, have satisfied my expectations; not only are we able to utilize by this means all the iodine contained in these incinerated seaweeds, and a great part of which, as we know, is at present lost, but these experiments have also suggested to me the idea of an inverse operation, which may be used for the manufacture of iodine, and which consists in precipitating this metalloid from the washings of kelp, by means of a salt of silver.

This extraction, of 20 grammes of precious metals per ton of roasted pyrites, is not considerable; but, when it shall be applied, even in England alone, to the 375,000 tons of ore, it will produce annually 7200 kilogrammes of precious metals, at a value of 1,700,000 francs: a sum which is not to be despised.

We remark here, on this subject, that, with the processes at present in use, great quantities of precious metals have been lost, and are yet lost daily; we do not doubt, therefore, that many of the residues, which have been passed over in different parts of the globe as too poor to work, may be one day subjected to a second treatment for separating the gold and silver which they contain.

PHOTOGRAPHS ON WAX.*

Joseph Altmann, jr., of Vienna, has invented a process for photographing on wax, the details of which are as follows: One pound of white wax is melted in a water bath with ½ ounce of Venetian turpentine or Canada balsam; strong royal paper is softened in warm water and drawn through this melted wax and balsam; when the wax film becomes hard, it is detached from the wet paper, and varnished with the following composition: 3 ozs. gum elastic, 6 ozs. gum sandarac, ¼ oz. oil of lavender, all dissolved in 1 lb of alcohol of 40°, and allowed to stand four or five days till it becomes clear.

When the varnish gets dry, a warm solution of ½ oz. of fine gelatine in 4 ozs. distilled water is poured on the plate and allowed to run off. As soon as this coating of gelatine is perfectly dry, the gelatinized side of the wax plate is flowed with chloride of silver collodion (or collodio-chloride of silver), and dried in a dark place. The plates thus prepared can be exposed under a negative like ordinary silvered albumen paper, then toned, varnished and washed.

Wax photographs are used for transparencies, window pictures, and for various kinds of wax-work. The novelty in this process consists in the peculiar method of preparing the wax plate so that photographs can be produced on it.

*Journal Applied Chemistry.

Editorial.

MEDICAL LEGISLATION FOR PHARMACISTS.

Most of our readers will have heard of the unsuccessful attempt made by the Medical Council, to smuggle through the Legislature, the so-called amendments to the Medical Act. There are however, few who are acquainted with all the outrageous restrictures and conditions with which pharmacists were to have been trammelled, and the welfare and liberty of the public sacrificed to a monopoly the most absolute and exacting.

As a timely abortion saved us the infliction of this statutory monstrosity we shall not enter into the details of the bill, except to refer to that clause which more particularly related to apothecaries. It will be understood that, under the Act at present in force, there is no provision against pharmacists prescribing medicine, but it is especially enacted that no charges can be recovered for medicine so disposed of. Taking all things into consideration, this law is a just one, and has been found to work satisfactorily. While it affords protection to the legally qualified medical practitioner, and prevents other usurping his title and position, it allows the apothecary to undertake cases of minor importance which the public may be willing to confide to his care, and also prevents him incurring greater risks, either to his reputation, or pocket.

The amendment proposed was to the effect that pharmacists should be prevented from prescribing to any extent whatever, and that infringement of this law would be punished by imprisonment.

It is scarcely worth while to discuss the question of counter-prescribing. The custom may be abused, but, in the main, is continued with benefit to all classes concerned, with the exception of the members of the medical profession, who may not perhaps enjoy that monopoly which they desire. The pecuniary loss they sustain is, we think, after all, quite insignificant. In the majority of instances in which persons seek advice of apothecaries, the cases are light, and did they not receive this gratuitous attention, would not be taken to a physician, but be treated by the parties themselves.

It must be granted that the apothecary is, at least, better qualified to attend to these slight ailments than those who are altogether ignorant of their nature, and in this way he is instrumental in preventing mischief and accomplishing good.

The public have claims in this matter which are, by no means, to be disregarded. Would it be just to compel persons requiring merely a dose of medicine, to seek a physician—often at considerable inconvenience, and always at considerable expense—when the same services might be rendered quite as effectually, by the more accessible and much more easily paid druggist. Take, for instance, a toper with his morning headache, requiring the inevitable seidlitz; the bilious subject who is set to rights by a cathartic pill; the burned child who is quickly soothed by the timely application of the proper remedies; the colicky woman; the costive man; the lumbricoidal child—all these, and a hundred others of a kindred character, are, we think, fit subjects for the apothecaries' skill, as much by the usage of ages as the law of common sense, and the choice of the public. It is not necessary to pursue this subject further, and we have merely cited these instances as showing the trivial character of the ailments for which the apothecary is called upon to prescribe, and also that we may not be understood as for a moment upholding, or trying to justify, any incroachment upon the legitimate grounds of the physician. We should, indeed, be the last to countenance or encourage the slightest tendency to quackery; but, at the same time, we hold that term to mean a pretension to abilities, or knowledge, which are not possessed, and we think that if the apothecary confines himself to the class of cases which we have indicated, this cannot be laid to his charge.

We are glad to say that the views we have advanced are not confined to the members of the fraternity to which we belong, but are held by the great body of the public. The majority of the Committee, appointed by the Legislature to consider the amendments to the Medical Act, expressed a similar opinion in regard to the clause which involved this question, and we have no doubt but to the overreaching on the part of the Medical Council, as shown in the insertion of this section, the want of success of the bill may, in some measure, be attributed.

Our readers may be interested to know that as soon as the intended action of the Medical Council was revealed, a meeting of the

Toronto members of the Pharmaceutical Council was called, and a deputation was in attendance at the Committee meetings in the House of Assembly, in order to look after pharmaceutical interests —a service which the sequel has shown to have been well performed.

RASH PHLEBOTOMY.

The London *Lancet*, a journal never very remarkable for the moderation of its censure, has, in the annexed paragraph, almost surpassed itself. Anything more ridiculously arrogant, and at the same time, more undignified and insensate, it would be difficult to imagine.

"The fact is, the retail trade is gone mad. There are far more shopkeepers than the wants of the public require, and they think themselves entitled to all the luxuries and enjoyments of life. Their wives, glorious in seal-skin jackets and redundant jewellery, are to be seen everywhere; and the pretensions of the class are becoming a nuisance that it is high time to put down."

How there should be more shopkeepers than the wants of the public require, and these very persons can roll in affluence, is a matter somewhat difficult to understand. One would have thought that an excess over the demand would have produced a condition of things exactly the reverse. However, it is not our business to reconcile the foolish utterances of our irate contemporary any more than it is our desire to retaliate by invective against that class which it claims to represent. Mr. *Punch* understands best how to manage matters of this kind; he says: "The *Lancet* and the profession have the matter in their own hands; and if every medical man will undertake to exterminate—of course in the regular way—a single streetful of retailers and their families, the business may be done in the twinkling of a pestle and mortar—pretensions, class, seal-skin jackets and all."

PROPOSED ADDITIONS TO THE BRITISH PHARMACOPŒIA.

At a meeting of the Pharmaceutical Society of Great Britain, held in February, Professor Redwood officially announced the fact that the Medical Council purposed issuing a supplement or appendix to the Pharmacopœia of 1867, which should contain those new remedies which had been established in medical use since the publication of the edition of that date. This plan was considered better than that of getting out an amended Pharmacopœia, as it was thought that ten years was a short enough period for one edition to remain in circulation, and that medical men would certainly oppose more frequent changes in the body and arrangement of the work.

We think the idea of issuing an appendix will meet with general approval, more especially as it is intended to publish the supplement in a separate form, so that those who already possess the Pharmacopœia will not be necessitated to furnish themselves with a second copy.

It appears that the object of Prof. Redwood in introducing this subject at the pharmaceutical meeting was to elicit the opinion of pharmacists on the proposed additions, and to call forth suggestions in regard to preparations which had been overlooked. As the Medical Council meet during the present month, and as it is proposed to have a draft of the appendix ready for that meeting, it will be seen that the time for this work is exceedingly short. We should have been pleased had it been more extended, so that Canadian pharmacists might have had an opportunity to communicate with the home authorities in regard to this matter. It is true that no invitation was extended, but we cannot think that any suggestions would have been altogether disregarded. There are some remedies which are quite popular here, which are little known in England, and it seems only just that the wants of the Dominion should meet with some consideration, more especially as the British Pharmacopœia is the legally authorized standard by which our medicines are to be compounded.

In regard to an enumeration of the additions which it is probable will appear in the supplement, we cannot do better than give an extract from the official report of the meeting referred to.

"Professor Redwood said that there were certain things that

"were quite obvious, as, for instance, hydrate of chloral and nitrate "of amyl. Acetic æther he proposed more especially with a view to "its use subsequently, when the Pharmacopœia was more generally "altered. Then there were chloroform water (aqua chloroformi) "and mustard paper (charta sinapis). There was a preparation of "elaterium, which it was suggested to introduce in the form of di- "luted powder (pulvis elaterii compositus), which would consist of "elaterium with nine time or seven times (he should say nine times) "its weight of sugar of milk. In that diluted form its administra- "tion would be facilitated and rendered more safe. Tincture of "orange peel was a question which had been before them, and it was "suggested that, leaving the present tincture in the Pharmacopœia, "they, nevertheless, might add a tincture of the fresh peel; but that, "however, was a question to be considered, and in reference to which "they were anxious to receive the opinions of practical pharmacists. "Then it was proposed to introduce a syrup of liquorice (syrupus "glycyrrhizæ). Some of the medical members of the Committee "had suggested that that would be a convenient preparation to or- "der frequently in prescriptions. Then they had such things as the "hypophosphites, hypophosphite of lime and hypophosphite of "soda, and the sulphites, as, for instance, sulphite of soda, although "he should himself consider that the hyposulphite, which was now "in the Pharmacopœia among the tests, would answer every pur- "pose, and be quite as effective as the sulphite. Then there was "oxide of bismuth, and there were two preparations which were "suggested and brought under the notice of the Society some time "ago, by Dr. Dyce Duckworth, assisted by Mr. Carteighe, namely "the acetum and the oxymel ipecacuanhæ. And then it had been "suggested that it would be very desirable to have a pill mass in "the Pharmacopœia of a purgative nature, and not containing aloes. "There was none such at present, and therefore they had proposed "pilula jalapæ composita, which should be free from aloes, and "should owe its purgative quality to some other ingredient. Then "there was nitrate of ammonia, which they thought of introducing "because it was now used in the preparation of nitrous oxide. Next "there was precipitated oxide of mercury, which, for certain pur- "poses, was found to be more active and efficacious than the red "precipitate obtained by the application of heat. Then there was "pepsine, some form of which it would be proposed to introduce in

"to the supplement. It had been suggested, moreover, that they "might probably introduce a new form of suppositories. Some "medical men took exception to the present suppositories on account "of their greasy basis, and it had been proposed that either gelatine, "softened with glycerine, or starch and glycerine, might be used in "certain cases as a more suitable because a more cleanly basis. "The greasiness occasioned by the use of the present suppositories "was a source of discomfort and annoyance. These were some of "the propositions which had hitherto been made, and the Pharma- "copœia Committee were anxious to obtain as extensively as pos- "sible the opinions of pharmacists with reference to these and other "additions which it might be though desirable to make to the Phar- "macopœia."

THE EUCALYPTS OF AUSTRALIA.

We have been favored with a copy of Mr. Hoffmann's paper, to which reference was made in our last number, but regret that it was received too late to be taken advantage of in this month's Journal. We had merely intended to make extracts, but find the paper of such interest and value that we feel induced to reprint it entire, or nearly so. The subject upon which it treats is, at present, a very popular one, and the position lately occuped by Mr. Hoffmann —that of Chemist to the State Gardens, Melbourne—was such as to enable him to gain a thorough knowledge of his theme. As intimated in our last number the paper was read before the Montreal College of Pharmacy, by whom it has been published in neat pamphlet form, embellished with two, page illustraions.

Editorial Summary.

DISAPPEARANCE OF THE PRECIOUS METALS.—From a review in the *Chemist & Druggist* we learn that Mr. Lutschaunig, Manager of the Liverpool Assay Office, and the author of a recently published work on matters pertaining to the precious metals, makes a statement to the effect that some fifteen tons of gold and about thirty-five tons of silver are lost every year. Photography is made responsible for some portion of this waste, and the wear on coinage is also quite considerable. It is estimated that thirty-seven thousand five hundred ounces of gold, and twenty thousand ounces of silver are, from the latter cause, made to disappear.

SULPHOVINATE OF QUINIA.—At a meeting of the Société de Therapeutique, in January last, reported in the *Phar. Jour. and Trans.*, M. Limousin called attention to specimens of this salt prepared by various methods. By decomposing sulphate of quinia with sulphovinate of barium, the salt was obtained in the form of scales. A better process is that in which an alcoholic solution of sulphate of quinine is treated by similar solution of sulphovinate of sodium. In the latter case, the product may be obtained perfectly white and well crystallized, and has the advantage over that of the first method of not being contaminated by poisonous salts of barium. The sulphovinate is the most soluble salt of quinine, even deliquescing in a moist atmosphere. Its principal application would appear to be for hypodermic injection, as the use of acid, indispensible in preparing solutions of other quinine salts, is not necessary.

PROPYLAMINE.—At the same meeting referred to in the preceding paragraph, M. Adrian presented specimens of propylamine, and enumerated the sources from which the alkaloid may be obtained. These are herring pickle, ergot of rye, and the *Chenopodium vulvaria*, a plant which possesses, in a high degree, the characteristic odor of the base. It is also present in putrefied blood, and in urine. The

commercial solution, prepared from herring pickle, contains, most commonly, a large amount of ammonia, and is of very variable strength. M. Adrian proposed the use of the crystallized hydrochlorate as a substitute for the solution, and there can be little doubt that much more satisfactory results would, by its employment, be obtained.

Poisonous Properties of Fuchsine.—During the last three or four years a great deal has been written in regard to the danger of employing magenta as a coloring for syrups, &c., and also of the ill effects which might result from wearing, in close proximity to the skin, articles of dress dyed with this substance. In *Le Technologiste* there appears an article by M. Springmuhl, in which is given the result of various experiments made with a view of determining the amount of arsenic remaining in fabrics dyed by fuchsine; and also as to the probable amount contained in syrups or liquors colored by this substance. An examination of fourteen samples of commercial magenta gave proportions of arsenic varying from one quarter per cent. to six and-a-half per cent. A piece of woollen fabric was dyed with the sample containing the most arsenic, and was washed in two waters, the last of which was found to contain .0004 gram. of arsenic, a quantity which the author rightly concludes could not be considered very dangerous. It was also found that it required but .002 gram. of fuchsine to communicate a strong color to a litre of alcohol, and as a person would not generally consume more than that quantity of any liquid, the small amount of arsenic could not exert any poisonous action.

Aconite Root.—In a note on aconite root, by Dr. E. R. Squibb, read before the American Pharmaceutical Association at the meeting in September last, and published in the *Proceedings*, it is stated that, upon testing a sample of the root, as occurring in commerce, not more than four or five roots in ten have any medicinal activity, and these only in feeble degree. With this state of things it is necessary that some standard of strength should be decided upon, and considering the state of the market this should not be

set too high. Dr. Squibb suggests that, at least, eight-tenths of the roots should possess a fair degree of medicinal activity. The cause of the poor quality of the root is attributed to careless collection, the price realized being so low as to preclude any skill, or much labor being bestowed on the operation. Some parcels examined by the author were so destitute of activity as to lead to the supposition that they had been previously exhausted, as there is no season of the year, age of the plant, or probable mode of drying, which would yield if totally insipid and devoid of all activity. It may be that the growth of microscopic plants and animals may tend to this result, and the effect of these agencies upon solutions of atropia would render it not unlikely that the aconite alkaloid might be so effected. The author found that aconite leaves and their preparations to be comparatively uncertain and feeble. It is recommended that the leaf be omitted from the materia medica list. The method of testing aconite, as practised by Dr. Squibb, consists in breaking a piece of the root across, near the middle, and biting off, from the fresh fracture, a piece about the size of a pin's head. This is to be chewed between the front teeth until it is converted into a pasty or liquid mass, when it should be discharged from the mouth, and the parts cleansed by the natural flow of saliva. If the root is inert, the characteristic taste produced by aconite is not perceived, but if it be a good one the taste is at once bitter, in a degree corresponding to the activity. The bitterness is, however, lost when the mouth is cleansed, and there follows an interval of tastelessness, which is succeeded by the tingling or benumbing sensation peculiar to aconite and a few other substances. This is a paralysis which usually continues for some time, say from one to three hours, according to the strength of the sample. Dr. Squibb describes the sensation as painless, and not even annoying, but we think there may be a considerable difference of opinion in regard to this particular. If, within fifteen minutes, a root fails in producing this tingling, it may be concluded that it is inert; and, as we have before stated, if more than two or three roots out of ten are of this kind, the sample should be considered as below the standard.

Practical Formulæ

Aromatic Tincture of Arnica.—Take of bruised bay-berries 15 grammes, flowers of arnica 25 grammes, flowers of lavender 10 grammes, flowers of chamomile 10 grammes, leaves and tops of thyme 10 grammes, leaves and tops of peppermint 10 grammes, leaves and tops of sage 10 grammes, leaves and tops of balm 10 grammes, brandy (proof spirits) 1 litre. Macerate for five hours, express strongly, and filter.

The quantities are for dried herbs. If the latter be used fresh, double the quantity must be employed, and alcohol at 90° must be substituted for the spirit.

This preparation is very useful in all forms of chronic muscular pain, whether rheumatic, from sprain, fatigue, age, or other causes. It should be used with continuous frictions with a piece of flannel or woolen glove.

Sometimes the remedy is made more efficient by the addition of 5 to 10 parts of camphor to the 100. It may be used internally in doses of 2 to 4 teaspoonfuls given unsweetened, in cases of shock from wounds, or wherever a simple cordial and stimulant is needed. A simpler but less elegant and efficient preparation may be made domestically by taking 15 grammes each of dried chamomile, lavender, thyme, mint, sage, and balm, and adding one litre of ordinary spirit to them. The above formula, however, produces in the hands of a good pharmacien a much better preparation.—*L' Union Pharmaceutique*, September, 1872.—*in New Remedies.*

Bleached Tincture of Iodine.—Sulphite of soda will discolor iodine without diminishing, but rather increasing its effect. The *Medical Press and Circular* gives a formula for the combination, viz: Tinc. iodine, glycerine, pure *aa* ʒj., soda sulphitis, ʒj., M. Rub the sulphite to a powder, in a small mortar, and add the glycerine gradually; then pour in the tincture and triturate gently, until a solution is effected and the solution assumes an amber color.—*Canada Lancet.*

Perfume Sachets.—For heliotrope powder, take half a pound of orris-root, one quarter pound of ground rose leaves, two ounces powdered tonquin bean, one ounce vanilla bean, one-half drachm grain musk, two drops otto of almonds; mix it all by sifting through a coarse sieve. This is one of the best sachets ever made, and perfumes table-cloths, sheets, pillows-cases and towels deliciously.

For lavender powder, take one pound of powdered lavender, one-quarter pound of gum benzoin, and one-quarter of an ounce of otto of lavender.

For patchouli, use one-holf a pound of patchouli ground fine, and a very little of otto patchouli. This herb is often sold in its natural state as imported, and tied up in half-pound bundles.

Sandal-wood sachet powder is good, and consists of wood ground fine. Cedar wood, when ground, forms a body for other sachets powders, and will keep moths at a distance. Dried fennel, when ground, is also used for scent-bags. and ground nutmeg is liked for this purpose.

Fragrant Sozodont.—1. Sapo hispaniola..... ℥ i.
Aqua pura ..... ℥ xviij.
Spt. vini rect..... ℥ vi.
Syr. simplex..... ℥ v.
Tinct. myrrh,
" cinch. comp., aa. ℥ i.
Ol. gaulth..... gtts. xij.
Santalum..... q. s. to color.

2. Make a not too concentrated tincture of quillaya bark with *diluted* alcohol, add one-third glycerine and perfume to suit.

[1 Part oil peppermint to 6 oil bergamot.]—*Druggists' Circular.*

Depilatory.—Prof. Bœttger reccomends the following as safe: 1 part of crystallized sulphhydrate of sodium is rubbed to a very fine powder, and mixed with three parts of prepared chalk. The mixture keeps well in closed vials. Mixed with water and applied to the skin, the hair becomes soft in two or three minutes and is readily removed by water. A long application is apt to corrode the skin.—*N. Jahrb. f. Pharm. in Am. Jour. Pharm.*

Fluid Adhesive Plaster.—The following formula for emplastrum adhæsivum fluidum, given by Mr. Enz, of Sembach, offers some interesting features:—Take of dammar resin, finely powdered, 560 parts; oil of almonds, 142 parts; castor oil, 70 parts; best glycerine, 10 parts; melt till the mass flows smoothly, and when half cold, add, by degrees, 225 to 240 parts of spirit ether, in which aniline, free from arsenic, or any other coloring matter, has been dissolved. The plaster thus obtained is of the consistence of a balsam. The dammar resin is easily soluble in fat oils; by the addition of spirit of ether, it is partly precipitated, but in a very finely divided, doughy state. Dammaryl and hydrate of dammaryl are not soluble in alcohol, and impart to the mixture an extraordinary sticking power. This plaster can be directly applied to wounds, and then dressed with cotton or linen, or spread thereon by means of a brush. What renders this plaster especially useful is, its easy miscibility with other ingredients; for example, acid carbolicum purum, hydrarg. chlorid. corrosiv., morphium and its salts, iodide of potash, which are all soluble in alcohol; further, with powdered cantharides, belladonna, hemlock, etc.—*Phila. Med. & Surg. Reporter.*

Chlorodyne.—A recent formula is as follows :—

Chloroform	four fluid drachms.
Morphia mur	twenty grains.
Ether rect	two fluid drachms.
Ol. Mentha pip	eight minims.
Acid hydrocyanic dil	four fluid drachms.
Tinct. Capsici	six fluid drachms.
Mist. Acacia	one fluid ounce.
Theriacæ *ad*	six fluid ounces.

Imitation Frost Crystals.—A very pretty winter ornament for a parlor table can be prepared as follows: "Dissolve 456 grains of nitrate of lead in six fluid ounces of water. If the solution is turbid, filter through paper. Place the solution on the table where it is intended to remain, and drop into it 200 grains of sal-ammoniac in long, fibrous crystals. Small crystals of chloride of lead form and ascend through the denser liquid, presenting the appearance of an *ascending* snow-storm. When the lead is all precipitated, the crystals of chloride of lead begin to descend as a genuine miniature snow-storm, forming grotesque masses resembling a winter's landscape. If the vessel containing the crystals is not disturbed, it often preserves its beauty for a week or two.—*Journal of Chemistry.*

Bleaching the Oils of Rapeseed, Poppyseed and Flaxseed.—C. Puscher recommends to mix 100 kilograms of the oil with 2 kilograms of a mixture obtained from equal weights of 96 per cent alcohol and sulphuric acid. The sulphovinic acid mixes uniformly with the oil, the mixture soon shows a green turbidity, which afterwards becomes black, and in 24 to 48 hours separates as a black sediment. Poppy and rapeseed oils are now colorless, while linseed oil shows in thick layers merely a yellowish tint. The decanted oils require to be washed by agitation with hot water, to remove traces of sulphuric acid.—*Chem. Centralbl.*, 1872, *No.* 52, *from Bayr. Ind. u. Gew. Bl.*, 1872 *in Am. Jour, Pharm.*

Corks saturated with paraffin are used for corking bottles containing alcoholic or caustic liquids. Ruschhaupt prepares them as follows: Paraffin is fused in a suitable vessel, the dry corks are added and immersed in the paraffin by means of a perforated cover or disc. The air is now easily expelled from the pores of the corks, which, after about five minutes, are removed and cooled; they may now be cut and bored like wax, are easily driven into the necks of bottles and readily removed, retain their smoothness and are gas-tight throughout.—*Apoth. Zeitung*, 1872, *No.* 50, *Ibid.*

Varieties.

To Prevent Mouldiness.—A French chemist has recently announced that borax and subborate of ammonia will prevent mouldiness and preserve animal matter. Each of the above salts has proved effectual when tried separately, but when combined in a single solution they seem to be well adapted for anatomical injections. For this purpose the following preparation is recommended; Rain-water one hundred parts, common borax six parts, and subborate of ammonia twelve parts. The liquid is to be used luke-warm; it does not change the color of the tissues, and is not poisonous, does not blunt the dissecting instruments, and in a concentrated state may be used for embalming.—*Phila. Med. & Surg. Rep.*

Singular Suicide.—A suicide of a remarkable character is recorded by the *Swiss Times* as having occured at Zorfingen. The self-destroyer was a chemist's assistant, and lost his situation in consequence of his persistence in the habit of opium-eating. Having provided himself with a dose of prussic acid, he repaired to an inn and asked for a glass of water, at the same time saying laughingly to the waiteress that if she had any message to St. Peter he would deliver it. The young man then coolly mixed the prussic acid with the water, drank off the mixture, and immediately fell dead.—*Phila. Med. & Surg. Rep.*

Solubilities of Sugar in Dilute Alcohol and in Water.—100 parts (30 alcohol, 70 water) dissolve at 0° C., 65.5 parts of sugar; at 14° C., 67.9; at 40° C., 82.2 parts.

100 parts (50 of each) dissolve at 0° C., 45.9 parts of sugar; 14°, 47.1 parts; at 40° C., 68.4 parts.

100 parts (10 water, 90 alcohol) dissolve at 0° C., 0.7 parts; at 14°, C., 0.9; and at 40° C., 2.3 parts.

Absolute alcohol dissolves nothing.

Pure water dissolves at 0° C., 65 parts of sugar per 100; at 15° C., 66.1 parts; at 30° C., 69.8 parts; at 50° C., 82.7 parts.—*M. Schäbler, Deutsche Chemische Gesellschaft.—In New Remedies.*

Drugs, Medicines, &c.	$ c.		$ c.
Acid, Acetic, fort	0 12	@	0 14
Benzoic, pure	0 25		0 35
Citric	1 60		1 70
Muriatic	0 05		0 06
Nitric	0 11½		0 15
Oxalic	0 32		0 35
Sulphuric	0 03¾		0 07
Tartaric, pulv	0 50		0 50
Ammon, carb. casks	0 23		0 24
" jars	0 23		0 24
Liquor, 880	0 25		0 28
Muriate	0 12½		0 15
Nitrate	0 45		0 60
Æther, Acetic	0 45		0 50
Nitrous	0 35		0 37
Sulphuric	0 50		0 50
Antim. Crude, pulv	0 13		0 17
Tart "	0 65		0 70
Alcohol, 95 per ct.....Cash	1 60		1 72
Arrowroot, Jamaica	0 16		0 22
Bermuda	0 45		0 65
Alum	0 02¾		0 03½
Balsam, Canada	0 45		0 50
Copaiba	0 80		0 85
Peru	3 80		4 00
Tolu	0 90		1 00
Bark, Bayberry, pulv	0 20		0 22
Canella	0 17		0 20
Peruvian, yel. pulv	0 42		0 50
" red "	2 10		2 20
Slippery Elm, g. b	0 15		0 20
" flour, packets	0 28		0 32
Sassafras	0 20		0 25
Berries, Cubebs, ground	0 20		0 25
Juniper	0 06		0 10
Beans, Tonquin	0 62		1 10
Vanilla	28 00		28 00
Bismuth, Alb	3 60		4 00
Carb.	3 65		4 00
Camphor, Crude	0 38		0 40
Refined	0 50		0 55
Cantharides	2 80		3 00
Powdered	2 85		3 10
Charcoal, Animal	0 04		0 06
Wood, powdered	0 10		0 15
Chiretta	0 20		0 30
Chloroform	1 25		1 65
Cochineal, S. G	0 80		0 95
Black	1 10		1 20
Colocynth, pulv	0 50		0 60
Clolodion	0 70		0 75
Elaterium oz	5 80		5 90
Ergot	0 65		0 75
Extract Belladonna	2 00		2 25
Colocynth, Co	1 25		1 75
Gentian	0 50		0 60
Hemlock, Ang	0 85		0 95
Henbane, "	2 10		2 40
Jalap	5 00		5 50
Mandrake	1 75		2 00
Nux Vomic oz	0 40		0 50
Opium oz	1 50		
Rhubarb	5 00		5 50
Sarsap. Hon. Co	1 00		1 20
" Jam. Co	4 00		4 50
Taraxicum, Ang	0 70		0 80
Flowers, Arnica	0 25		0 35
Chamomile	0 32		0 40
Gum, Aloes, Barb. extra	0 70		0 80
" " good	0 40		0 50
" Cape	0 16		0 20
" " powdered	0 20		0 30
Socot	1 05		1 35
" " pulv	1 00		0 00
Arabic, White	0 70		0 75
" powdered	0 60		0 75
" sorts	0 28		0 30
" " powdered	0 42		0 50
" com. Gedda	0 13		0 16
Assafœtida	0 35		0 42
British or Dextrine	0 13		0 15
Benzoin	0 35		0 75
Catechu	0 12		0 15
" powdered	0 25		0 30
Euphorb, pulv	0 35		0 40
Gamboge	1 40		1 50
Guaiacum	0 85		1 00
Myrrh	0 50		0 70

Drugs, Medicines, &c.—*Contd.*	$ c.		$ c.
Sang Dracon	0 60		0 70
Scammony, powdered	6 50		6 75
" Virg. "	14 50		—
Shellac, Orange	0 50		0 55
Gum, Shellac, liver	0 45		0 50
Storax	0 40		0 45
Tragacanth, flake	1 10		1 40
" common	0 53		0 65
Galls	0 28		0 32
Gelatine, Cox's 6d	1 15		1 20
Glycerine, common	0 30		0 35
Vienna	0 32		0 40
Prices	0 60		0 75
Honey, Canada, best	0 15		0 17
Lower Canada	0 14		0 16
Iron, Carb. Precip	0 17		0 20
" Sacchar	0 40		0 55
Citrate Ammon	1 50		1 50
" & Quinine, oz	0 55		0 60
" & Strychine "	0 17		0 25
Sulphate, pure	0 08		0 10
Iodine, good	7 50		8 00
Resublimed	8 50		—
Jalapin	1 25		1 50
Kreosote	2 40		2 50
Leaves, Buchu	0 22		0 30
Foxglove	0 25		0 30
Henbane	0 35		0 40
Senna, Alex	0 27		0 60
" E. I.	0 14		0 20
" Tinnevilly	0 20		0 30
Uva Ursi	0 15		0 17
Lime, Carbolate brl	5 50		—
Chloride	0 06		0 07
Sulphate	0 08		0 12½
Lead, Acetate	0 14		0 15
Leptandrin oz.	0 60		—
Liq. Bismuth	0 50		0 75
Lye, Concentrated	1 75		2 00
Liquorice, Solazzi	0 50		0 55
Cassano	0 23		0 40
Other brands	0 14		0 25
Liquorice, Refined	0 35		0 45
Magnesia, Carb. 1 oz.	0 20		0 25
" 4 oz.	0 17		0 20
Calcined	0 65		0 75
Citrate gran.	0 50		0 55
Mercury	1 30		1 35
Bichlor	1 15		1 20
Chloride	1 35		—
C. Chalk	0 65		—
Nit. Oxyd	1 50		—
Morphia Acet	4 45		4 60
Mur.	4 45		4 60
Sulph	4 60		4 75
Musk, pure grain oz	23 00		—
Canton	0 90		1 20
Oil, Amonds, sweet	0 42		0 50
" bitter	14 00		15 00
Aniseed	4 00		4 25
Bergamot, super	6 25		6 50
Carraway	4 00		4 20
Cassia	2 80		2 90
Castor, E. I	0 15		0 15
Crystal	0 22		0 25
Italian	0 26		0 28
Citronella	1 35		1 50
Cloves, Ang	1 75		2 00
Cod Liver	1 25		1 50
Croton	1 75		2 00
Juniper Wood	0 80		1 00
Berries	6 00		7 00
Lavand, Ang oz.	0 90		1 00
Exotic	1 40		1 60
Lemon, super	5 00		5 50
ord	3 20		3 40
Orange	4 00		4 25
Origanum	0 65		0 75
Peppermint Ang	13 00		14 40
" Amer	3 50		3 75
Rose, Virgin	8 50		8 75
" good	6 80		7 00
Sassafras	1 00		1 20
Wintergreen	6 00		6 50
Wormwood, pure	4 00		6 50
Ointment, blue	0 90		1 00
Opium, Turkey	8 25		8 50
pulv	10 25		10 50

DRUGS, MEDICINES, &c.—*Cont'd*	$ c.	$ c
Orange Peel, opt	0 30	0 36
" good	0 12½	0 20
Pill, Blue, Mass	1 00	1 00
Potash, Bichrom	0 23	0 27
Bi-tart	0 30	0 32
Carbonate	0 14	0 20
Chlorate	0 65	0 70
Nitrate	10 50	11 00
Potassium, Bromide	11 5	1 40
Cyanide	0 75	0 80
Iodide	6 25	6 50
Sulphuret	0 25	0 35
Pepsin, Boudault's oz	1 50	—
Houghton's doz.	8 00	9 00
Morson's oz.	0 85	1 10
Phosphorus	0 75	0 85
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	2 40	—
" 100 oz. case	2 35	—
" 25 oz. tin	2 35	—
Root, Colombo	0 13	0 20
Curcuma, grd	0 12½	0 17
Dandelion	0 17	0 20
Elecampane	0 16	0 17
Gentian	0 10	0 12½
" pulv	0 15	0 20
Hellebore, pulv	0 17	0 20
Ipecac, "	1 80	2 00
Jalap, Vera Cruz	1 00	1 25
" Tampico	0 70	1 00
Liquorice, select	0 12	0 13
" powdered	0 15	0 20
Mandrake "	0 20	0 25
Orris, "	0 20	0 25
Rhubarb, Turkey	2 50	2 75
" E. I	1 10	1 20
" " pulv	1 20	1 30
" " 2nd	0 90	1 00
" French	0 75	—
Sarsap., Hond	0 40	0 45
" Jam	0 88	0 90
Squills	0 10	0 15½
Senega	1 35	1 50
Spigelia	0 40	0 45
Sal., Epsom	2 25	3 00
Rochelle	0 32	0 35
Soda	0 02½	0 03
Seed, Anise	0 13	0 16
Canary	0 05	0 06
Cardamon	2 85	2 95
Fenugreek, g'd	0 09	0 10
Hemp	0 06½	—
Mustard, white	0 14	0 16
Saffron, American	1 15	1 50
Spanish	15 00	17 00
Santonine	8 25	9 00
Sago	0 08	0 09
Silver, Nitrate Cash	14 85	16 50
Soap Castile, mottled	0 11	0 14
Soda Ash	0 04	0 05
Bicarb. Newcastle	—	6 50
" Howard's	0 14	0 16
Caustic	0 06¼	0 06½
Spirits Ammon., arom	0 35	0 35
Strychnine, Crystals	2 60	2 70
Sulphur. Precip	0 10	0 12½
Sublimed	0 03¾	0 05
Roll	0 03	0 04½
Vinegar, Wine, pure	0 55	0 60
Verdigris	0 35	0 40
Wax, White, pure	0 75	0 80
Zinc. Chloride oz	0 10	0 15
Sulphate, pure	0 10	0 15
" common	0 06	0 10
DYESTUFFS.		
Annatto	0 35 @	0 60
Analine, Magenta, cryst	3 00	4 00
" liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitrol, pure	0 10	0 10
Camwood	0 06	0 09
Copperas, Green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 02¾	0 04
Indigo, Bengal	2 40	2 50
Madras	0 95	1 10
Extract	0 30	0 35

DYESTUFFS—*Continued.*		
Japonica	0 06¼	0 06½
Lacdye, powdered	0 33	0 38
Logwood	0 02	0 03
Logwood, Camp	0 02	0 3½
Extract	0 10	0 14
" 1 lb. bxs	0 14	—
" ½ lb. "	0 15	—
Madder, best Dutch	0 16	0 17
2nd quality	0 14	0 16
Quercitron	0 03	0 05
Sumac	0 06	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
SPICES.		
Allspice	0 11½@	0 12
Cassia	0 39	0 40
Cloves	0 21	0 22
Cayenne	0 25	0 28
Ginger, E. I	0 12	0 14
Jam	0 20	0 30
Mace	1 75	1 75
Mustard, com	0 20	0 25
Nutmegs	1 15	1 20
Pepper, Black	0 22½	0 23
White	0 48	0 50
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
Green, Brunswick	0 07	0 10
Chrome	0 16	0 25
Paris	0 30	0 35
Magnesia	0 20	0 25
Litharge	0 07	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 07	0 08
Venetian	0 02½	0 03½
Sienna, B. & G	0 10	0 15
Umber	0 07	0 10
Vermillion, English	1 30	1 35
American	0 25	0 35
Whiting	0 85	0 90
White Lead, dry, gen	0 08	0 09
" No. 1	0 07	0 08
" " No. 2	0 05	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 30	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1 lb tins	0 11	0 12
Putty	0 03¾	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25 lb. tins	2 50	—
" No. 1	2 25	—
" No. 2	2 00	—
" No. 3	1 75	—
" com	1 30	—
White Zinc, Snow	2 75	3 25
NAVAL STORES.		
Black Pitch	5 00 @	5 25
Rosin, Strained	5 50	—
Clear, pale	7 80	—
Spirits Turpentine	0 85	0 90
Tar Wood	5 00	5 25
OILS.		
Cod	0 63 @	0 65
Lard, extra	0 90	—
No. 1	0 80	0 85
No. 2	0 75	0 90
Linseed, Raw	0 77½	0 80
Boiled	0 82½	0 85
Olive, Common	1 15	1 35
Salad	1 80	2 50
" Pints, cases	4 20	4 40
" Quarts	3 25	3 50
Seal Oil, Pale	0 80	0 80
Straw	0 70	0 75
Sesame Salad	1 30	1 35
Sperm, genuine	2 35	2 40
Whale refined	0 90	0 95