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Original and Selected Papers.

ON SOME PREPARATIONS ERYTHROXYLON OF COCA.

BY E. B. SHUTTLEWORTH.

Some time ago, a sample of coca leaves, weighing several pounds, was forwarded to the writer, and was accompanied by a request that experiments should be made with a view of determining the most eligible form in which the drug might be administered As the coca plant is coming more frequently into notice, and as its powerful remedial properties favor the idea that, sooner or later, it will be introduced into the materia medica, I have thought it advisable to offer a record of the result of these experiments together with that of others made for the purpose of ascertaining the best formulæ for possible preparations of the drug.

In devising formulæ of this kind it is essentially necessary that the nature and properties of the active principle or principles of the drug operated upon be well understood. The literature of coca does not, however, afford information of as precise and thorough a character as might be desired, but, for practical purposes it may, perhaps, be deemed sufficiently definite. Niemann* made a proximate analysis of the plant, and gives, as its constituents, a crystal-

* Arch. Pharm. ciii, p. 120 and 291, Chem. News, July 1860.

lizable basic substance (cocaina) a volatile odoriferous substance, a peculiar tannin (cocatannic acid) and a waxy body termed coca-wax. Stanislas Martin* found a peculiar bitter principle, extractive, chlorophyll, a substance analagous to theine, and salts of lime. Maisch† was led to think that the leaves contained a volatile alkaloid. This supposition was subsequently confirmed by Lossen,‡ who isolated this principle, and, at the suggestion of Woehler, who was associated with him in these investigations, named the new alkaloid *hygrina*. Lossen also found that cocaina, where heated with muriatic acid, was decomposed, benzoic acid and a new base, *ecgonia*, being produced. This fact operates against attempts to extract cocaina with acid liquors, and its importance was recognized by Lossen who recommended the abandonment of Niemann's plan, in which acidulated alcohol was employed, and the substitution of infusion with simple water.

Thus far, then, we have as important and tolerably well established constituents of the leaves, cocaina, hygrina, cocatannic acid, coca-wax, and a volatile oil, to which the odor of the plant is due, of these, the first named alkaloid is undoubtedly that to which attention should be principally directed in any attempt to make a preparation representing the active medicinal properties of the plant.

The characteristics and properties of the alkaloid may be concisely given as stated by Watts:§ "Cocaina crystallizes in small, colorless, inodorous poisons; it has a slightly bitter taste, and produces temporary insensibility of the part of the tongue with which it comes in contact. It is soluble in 704 parts of water at 12°C., (53.6°F.) more soluble in alcohol, and still more so in ether. It melts at 98°C., (208.4°F.) and solidifies to a transparent mass, which gradually becomes white and crystalline. At a higher temperature, a very small portion appears to volatilize undecomposed, but the greater portion is decompsed, yielding ammoniacal products. Cocaina dissolves without color in strong nitric, hydrochloric, and sulphuric acid; the last solution becoming black when heated. It is strongly alkaline, dissolves in dilute acids, and neutralizes them completely." In most of its reactions cocaina resembles atropia,

* Jour. de Pharm. 1859, p. 283.

† Am. Journ. Pharm. ix, p. 496.

‡ Ann. Chem. Pharm. cxxi, p. 374.

§ Dictionary of Chemistry, i, p. 1059.

but that with carbonate of ammonia is different, and the melting points of the two alkaloids are not coincident. The formula assigned to it is $C_{16}H_{19}NO_4$.

Hygrina, the other alkaloidal constituent of coca, assumes, at ordinary temperatures, the form of a thick oil, of yellowish color. It possesses a strong alkaline reaction, a burning taste, and an odor of trimethylamine. It combines with hydrochloric acid, forming a deliquescent salt. It is to some extent soluble in water, and dissolves readily in alcohol and ether. It does not appear to be poisonous.

Those points which bear directly on the subject of this paper, and which are embodied in the above particulars, are, that coca contains two active principles on which its medicinal virtues depend; that one of these is mutable in the presence of acids, the other volatile, and therefore, liable to be dissipated by heat; and that both are soluble in water and alcohol. We are not, however, informed in regard to the peculiar state of combination in which these alkaloids exist in the plant. That they are combined with some acid appears probable from the fact that the addition of a little lime, or other alkali, develops, to a much greater extent, the characteristic taste, and also the activity of the drug. This has been recognized, for ages, by the millions of persons addicted to the use of coca. Von Tchudi, Poppig, Herndon, Weddell, and other travellers affirm that, in preparing the leaves for chewing, the addition of lime, *llipta*, the ashes of plants, as *Chenopodium Quinoa* or other alkaline substance, is generally made. A simple infusion is, however, often employed, and the full effects of the medicine appears to be realized from its administration. This is the oldest, and almost the only preparation of coca which has been used, and to this attention may, with propriety, be first directed.

Infusum Cocæ.—Take of coca, bruised, one ounce; boiling water, ten fluid-ounces. Infuse in a covered vessel, for one hour, and strain.

This preparation resembles in appearance, and odor, an infusion of ordinary green tea. Its taste is slightly bitter and alkaline, recalling infusion of spearmint. The benumbing sensation, exerienced when chewing the leaves, is not so perceptible in this infusion. By applying to the dregs a slight pressure, about 8 ounces of liquid may be recovered. Each ounce of the preparation will

therefore be equivalent to a drachm of the leaves. The dose may be from one to two fluid-ounces.*

Ext. Cocæ Aquosum.—Coca in moderately coarse (No. 40) powder; water a sufficiency. Macerate the coca with four times its weight of water, for 12 hours, at a temperature not exceeding 120°F. Transfer to a percolater and exhaust with water. Evaporate, by means of a water bath, to the consistence of an extract.

The extract, thus prepared, is of a dark brown color, and bitter but not very characteristic taste, 100 parts of leaves yield 36 parts of extract. The dose may be from 15 to 30 grains.

Ext. Cocæ Alcoholicum.—Coca in moderately fine (No. 50) powder; alcohol, sp. gr. ·838 a sufficiency. Moisten the powder with alcohol and pack tightly in a percolater. Add alcohol, and continue the percolation until the powder is exhausted. Evaporate the percolate, by means of a water-bath, at a temperature not exceeding 150°F., until the extract is of proper consistence.

This extract is much superior to that prepared by water, possessing, in the highest degree, the characteristic taste and odor of the plant; and, as for as I have been able to ascertain by experiments upon myself, possessing also in full its medicinal properties. It is of a green color, resembling extract of Indian hemp, and is apparently resinous in character. This characteristic is attributable to the coca-wax or other concrete oily substance with which the extract is mixed. When exposed to the air the extract does not harden, but slowly attracts moisture, becoming, in time, quite liquified, I regard this extract as one of the best forms in which coca can be administered. It can be readily formed into pills, and is perfectly reliable. The product from 100 parts of the leaves is 15 grains. The dose may be from 10 to 20 grains.

Ext. Cocæ Fluidum.—I have not had time to experiment upon this preparation, but would suggest, as a menstruum, alcohol of sp. gr. ·835 or ·838; the reservation of a portion of the percolate equivalent to three-fourths of the weight of the leaves employed; and evaporation of the remainder, at a temperature not exceeding 150° F.

Tinct. Cocæ.—A tincture containing four ounces of coca to one

* A description of the therapeutical effect of coca does not properly come within the limits of this paper. But for information regarding the remedy, as administered by infusion, the reader is referred to a Prize Essay on the subject, written by Dr. Mantegazza, of Milan, and of which abstracts may be found in the *Pharm. Journ. & Trans.* 1860, and the *Druggists' Circular*, vol. iv. p. 253.

imperial pint of proof spirit, or diluted alcohol, may be prepared by percolation, but such a preparation does not appear to be advisable, or necessary. The large quantity of alcohol which each dose would contain, might entail therapeutical complications which it would be well to avoid. For administering the drug in a liquid form, the infusion will be found as simple and reliable as any, and by the addition of a small quantity of alcohol—say one-eighth part—it might be preserved from charge for a reasonable length of time.

HOMŒOPATHIC PHARMACY.*

BY BENJAMIN LILLARD.

Homœopathic pharmacy was first practiced in Leipsic, in the year A. D. 1776, by Samuel Hahnemann, the founder of homœopathic practice of medicine, who was born in Meissen, in the year 1755. The number of medicines originally consisted of about two hundred, which has been very much increased by the addition of new remedies.

Homœopathic pharmacy of to-day, according to the Universal Homœopathic Pharmacopœia, published in Leipsic last year, in German, English, and French, each page being equally divided between the three languages, comprises some nine hundred and twenty-one medicines, sixty-five of which are of animal, and two hundred and thirty-seven of mineral origin. Among them may be mentioned as well known in our pharmacies, musk, cantharides, aloes, assafœtida, camphor, sulphate of quinia, ipecac, opium, rhubarb, ergot, oil of turpentine, alum, nitrate of silver, arsenious acid, borax, iron, mercury, lead, and sulphur. And among those peculiar to their practice, yet in common use, may be mentioned sepia cuttle-fish ink, burnt sponge, bee poison, lachesis poison of the lance-headed viper, posion oak, metallic copper, coffee, and nitroglycerin.

Homœopathic medicines are prepared in mother tinctures and triturations; the former are designated by the letter O, with an horizontal line through the centre, and are if of vegetable origin, with few exceptions, such as nux vomica, rhubarb, and cinchona, prepared from the fresh living plant, animal, or drug, the proper time and mode of collecting being generally given under each article. The plant or drug is to be "cut up with a well-polished steel knife, free from rust, on a very clean chopping-board, then minced as fine as possible with an equally well-cleaned mincing-knife." Dry drugs are ordered in fine powder. Mother tinctures of succulent plants are

* From the Proceedings of the American Pharm. Association.

made by "expressing in a new piece of linen, the juice mixed with equal parts of alcohol, well shaken, and after keeping in a cool dark place eight days, filtered." Plants only moderately succulent are moistened with two-thirds their weight of alcohol before expression. The others are prepared by macerating in alcohol in the proportions of one to two, and one to five parts alcohol, macerating eight days, shaking twice a day, and filtering.

From the mother tinctures, potencies by the centesimal, and dilutions by the decimal scale are prepared; they are directed to be made in a room protected from the direct rays of the sun. The number of bottles to be used are labelled, and their corks marked with the name and number of the preparation they are to contain, and should be large enough to hold twice the quantity to be made, so as to allow room for shaking. To make the first potency one drop of the mother tincture is put in the bottle marked $1/c$, and ninety-nine drops of alcohol by measure, about 50 grains or 46 minims is added. It is then shaken with ten vigorous jerks of the arm. For the second, marked $2/c$, use one drop of the first, and ninety-nine of alcohol as before. For the third, marked $3/c$, one drop of the second and ninety-nine of alcohol, and so on, They are sometimes carried as high as the thousandth, although the thirtieth is the one generally used. It is natural to suppose, that it would be a tedious process to begin at the first and make the thousandth potency. And it is not strange that the inventive genius of man should have at various times instituted different plans to secure a similar result by a shorter way. What these modern improvements are we do not know, as they have generally been kept secret. The Pharmacopœia, however, gives no uncertain directions concerning them. "In the face of these plain directions of Hahnemann, which could not have escaped any one who had read and studied the Materia Medica, it is almost incomprehensible that persons should still sell preparations as high potencies, which are made by a secret process, not at all events according to Hahnemann's directions, and thus really in antagonism to them. This nuisance should be really banished from homœopathy, like the proposals of some pharmaceutists, who occupy themselves with the problem of preparing high potencies, under the erroneous notion that there exists no directions."

The dilutions, sometimes called low potencies, are prepared after the same manner, using ten drops of the mother tincture and ninety of alcohol for the first, marked $1/d$ or $1/x$. The second, marked $2/d$ or $2/x$, is prepared by adding to ten drops of the first, ninety of alcohol, and so on, shaking at every dilution as in the potencies. The third dilution is the one generally used.

The liquid potencies and dilutions are used for medicating globules, which are small pills of pure cane sugar. They are prepared in about ten sizes, the smallest, called number ten, being

about one-fourth the size of a millet seed, and gradually increasing to number eighty, the largest, which is about three-tenths of an inch in diameter. The size of a globule is determined by laying ten of them side by side, and the number of millimetres they measure is taken as the number for that particular size. Numbers ten, twenty-five and sixty are mostly used; number ten almost exclusively for high potencies, and numbers twenty-five and sixty for dilutions. The globules, sometimes called pellets and pills, are medicated, by adding a sufficient quantity of the mother tincture dilution or potency to moisten them thoroughly, care being taken not to add too much. The bottle should not be more than two-thirds full of the globules, and after shaking until they are all uniformly moistened, turn the bottle upside down for about twelve hours. The cork is then loosened a little to allow any liquid in the neck of the bottle to escape, and in a few days they are dry and ready for use.

Triturations are prepared in a warm and dry atmosphere, by putting one grain of the medicine, and one-third of ninety-nine grains of sugar or milk, in an unglazed china mortar. "The whole is mixed by stirring it for a few moments with a china spatula, and then worked with the pestle with some force for six minutes; afterwards, to mix it well, it is scraped together for four minutes, from the mortar and from the pestle, which is also unglazed. This done, the whole is a second time worked up with equal force for six minutes and scraped afterwards together, as above, for four minutes. Then the second third of ninety-nine grains sugar of milk is added, and the whole subjected exactly to the same manipulations as above; lastly, the remaining thirty-three grains sugar or milk are added, and the whole quantity is once more twice worked with the pestle for six minutes, and twice scraped together for four minutes. This is the first trituration potency. To prepare the second trituration, one grain of the first added to a third of niney-nine grains of sugar of milk, and the same process then gone through as with the first trituration; in like manner the third and other triturations are prepared. The triturating must be done with force, yet not so much so that the sugar of milk shall, by adhering too strongly to the mortar, not be removable within the four minutes."*

The decimal triturations are prepared in the same way, only using ten grains of the medicine, and ninety of sugar of milk. The third centesimal and sixth decimal triturations are converted into liquid potencies and dilutions, by dissolving in water, so as to make the fourth centesimal and seventh decimal preparations, which are then made into the fifth centesimal and eighth decimal with alcohol; others are then made in the usual way using only alcohol. The metals and insoluble drugs are generally used in the form of trituration.

*Pharmacopœa Homœopathica Polyglottica, page 34.

The first centesimal preparation is the same as the second decimal, the second centesimal as the fourth decimal, the third centesimal as the sixth decimal, and so on. The centesimal scale was the one originally used by Hahnemann; the decimal having been introduced of late years, and is probably more used than the other at the present time, or at least in this country. The Pharmacopœia directs that where none is mentioned, the centesimal should be used.

"Mortars for powdering hard substances of other metals than iron, well polished, and triturating vessels of any metal are not allowed. Spatulas should be of horn, bone or china. No metal funnels are allowed. Scale pans should be of horn or glass, and not of metal." Minute directions are given for keeping the utensils clean. "New ones must be thoroughly cleansed before using. Bottles and vials are washed twice with rain-water, and rinsed with distilled water, and dried by heat. Corks are washed in a hair sieve with warm water. China vessels are repeatedly scalded in boiling water, and wiped dry each time. The press is washed with cold and afterwards with hot water, and dried. Bottles and vials once used for a medicine are never used for any other." In some pharmacies a separate mortar is kept for each drug to be triturated. Cerates and plasma, though not "officinal," are occasionally employed. There is no established or generally accepted rule for their preparation, the proportions and mode of preparing varying in different localities. Cerates may be made from the dried material in the proportion one part to ten of a cerate, made of one part white wax, and four of lard. Arsenic, corrosive sublimate, and similar articles are used in the proportion of one to fifty. Those most employed are æsculus, calendula, hamamelis, urtica, and arnica.

Homœopathic medicines should be kept in clean bottles, in a separate department to themselves, well protected from sunlight, dust, smoke, and smells. Those that are apt to be injured by strong light should be in yellow bottles.

Theoretically, the medicines are never mixed, each one being always given by itself, although they often give two alternately every ten or fifteen minutes.

As a general rule the physician prepares and dispenses his own medicine. In the larger cities there are "homœopathic pharmacies," or stores devoted exclusively to homœopathy, as they keep beside medicines, books, cases, instruments, dietetic preparations, and appliances. In cities not large enough for a separate pharmacy, they are generally kept and dispensed at the regular stores. There are now about twenty-two regular homœopathic pharmacies in the United States, situated in the largest cities, four being in New York, three in Chicago, and two in Philadelphia and St. Louis. They are mostly large manufacturing and importing houses, and have a jobbing and wholesale trade, supplying about one thousand

regular druggists, who to a greater or less extent deal in them. Physicians generally obtain their supplies from the nearest druggist or dealer. Homœopathic globules and other preparations are quoted on the price lists, and kept for sale by several of our largest jobbers in New York, while homœopathic vials and corks are almost universally kept.

The demand at the pharmacies and stores is to a very large extent from people who have books on domestic practice, and prescribe for themselves. This is, however, quite a large, popular, and increasing business, as the medicines are pleasant to taste, and all the same price, generally ten cents for a drachm vial. The dose of all the medicines is the same. The globules are the most popular, and the dose of the ordinary size, number twenty-five, is eight for an adult. They are always dispensed with the name and strength on a narrow strip label, and stamped on the cork, great care being taken to always keep the same cork in the same bottle. The dispenser should possess, among other requisities, clean hands, and freedom from the flavor of obnoxious vegetables, and tobacco. One of their popular preparations is Rubini's camphor, sometimes called Rubini's tincture; it is prepared by dissolving camphor in an equal weight of alcohol, and is frequently called for in our stores.

Some physicians and druggists object to the sale of homœopathic medicines in our stores, and call it quackery. Yet they have little or no complaint to make about the sale of botanic medicines, and eclectic preparations, which are universally kept, frequently prescribed and used by them, and many of which have been introduced into our Pharmacopœia. The same may be also said of patent medicines. I do not wish to be considered an advocate of homœopathy, or of any other system or practice of medicine, as I really have little or no confidence in any of them. But as a pharmacist and druggist, I consider it my legitimate business to compound, prepare, and dispense all kinds of medicines, for all kinds of doctors and people, showing no discrimination or partiality for or against any particular kind, on account of their medical, political, or religious opinions. And should a new system of medicine, with a Pharmacopœia entirely different in every respect from anything now in existence spring up to-day, I would consider it my duty to obtain it, and prepare and dispense for them, as soon as I could.

I have been informed that homœopathic pharmacy is exclusively in the hands of regular druggists in Germany and Russia, and to some extent in France, Italy, and Switzerland. Nearly all the druggists in England, and a very large proportion of the best houses in this country sell them.

Whatever we may think about homœopathic pharmacy, we must all admit that in their universal Pharmacopœia, dose, and price of all the medicines, they have attained what we have long talked of, and hoped for, and that by the great care bestowed on the

collection and preparation of their medicines, they have established and maintain a high standard for purity, which we could do well to profit by. Such a thing as an adulterated or low grade of any homœopathic medicine has never been heard of. Their pleasant taste, low price, and neat appearance have done much to make them popular with the people, and the handsome profit they pay has had a similar effect on the druggist.

In conclusion, the following extract from the introduction to the Pharmacopœia referred to will be of interest:

"But if it is asked whether the physician, occupied with his professional practice, and often limited pharmaceutical knowledge, should prefer to prepare his own remedies, or obtain them ready for use, prepared with scrupulous accuracy, there could be but one answer. In short, in the course of time, it has been found impossible to dispense with the assistance of professional pharmaceutists."

I would further add, that whatever we may think of homœopathic pharmacy, there is one advantage we must all admit: that should a mistake occur in dispensing, there is no danger of it proving fatal, or of the physician, chemist, or any one else, even finding it out.

ON THE USE OF PHOSPHORUS IN MEDICINE.*

BY HUSKISSON ADRIAN, F.C.S.

First Paper.

The four preparations of phosphorus included in the Pharmacopœia Appendix imply the admission by the Medical Council of the fact that the element appears in medicine under two distinct aspects. In the first place we have in the Pharmacopœia itself the compounds of phosphoric acid, which may be said, speaking generally, to furnish the phosphatic matter required for the nourishment of the bones and blood; and now the Appendix authorises the use of two salts and two mixtures of phosphorus, all capable of further oxidation, and acting powerfully upon the nervous system. How they act cannot at present be laid down; but probably the progress of animal chemistry will hereafter supply the links now wanting to connect the phosphorus taken as medicine with the protagon of the brain, and then with the phosphates which are finally thrown off by the body.

Meanwhile, a comparison of the amount of phosphorus contained in the official doses of both old and new preparations seems

* From the Chemist & Druggist.

to show that the activity of this element is in direct proportion to its capability of further oxidation. The maximum dose of

Calcis Phosphas	contains	4·000	grains	of phosphorus.
Calcis Hypophosphis	"	3·647	"	"
Sodæ Phosphas	"	37·884	"	"
Sodæ Hypophosphoratum	"	3·369	"	"
Oleum Phosphoratum	"	·062	"	"
Pilula Phosphori	"	·065	"	"

A few chemical notes respecting the new preparations will (I hope) prove useful to those pharmacists who have not had the opportunity of investigating the properties of phosphorus for themselves. Many solvents have been suggested for phosphorus, but none of them present so few objections as that adopted in the Appendix. Ether and bisulphide of carbon are so volatile that a solution of phosphorus in either of them constantly becomes more concentrated—a serious matter with a medicine of which the usual dose is one-thirtieth of a grain. Alcohol takes up very little, even after boiling. Creosote is mentioned in the "Annals of Chemistry" as a solvent, but I have kept phosphorus immersed in Morson's preparation for a fortnight without succeeding in obtaining a solution. I am, therefore, inclined to agree with Dr. Redwood that no efficient subsitute for the *Oleum Phosphoratum* has yet been described. Even in this the Pharmacopœia admits the possibility of slight oxidation (which my experiments lead me to connect with decomposition of the olein), but this is much less frequent in the almond oil than in the animal oils by which it has been lately proposed to replace it. One may remark, however, that it is useless to hope for satisfactory results in this compound unless good oil is employed, and much time, care, and patience is expended.

Dr. Redwood has published a form for administering the *Oleum Phosphoratum* as an emulsion, and it is also given in mucilage flavored with aromatic wine. Messrs. Kirby enclose enough of the oil to represent one-sixtieth of a grain of phosphorus in a neat little capsule, and this mode of administration seems to be very popular. My only objection to this preparation, which keeps very well, is that the size of the capsules is greater than some persons can swallow. Any discussion of the therapeutic effects of phosphorus would be out of place here; but I may mention that these pilules are taken by students preparing for examination, and are stated to have a remarkably stimulating effect upon the intellectual faculties.

But any liquid preparation of phosphorus must of necessity begin to act as soon as it reaches the stomach; and for the use of those physicians who desired a slower action, or an action in the intestines, a phosphorus pill had to be devised. Here the compilers of the Appendix do not seem to have been so successful, the general opinion of pharmacists being adverse to their formula. The chief

objections raised against it are its insolubility and the practical difficulties attending the mixture of the ingredients. Besides these, it may be urged that the administration with the phosphorus of nearly one hundred times the quantity of a mixture of variable chemical composition, consisting partially of benzoic acid, may possibly cause the pills not to produce the desired effect. The defence of the formula, it is merely stated that phosphorus can only be safely manipulated under water, which is of less specific gravity than melted balsam of tolu. It is a well-known chemical fact, however, that the oxidation of phosphorus is checked by the presence in the atmosphere of a small proportion of the vapour of certain inflammable bodies (ether, turpentine, and essential), and some recent experiments have shown me that by the aid of these substances phosphorus may be safely made into pills without having resort to the P.B. process. This is the mode of procedure—Solid paraffin is worked up into a stiff paste with ether in a mortar; any required quantity of phosphorus is added, and well mixed with the paraffin. Should the phosphorus show signs of oxidation during the process, a few drops more ether will check it at once. The addition of a little powdered vegetable charcoal materially assists the minute division of the phosphorus, and also renders the pill mass firmer. Finally, heat the mass to about 80° F., by placing the mortar in warm water, roll into pills, and varnish as usual. If the pills be not made for immediate use, let them be kept in a well-corked bottle, in which is placed a piece of cotton-wool, moistened with essence of lemon. Soap or stearin may be substituted for the paraffin if desired, but the latter presents several advantages. Its melting point is low, and nearly approaches that of phosphorus; it contains no oxygen being a mixture of several bodies having the formula $C_n H_{2(n+1)}$; and in contact with the fluids of the body it is unlikely to form any dangerously active compound.

For the charcoal may be substituted any substance not likely to oxidise the phosphorus; phosphate of lime, for example. Sugar (which was suggested in the course of the discussion on the "Pharmacopœia Appendix") is specially unsuitable.

In a future paper I hope to offer some observations on the hypophosphites and other salts of phosphorus.

MISTURA ASSAFŒTIDÆ AND MISTURA AMMONIACI.*

BY J. W. WOOD.

The preparation of these two mixtures in accordance with our Pharmacopœia is not calculated to inspire, in case of the former, the most agreeable impressions imaginable upon the olfactories of the pharmacist; nor in the latter, if an impatient customer is waiting for it.

From the instability of the aqueous mixtures of these gum resins, we are precluded the possibility of keeping them always ready for dispensing.

To overcome this disadvantage I have devised the following convenient, and, I presume, altogether unobjectionable mode, which will at once commend itself at least to those whose remembrance of odorous mortar and wearied elbow does not contribute to the charms of the profession. The improvement consists in forming a solution, or at least suspending the gum resins in a certain proportion of pure glycerin, which mixtures are to be kept for adaptation to their purposes, as follows:

℞.—Assafœtidæ electæ ..... ℥ii.
Glycerinæ puræ ..... ℥vi.

Cut the assafœtidæ into small pieces, and, together with the glycerin, introduce into a capsule, and subject to a moderate heat, constantly stirring and triturating with a pestle. In a short time the solution will be effected, and the result will be a liquid, not too thick for easy manipulation, each troy drachm of which will represent fifteen grains of the gum resin. Transfer to a wide mouth bottle, and label according to contents.

Now, if we receive a demand for, say four ounces of mistura assafœtidæ, we need simply ascertain the weight of the bottle, and add therein exactly four drachms (troy) of the above glycerole of assafœtida, and afterwards water sufficient to make the measure, and, with a shake or two, the thing is done, the result being a handsome preparation, much less susceptible of change than the officinal mistura, by the presence of the glycerin, which is certainly unobjectionable, and may possibly be advantageous therapeutically.

The only extra precaution necessary in preparing the glycerole is to guard against employing too great a degree of heat, so that the volatile oil may not be dissipated.

Mistura ammoniaci is prepared in precisely a similar manner as the forgoing, the proportions being the same, and the result being equal, if not superior, to that made by the officinal formula. It certainly, in point of convenience and facility, possesses a decided advantage.

* From the American Journal of Pharmacy.

GUIDE TO AN EXAMINATION OF THE URINE.

(Concluded.)

URINARY SEDIMENTS—When a urinary deposit is to be examined, about four or five fluid ounces of the urine should be collected in a tall narrow cylindrical glass, and set aside for a few hours. Cylindrical glasses have, in the writer's experience, succeeded better than conical vessels, since the sloping sides of the latter tend to cause the sediment to collect on them, without falling to the bottom. This is particularly the case with uric acid and renal casts, especially if they are present in but small quantity.

When the sediment has collected at the bottom, the supernatant urine may be poured off, and a drop of the sediment placed on a glass slide, for examination under the microscope.

In looking for renal casts, it is better to use only the very last drops which fall from the vessel after the rest of the urine is poured away.

Directions for the Microscope.—A drop of the fluid containing the deposit is placed in the centre of the glass slide (which must be absolutely clean), and the drop very gradually covered with a piece of thin glass, (seven eighths of an inch square is the best size), so as to drive all the air before it, and to prevent any air bubbles being present under the glass. This is best accomplished by the aid of a needle, placing one edge of the thin glass upon the slide, and resting the other upon the needle, then inclining the needle gradually, until it is horizontal. All superfluous moisture around the glass cover must be carefully removed with a cloth, or with blotting paper. The slide is then ready to be placed under the microscope.

A quarter-inch object glass will be sufficient for the recognition of nearly all the sediments that occur. The tube of the microscope must be moved down until the object glass is about a quarter of an inch distant from the slide ; the light from the mirror is now thrown upon the slide at a point immediately under the object glass; the observer should then look through the microscope, placing the instrument with the coarse adjuster in the focus which suits his own eyesight.

Sediments are either organized or unorganized. To the latter belong uric acid, urates, oxalate of lime, phosphates, cystin, etc. To the former, pus, blood, mucus and epithelium, renal casts, fungi, and spermatozoa.

UNORGANIZED SEDIMENTS.—*Uric Acid.*—Uric acid is only met with as a deposit in very acid urine, and is usually accompanied by a considerable sediment of urates. Owing to its peculiar colour, varying from a yellow to a brownish red, it can at once be recognized by the naked eye, never being deposited from the urine in colorless crystals.

When the sediment is examined under the microscope, the crystals are at once known to be uric acid, by their reddish brown colour, all other crystaline deposits being transparent and colorless. If, indeed, the student is in doubt as to the nature of a crystal, he will never be very wrong, if he judge it to be uric acid when there is a slight tinge of brown visible. The crystals, themselves, have numerous forms ; they occur very commonly in rhomboidal, or long oval, plates with acute angles ; these crystals are often united so as to form rosettes, or they may be rectangular, barrel shaped, or in hexagonal plates, with two parallel sides longer than the other four.

If the student be not quite sure of their nature, he should add to the specimen under the microscope, a little liquor potassæ or liquor sodæ, which will dissolve uric acid, if present ; when dissolved by the alkali, it can be reprecipitated in hexagonal plates by the addition of hydrochloric or acetic acid.

Very small traces may also be detected by means of the murexid test ; a small portion of the suspected sediment is placed in a porcelain dish, and a drop of nitric acid let fall upon it ; the dish is then gently heated over a lamp until all the nitric acid is driven off, when if uric acid be present, a beautiful red staining is seen ; after cooling, a drop of caustic ammonia should be allowed to roll over the reddened spot, which then becomes purple ; if liquor potassæ be used instead of ammonia, the color will be violet. The test does not, however, distinguish uric acid from its salts.

Usually the uric acid is not free when the urine is voided, but it is precipitated by the increase of acidity which always occurs shortly after emission. This is especially the case in the urine of diabetes, where the whole of the uric acid present may be set free from this cause.

Clinical Import.—The presence of free uric acid is no proof that uric acid is being execreted in excess ; the only inference to be made, is that the urine is extremely acid. But if free uric acid shows itself immediately after the urine has been passed, it is not improbable that a deposit may be taking place in the pelvis of the kidney or the bladder ; a condition of considerable danger, since it may lay the foundation of a calculus ; uric acid and urate, calculi being the most frequent of all urinary concretions.

URATES.—This deposit is the most frequent and least important of all the urinary sediments. Any febrile condition will lead to this deposit ; even a greater amount of perspiration than usual, will be followed by urine that becomes turpid on cooling, as a result of a diminished secretion of water, merely. Urine containing an excess of urates is never turbid when fresh passed ; it is only when the urine has cooled, that the peculiar muddiness is observed. If the urine be gently warmed, the turpidity immediately disappears. The urates differ in color considerably, according to the amount of color-

ing matter in the urine, varying from white to pink or red. In young children the 'milky' urine, which alarms mothers, is due to a deposit of peculiarly white urates.

In the urine, uric acid is found combined with three bases; with soda, with ammonia, and with lime. The urate of soda is the most frequent of the three, and is usually seen under the microscope as an amorphous deposit; sometimes it forms round dark bodies with short spikes projecting from them. The urate of ammonia is rarer, and occurs in beautiful globular forms with spikes closely resembling the urate of soda, but of greater length. The urate of lime is very rare, and forms only an amorphous sediment. If any doubt be entertained as to the nature of these salts, it is necessary to add a drop of hydrochloric or strong acetic acid to the specimen, when crystals of uric acid will immediately be formed. These crystals are again dissolved by caustic soda or potash. If further evidence be required, the murexid test with nitric acid and ammonia may be applied.

Oxalate of Lime.—Oxalate of lime occurs as a urinary sediment in colorless octahedral crystals, having the so-called 'envelope' appearance which, when once seen, can hardly be mistaken for anything else. This deposit also occurs in colorless dumb bells.

Oxalate of lime is insoluble in acetic acid; by this it is distinguished from the phosphates; it is colorless and insoluble in alkalies, and thus differs from uric acid. It is, however, soluble in the mineral acids, as, for example, in hydrochloric acid.

Clinical Import.—After urates, oxalate of lime is the most common unorganized urinary sediment; it is often seen in the urine of patients convalescent from acute diseases; and many writers state that it may always be found when there is lessened oxidation, as in bronchitis. The occasional presence of a few crystals of oxalate of lime is not of much importance. When the deposit is constant, and in large quantity, the formation of the mulberry calculus may be feared. This sediment is said to be associated with a dyspeptic and hypochondriacal condition, sometimes termed the "oxalic acid diathesis."

Phosphates.—The phosphates are only separated from very feebly acid, or alkaline, urine; and they are always deposited when the urine undergoes the alkaline fermentation; they consist of the ammoniaco-magnesian phosphate and the phosphate of lime.

Under the microscope the ammoniaco-magnesian phosphate appears in beautiful right rhombic prisms, which disappear immediately on the addition of acetic acid, which are thus distinguished from the oxalate of lime, with which an inexperienced observer might, perhaps, confound them.

The phosphate of lime chiefly occurs as an amorphous deposit, soluble in acetic acid; it is precipitated by heat in flakes resembling albumen, which are at once, however, dissolved by a drop of acid.

Clinical Import.—The deposit of phosphates indicates an alkaline reaction of the urine, a condition favorable to the formation of phosphatic calculi.

If the least doubt be left upon the observer's mind after the microscopical examination of a sediment, he must use the assistance of reagents in determining its nature. The following scheme will be found useful; a drop of strong acetic acid should be placed on the glass slide, near the thin covering glass, so that the acid may run in between two pieces of glass, but it should be carefully prevented from wetting the upper surface of the cover, as this will produce an obscurity over the object. Should the deposit be phosphatic, the acid quickly dissolves the crystals, or amorphous sediment; but if the sediment consists of urates, crystals possessing the well-known shape of uric acid are formed. If no effect upon the sediment is produced by acetic acid, it consists of either uric acid, or oxalate of lime. Liquor potassæ added with the same precautions as acetic acid, brings about a solution of the crystals of uric acid, but the alkali has no effect upon oxalate of lime, which will be dissolved by the action of hydrochloric acid.

Cystin.—Cystin is a rare deposit in the urine; it occurs in colorless hexagonal plates, united by their flat surfaces, and overlapping one another. When dissolved in the urine, cystin may be thrown down by the addition of acetic acid, and the precipitate examined under the microscope. It may be distinguished from uric acid, which sometimes crystalizes in hexagonal plates, by the absence of color in the crystals.

Urine which contains cystin is usually feebly acid, of a yellowish green color, and of a peculiar odour, compared to sweet briar, but which sometimes resembles that of putrid cabbage. The urea and uric acid are diminished in most cases. The ammoniaco-magnesian phosphate often accompanies the crystals of cystin.

Cystin contains a large quantity of sulphur, and Liebeg has proposed a test which is founded on this fact. A solution is made by adding, to a small quantity of solution of acetate of lead, liquor potassæ or liquor sodæ until the precipitate first formed is redissolved; about equal parts of this solution and of urine are boiled, when black sulphide of lead is formed from the combination of the sulphur with the lead. This test is, however, by no means a good one, since many bodies frequently present in the urine, *e.g.* albumen, contain enough sulphur to give the reaction.

Of the *Clinical Import* nothing is known.

The appearance of cystin in the urine is believed by some to be hereditary and to be connected with calculous disorders. Other observers have found it in the urine of chlorosis.

Leucin and Tyrosin.—Leucin and tyrosin are very rare deposits in the urine. Under the microscope leucin appears in dark globular forms, which have been compared to masses of fat cells;

tyrosin, however, crystalises in beautiful bundles of delicate needles, sometimes arranged in a stellate form.

These two bodies have been detected in the urine in cases of acute yellow atrophy of the liver, of small-pox, and of typhus fever. The clinical value of their presence is, however, unknown.

CINCHO-QUININE.

The following communication from J. F. Miller, M. D., of Goldsboro', N. C., appears in the *Philadelphia Medical and Surgical Reporter*, of February 14th, 1874:

The comparatively new article of medicine *Cincho-Quinine*, having become a subject of much comment by quite a number of medical gentlemen, I have been induced to try it in my own practice. I have been using it freely for about twelve months, and have fairly tested its virtues, both as a tonic and antiperiodic, and I can safely recommend it to my professional brethren as a most valuable medicine. I have observed but one unpleasant effect on children, *i. e.*, an efflorescence of the skin after giving the medicine for several days in full doses; but this effect is comparatively rare and really of little importance. I do not regard the cincho altogether equal to the sulphate of quinia as an antiperiodic, of the same quantity by weight, but probably about one-eighth weaker; that is to say, it will require one-eighth more by the weight of the cincho to make it equal to the sulphate of quinia as an antiperiodic. But the sulphate costs a little more than one-third more than the cincho, which, as a pecuniary investment, leaves a balance in favour of the latter article. The cincho-quinine certainly agrees with the stomach better than the sulphate, and produces little or no nervous derangement, and is consequently preferable to the sulphate in many cases. Notwithstanding the eruption that now and then appears from its exhibition to children, I regard the cincho-quinine the very thing for this class of patients, for by making an elixir of the medicine, they take it very readily, which is a most important consideration.

The following are only a few of the many cases of children treated with cincho-quinine, and I also give the formula used by myself in preparing the elixir:

Ella, child of W. F. F., æt. eighteen months, has had intermittent fever, quotidian form, for several days. Chill believed to appear from eight to ten o'clock a.m.

℞	Cincho-quinine	grs. vij.
	Aro. sulph. acid	gtt. v.
	Syr. zingiberis	
	Aquæ rose	āā ʒss.

Mix and dissolve. Sig. Teaspoonful at eight and eleven p. m., and two and five a.m.

No perceptible chill, but a slight fever came on about one o'clock p. m. Repeat the prescription at five, seven, nine and eleven a. m., following day. Result, no chill or fever, and patient recovered without further difficulty.

Tommy, son of T. B. H., æt. five years, has had two chills, tertian form; the last chill being very severe and fever lasting unusually long; bowels costive. Time of chill seven a. m.

℞ Hydr. chlo. mitis
Leptandrin ..... āā gr. ij. M.
Sig. Take at bedtime.

Medicine acted well early next morning, and at eight and eleven p. m., and two and five a. m., two teaspoonfuls of the following mixtures were given:

℞ Cincho-quinine..... grs. xij.
Aro. sulph. acid ..... gtt. vij.
Syr. zingiberis
Aquæ rosæ ..... āā ℥j.

Mix and dissolve. Result, no return of chill or fever, and patient rapidly recovered. The remainder of the prescription was given to him in teaspoonful doses *ter in die*.

The last case that I shall notice (though many others might be given) is that of my own child, Charlie, æt. seven and a half years. To him I gave the same prescription given to child of T. B. H., with a like result. A few drops of tinct. cinnamon will add to the agreeableness of the elixir of cincho-quinine.

IS LICORICE JUICE FERMENTABLE?*

There exists in the root of licorice and some other plants a sugar-like substance, which comes in commerce as an extract, or inspissated juice. The active principle of this is a yellowish white powder with a pleasant, bitter-sweet taste, and is called *glycyrrhizin*. Although it has been popularly supposed that this juice was not infrequently used by brewers, this supposition was met by scientific men with the assertion that this substance was not capable of undergoing fermentation, and hence could be of no use to the brewer. Dr. Griessmayer has instituted some experiments, and his results seem to contradict the latter assertion. On dissolving glycyrrhizin in cold water, in which it is not very soluble, a yellow solution is obtained, which has a brown color by reflected light, and possesses

* Journal of Applied Chemistry.

a peculiar odor like that of smoking tobacco. On heating the solution, a fine yellow foam rises, which soon subsides on boiling. The vapors given off have a pleasant aromatic odor.

Glycyrrhizin is a glucoside, a body which, on warming with a dilute acid, splits up into glycyrretin and sugar. If, then, any free acid, like phosphoric or succinic, were present in the root, it would serve to produce this change during the mashing, or on boiling the hops. But even boiling alone seems to effect this change; for after a solution has been boiled for some time, without anything being added, it is capable of reducing the alkaline copper solution. A cold saturation solution, of course, will not do this, not even on heating it with the tartrate of copper, and hence the error arose of supposing that glycyrrhizin would not reduce the copper solution at the boiling point. The cause of this difference of behavior is evidently due to the alkalinity of the copper solution, which prevents the glucoside from splitting up.

In order to decide the question whether the sugar liberated by previous boiling was really capable of undergoing fermentation, 400 c.c. of a solution of licorice was first boiled, then cooled to the temperature of the room, 87° F., and 0·5 gram of yeast added. In about six hours the evolution of carbonic acid was observed, and in three days the fermentation was over. The presence of alcohol was proven both by distillation and by Liebig's test. Toward the end of the fermentation a very offensive odor was given off, and this, of course, went over to the distillate. The fermented liquor contained no bacteria or vibriones, but perfectly healthy *saccharomyces cerevisiae*. It is natural to suppose that the vile taste and smell of certain beers arise from the addition of licorice.

USE OF MONOCHROMATIC LIGHT IN ALKALIMETRY.—The difficulty of performing an alkalimetrical operation by artificial light has generally been considered insurmountable, since the changes of color in solution of litmus, or on litmus paper, cannot be distinctly recognized, and the precise termination of the experiment cannot, therefore, be determined. If, instead of ordinary gas-light, the laboratory be illuminated solely by a Bunsen burner, in the flame of which is placed a platinum wire covered with a suitable soda salt, red litmus will appear colorless as water, whilst blue litmus is black as ink. In this light, therefore, the change of color which indicates the termination of an acidimetrical or alkalimetrical process will be seen more distinctly than by daylight, and tnese operations can, therefore, be conducted in the night better than by day.—*Iron.*

Editorial.

DOCTOR AND DRUGGIST.

We have chosen as a heading for this article a title which, though expressive, possesses not the slightest claim to originality. It may, indeed, be considered as forming part of the standing stock of the medical or pharmaceutical journalist, and as such it will probably remain until the close of the chapter. It is to be regretted that discussions on this subject have not always been marked by that temperance of tone and language which the theme demands. Too often has the cry of "doctor and druggist" been made the watchword of strife, while, in reality, its true signification is, or should be, only suggestive of amity and fellowship. The most rancorous accusations have been indulged in, but, though there has been much recrimination, we cannot allow that both parties are equally blameable. Heretofore, the medical profession has generally assumed the offensive. Occupying the vantage ground afforded by original right of possession, superior education, and influence, the warfare has been carried on with the most bitter spirit of oppression, and the pharmacist has had hard work to maintain his position and independence. Like the Israelites of old he has worked with a trowel in one hand and a sword in the other, and has often been made to exchange both for the fetters of an overpowering enemy. In the meantime, however, the world has moved, and the ever onward march of progress has carried with it the struggling contestants. Little time is there now for the petty strife of party; each has enough to do in keeping up in the race. Every weight must be cast off, every diverging path avoided, or the contestant will never reach the anticipated goal. In these times it is only by keeping steadfastly in view a single object that anything can be achieved. The physician can no longer bestow his attention upon the "culling of simples," nor can he even successfully attempt those departments which are more closely related, and more legitimately belong to the healing art. The subject must be divided and subdivided, and one or other branch be selected, studied, and adhered to. Even the culling of simples has been found to be no simple matter, and, in

the present day, forms but a small part of the art of the apothecary. Here a division of labor has had to be made, and as a result we have realized a development of the entire subject which would have been impossible under the old system.

The more advanced and intelligent members of the medical profession have long recognized the value of a division of labor, and have been glad enough to get rid of the pharmaceutical department of their calling. Those holding positions of mediocrity have held fast to their ancient privileges with a tenacity inversely proportional to their rank, but we are glad to note that there are evident signs of a complete abandonment of all claims to possession, control, or right of interference with that which is now the legitimate sphere of the pharmacist.

On this point the tone of the medical press is, with few exceptions, clear and decisive. Even with journals emanating from strongholds of medical conservatism, the necessity of a reform is strongly urged. A case in point is that of the *Canada Medical Record*, published in Montreal. As our readers well know, the medical profession of this city has offered and heretofore maintained a most determined opposition to the claims of the pharmacist, and has exercised a control—based on statutes of almost feudal origin—of the most rigorous and exacting nature. It is, therefore, encouraging to note the evidences of a change of feeling, and that this may be more generally shared we quote, from our outspoken contemporary, the following refreshing and sensible paragraphs:

Speaking of the percentage system, he says: "Physicians have "no right to require their patients to buy drugs at any other store "than that which they are accustomed to deal at; provided the "family chemist is honest in his dealings and furnishes pure drugs, "nor has he the right to interfere except upon stronger grounds "than personal preference, or decry the medicines furnished unless "he believes them to be of inferior quality. * * *

"We are decidedly in favor of pharmacists managing their own "affairs, and hope they will obtain such powers that will enable "them to examine and control those engaged in their business. It "is also time that the farce of medical boards examining apothe-"caries for license should cease, and that properly qualified Col-"leges of Pharmacy should exist. The duty of such Colleges is to "produce a class of educated men who will be able to manufacture

"and inspect drugs for themselves, and the drug store will become "a laboratory for scientific research instead of being a place for the "retail of fancy goods and patent medicines. By defining the "duties of the pharmacist and excluding those who are not qualified "to dispense, a great boon will be obtained by the medical profes- "sion. Less uncertainty will exist as to the action of drugs. The "physician and druggist each should work for one end. The first "to prove the therapeutic value of drugs, the other to prepare them "of such uniform quality and purity as to render observations made "with them perfectly reliable. We believe it to be the duty as well as "the interest of the profession to leave such matters to the control "of pharmaceutists and thus get rid of the onerous task of dispens- "ing their own medicines, whilst at the same time the druggist "should not charge more than what is right for the dispensing, or "feel pulses over the counter, but leave the difficult duty of prescrib- "ing to those who are specially educated for it. One other practice "should also be condemned. It is impossible to combine the duties "of both properly, and yet we have in our midst men who practice "as physicians and at the same time superintend drug stores. Such "hybrid combinations are injurious to both parties, and we trust be- "fore long stringent means will be used to prevent them."

It must not be supposed that our contemporary is altogether one-sided in his views. His vindication of the rights of physicians is equally vigorous, and, though couched in somewhat violent language, equally just. On this subject we have frequently expressed our opinion. That the rights of physicians are interfered with by druggists we regret as much as any, and are quite as anxious as our contemporary that that these abuses should be done away with. It would, however, carry this article to an undue length, were we to do more than allude to this subject, and we shall therefore defer, until another time, any further remarks.

Editorial Summary.

SYRUP OF HYPOPHOSPHITE OF IRON.—At a recent meeting of the Society of Pharmacy of Bordeaux, (reported in the *Bulletin des Travaux* and of which a summary appears in the *Pharm. Jour. and Trans.*) M. P. Carles took occasion to criticize the various processes for the preparation of the above syrup. The formula of Wood (*Pharm. Jour. and Trans.* vol. ix, 461), and also that of Hardy, were especially referred to, and were stated to be open to certain objections. The former process was found defective on account of the addition of the phosphoric acid, by which the nature of the product was changed; by the instability of the syrup; and by the inaccurate proportions of the ingredients. Hardy's process was found tedious; the salt operated upon—hypophosphite of baryta—is not generally to be met with in commerce; and without great care and experience there is a liability of the product being contaminated with portions of the undecomposed and poisonous salt of barium. To obviate these inconveniences the author proposes the following formula:

Ferrous sulphate.....	15.00 grams
Hypophosphite of soda.....	9.14 "
Distilled water (boiled).....	350.00 "
Powdered sugar.....	660.00 "

The ferrous salt is pulverized and dissolved in 20 grams of the water and the hypophosphite in the remainder. The solutions are mixed and agitated, and, after a quarter of an hour, the magma is thrown upon a cloth and pressed. If necessary, the recovered liquid may be filtered through paper. A sufficiency of distilled water is added to make the quantity of liquid up to 360 grams, and in this the sugar is, by the aid of a gentle heat, dissolved. The resulting syrup should be preserved in bottles kept as full as possible. Each spoonful of the syrup will contain 25 centigrams of hypophosphite of iron.

AN EASY METHOD OF ASCERTAINING THE SPECIFIC GRAVITY OF THICK LIQUIDS.—Mr. W. H. Symons, in a communication to the *Pharm. Jour. and Trans.* alludes to the difficulties attendant on taking the specific gravity of thick liquids by means of the specific gravity bottle. He recommends the following method, which is not claimed to be new, but rather forgotten or overlooked. It is, however, very simple and expeditious, and possesses the advantage that as small a quantity as one fluid drachm of liquid can be successfully

operated upon. A glass stopper, or, for small quantities, a piece of platinum, is attached by a fine platinum wire, or horse hair, to one of the limbs of a balance. The weight of this in air is, say 667.9 grains ; its weight in water 372.6 grains. This shows that a bulk of water, equal to that of the glass stopper, weighs 295.3 grains. Immersed in syrup the stopper weighs 280.6 grains. From this it is evident that the weight of a bulk of syrup equal to that of the stopper is 387.3 grains. Having thus ascertained the weights of equal bulks of water and syrup a sample calculation gives us the specific gravity required. For as the loss of weight in water is to the loss of weight in syrup so is 1,000 to the required product. All that will be necessary is therefore to divide 387.3—the weight of the syrup, by 295.3—the weight of the water, when the specific gravity 1.311 is at once obtained.

NUX VOMICA.—Persons familiar with the preparation of extract of nux vornica will have noted the oil which separates from the extract during the process of evaporation. Heretofore, it has not been satisfactorily determined whether this oil contained any alkaloid; but, in any case, it is customary when inspissating the extract, to remove the oily stratum, although neither the British or United States Pharmacopœias authorize such proceeding. In case of any alkaloid being present Prof. Proctor recommended that the oil should be agitated with a little dilute spirit and that the washings thus obtained should be added to the extract. This suggestion was well founded as appears from the investigations of Mr. C. Bullock, *(Am. Jour. Pharm.)* who obtained from four ounces of oil, 10.6 grains of alkaloids. Of this some portion was strychnia, but the major part consisted of brucia. A quantity of alumina was also found to be present.

MYRISTICIN—At the meeting of the British Pharmaceutical Conference, Professor Fluckiger, of Strasbourg, read a paper on this subject. According to Gmelin it appears that essential oil of nutmegs sometimes deposits a kind of camphor. In 1821, J. F. John noticed this substance and designated it by the name *Myristicin.* He described it as soluble in water and even perfectly dissolving in nineteen parts of boiling water. He was of the opinion that it was a kind of alkaloid, but Gmelin says that its aqueous solution was sometimes acid, sometimes alkaline. Other observers experimented on these substances, and ascribed to it properties of a diverse character. Dr. Fluckiger obtained from Messrs. Herrings & Co., a quantity of this so-called camphor, obtained in the distillation of

oil of nutmeg and collected with that oil towards the close of the process. It is described as a greyish, semi-solid mass, which, washed with alcohol, and crystallized from boiling alcohol, was in the form of brilliant colorless scales, smelling strongly of nutmegs. After some time this odour disappears. The crystals are soluble in warm alcohol ; insoluble in water, melt at 45° 5° C.; are soluble in solutions of the caustic alkalies, forming a kind of soap. Analysis gave the composition :

Carbon.....	73.41
Hydrogen.....	12.25
Oxygen.....	14.34
	100.00

This coincides with the composition of myristic acid, and such the author supposes myristicin to be.

PILLS OF SULPHATE OF QUINIA.—In a communication to the *American Journal of Pharmacy*, Mr. H. P. Reynolds speaks very highly of the following formula for the preparation of quinine pills. He has tested the process for over three months, and, during that period, has made thousands of pills which have always given entire satisfaction. The quantities ordered are correctly proportioned and should not be altered. Quinia sulph. gr. 600 ; acid, tartaric, gr. 100 ; glycerine, m. 75. Rub the quinia and acid together in a mortar to a fine powder, till no appearance of crystals remains, add the glycerin—just 75 minims, no more nor less—and continue the trituration till the powder becomes adherent, when it should be beaten into proper form for handling and divided into the required number of pills. The mass is firm, solid, rolls well, does not set for some hours, is, in fact, a "beautiful mass," and the pill will be found quite small for their weight, very white, if rolled in starch powder, and however old or dry they may become, they remain perfectly and entirely soluble.

STEAM POULTICES—The old-fashioned cataplasm has been superseded by an appliance contrived by Dr. Dobell, of London, by which steam is made to traverse vulcanized rubber bags which are applied to the part intended to be subjected to the action of heat. This furnishes a dry heat, but by interposing between the skin and the rubber surface a wet cloth, or piece of felt, the requisite amount of moisture or vapour is generated. The steam necessary for the purpose may be conveniently furnished by a tin kettle, to the spout of which a flexible tube has been attached ; or, more elegantly, by a

little boiler, heated by a lamp or gas flame. The necessary apparatus has been constructed by Messrs. Maw, Son & Thompson, who exhibited, at a "library party" in the house of Mr. Dobell, all the requisite appliances, and the manner of application. Dr. Dobell has no pecuniary interest in this invention, and in order to make the application more general, he has decided not to protect himself by a patent.

Uncertain Strength of Unguentum Hydrargyri.—Mr. J. A. Muthersbough, (*Am. Jour. Pharm.*) made an examination of ten samples of ointment, obtained from different establishments, (in Philadelphia ?) and though in each case the preparation was represented to be in conformity with the U.S. standard, the quantity of mercury present was found to be remarkably variable. Ung. Hydrarg, U.S.P. contains 50 per cent of mercury ; the samples examined, yielded respectively, 48½, 48½, 48, 46, 30, 30, 26, 25, 24, and 22 per cent.

Remedy for Toothache.—A writer in the *London Medical Record* speaks very highly of the following mixture :—Saturated solution of carbolic acid, saturated solution of chloral hydrate, camphorated tincture of opium, fluid extract of acenite, of each, one ounce ; oil of peppermint, half an ounce. This mixture is to be applied to the cavity of the tooth by a pledget of cotton.

Solubility of Plumbic Chloride in Glycerin.—From experiments made by Mr. C. H. Piesse (*Jour. Chemical Society*), it appears that 100 parts of pure glycerin are capable of dissolving 1.995 parts of plumbic chloride ; 100 parts of mixtures of glycerin and water containing 50, 25, and 12.5 per cent of glycerin will dissolve respectively, 1.32, 1.036 and 0.91 parts of plumbic chloride.

Case of Poisoning by Atropia.—Dr. Newland, (*St. Louis Med. and Surg. Jour.*) reports a case of poisoning by atropia in which one and a quarter grains of the alkaloid were taken. Vomiting ensued in about an hour after the poison had been swallowed. Morphia was given in the dose of one fourth of a grain every twenty minutes ; and ammon, carb, two grains, every ten minutes. This treatment was continuted for two hours. The patient ultimately recovered.

DEODORIZATION OF BISULPHIDE OF CARBON.—For this purpose, M. Yvon, of Alfort, proposes that the liquid be left for a short time in contact with copper turnings. This method is said to be quite effectual.

JALAP BISCUIT.—Mr. Tambureau, of Algeria, proposes as a convenient purgative a biscuit containing jalap, resin, sugar, eggs, and flour, and flavoured by vanilla. The biscuits thus produced are said to have a presentable appearance and agreeable taste.

Students' Department.

Answers to the following questions must be sent in so as to be received by the editor before the twentieth of each month. Competitors must be engaged in the drug business, not being proprietors or having passed examination, and must furnish, with the answers sent, their real names and addresses. It is trusted that all answers sent will be the *bona fide* work of competitors, and that no assistance will be sought except such as is afforded by books.

Answers requiring calculation and involving fractions must be given in decimals, which need not be carried beyond the third place.

The following books are offered this month as prizes:—

FIRST PRIZES.

Parrish's Pharmacy.
Garrod's Materia Medica.
Gray's Manual of Botany.
Fownes' Chemistry.

SECOND PRIZES.

Gray's First Lessons in Botany.
U. S. Pharmacopœia, 1873.
Wittstein's Practical Pharmaceutical Chemistry.
Roscoe's Chemistry.

Successful competitors may select from any of the above works, and, on notifying the Editor, the book selected will be forwarded by post.

QUESTIONS.

1. *Chemistry.*—Describe, by equations or diagrams, the reactions which take place in the preparation of *Hydrargyri Subchloridum*, and *Hydrargyri Perchloridum*, B.P.; and state the quantities

of the ingredients which are theoretically required in order to produce ten pounds of each of these salts.

2. *Pharmacy.*—I wish to prepare a quantity of *Ung. Hydrargyri Nitratis*, B.P., but find that the only strength of nitric acid available is that of specific gravity 1·31; could this with equal advantage be substituted for the officinal acid, and if so, what quantity, avoirdupois weight, must I take in order to equal the quantity ordered in the officinal process?

3. *Materia Medica.*—Name the adulterations, or impurities, which Opium, Jalap, and Senna, are liable to contain, and state the means you would employ for their detection and recognition.

4. *Botany.*—Give definitions of the following terms descriptive of root forms:—Conical, fusiform, napiform, contorted, fibrous, tuberculated, fasiculated, annulated; give, from medicinal plants, instances of each form.

5. *Dispensing.*—What precautions should be observed in compounding the following prescription? And what are the reactions that render those precautions necessary?

Recipe. Potassæ Chloratis.
Acidi Tannici.
Sacchari Albi $\overline{a\ a}$ grs. i.
Misce et fiat pulvis.

6. *Prescriptions.*—Translate the accompanying prescription into elegant English:—

Recipe. Pulveris Radicis Ipecacuanhæ, grana decem.
Antimonii Potassio-Tartratis, granum.
Aquæ distillatæ, fluidunciam cum semisse.
Misce. Fiat haustus, horâ nonâ matutinâ sumendus. Vomitu superveniente, bibat æger, vicibus repetis, Infusi Anthemidis aliquot cjathos. Vomitu finito, capiat pulverem sudorificum.

LAST MONTH'S QUESTIONS.

The answers to the 1st, 2nd, 5th and 6th questions given last month were not by any means as good as they should have been. The first question was, in some cases, misunderstood, and of the thirty answers received, only six were correct. The second question shared a similar fate, though its extreme simplicity should have insured it better treatment. We append correct solutions of these two questions, and also give the methods by which the results were arrived at. Students whose answers were incorrect should look over this carefully, and not give the matter up until everything is thoroughly comprehended.

We also append the two best papers which were received in answer to the 5th and 6th questions.

(1.) The action of nitric acid on phosphorus is represented by the equation:—

$$6\,P + 10\,HNO_3 + 4\,H_2O = 6\,H_3PO_4 + 10\,NO$$

This is equivalent to saying that 186 parts of P (the atomic weight of P 31, multiplied by 6, the number of atoms) require 630 parts of HNO_3 and produce 588 parts of H_3PO_4. If 186 P require 630 HNO_3, 413 P (the officinal quantity) will require 1398·87 HNO_3. But this nitric acid is stronger than that of the B. P. in the proportion of 100 to 70. If 1398·87 parts, or grains, of 100 per cent. acid are required, a greater quantity of 70 per cent. acid will be necessary. A calculation by simple proportion gives the result—1998·37 grains; this divided by 437·5 (the number of grains in one ounce, avoir.) give us the required answer—4·567 oz.

The specific gravity of water is 1·000; *Syrupus, B. P.*, 1·330; Syrupus, U. S. P., 1·317. The number of grains in an imperial pint of water is 8750. With these data it is very easy to ascertain the weight of an imperial pint of each of the syrups. A sum in simple proportion gives us, at once, the answer. As the specific gravity of water is to the specific gravity of the syrup, so is the weight of an imperial pint to the required product.

As 1000 : 1330 : : 8750 : 11,637·50—*Ans.*
As 1000 : 1317 : : 8750 : 11,523·75—*Ans.*

Dispensing—(*A. Wilson, Hamilton.*)—The method of making Quinine into pills is the same as for other pills; namely, by means of a pill tile and spatulas for small quantities, or a mortar and pestle with spatulas for any quantity; the latter being more expeditious, and preferable, because greater force can be used to incorporate the Quinine with the excipient. Each of the following forms show the quantity of ingredients necessary to make ten grains of Quinine into pill mass.

1.—℞. Quiniæ sulph .....gr. x.
Conf. Rosæ Caninæ.gr. 3
M.

2.—℞. Quiniæ sulph.....gr. x.
Pulv. acaciæ ....gr. iijs.
Mellis .....gr. v.
M.

3.—℞. Quiniæ Sulph....gr. x.
Glycerini Amyli..gr. iij.
M.

4.—℞. Quiniæ Sulph....gr. x.
Glycerini Amyli..gr. ij.
Acid. Sulph. Aromat.m.j.
M.

5.—℞. Ext. Taraxaci ..gr. v.
Quiniæ sulph., gr. x.
M.

6.—℞. Quiniæ sulph.....gr. x.
Acid. Tart. .....gr. ij.
Glycerini.....gtt. 1½
M.

7.—℞. Quiniæ Sulph....gr. x.
Glycerini Amyli..gr. 1½.
Acid Sulph. dil ..gtt. i.
M.

8.—℞. Quiniæ Sulph ....gr. x.
Acid. Sulph. Aromat.m.vj.
M.

No. 1.—The B. P. form makes a rather large pill of a dark color, and not quite so cohesive as Nos. 3, 4, 6, 7.

No. 2.—The U. S. P. form makes too large a pill and becomes hard and insoluble when long kept.

No. 5.—Makes a rather large pill of a dark color, very cohesive and easily manipulated.

No. 4.—Makes a very nice small pill, but not quite equal to Nos. 3, 6, and 7, which are small pills, very plastic, white in color, easily made and keep well, not becoming hard.

No. 8.—Parrish's. Too tedious to make and not so small as claimed.

ORDER OF MERIT.

Maximum Nnmber of Marks = 70.

No	NAME.	Chemistry.	Pharmacy.	Materia Medica.	Botany.	Dispensing.	Prescriptions.	Extra.	Total.
1	A. Wilson, Hamilton	10	10	8	10	10.0	8.5	8	64.5
2	G. Beamish, Cobourg	10	10	10	10	5.0	8.0	10	63.0
3	R. McCormick, Ottawa ..	10	10	9	10	5.0	8.5	10	62.0
4	R. M. Thurtell, Guelph....	10	10	8	10	7.0	6.0	10	61.0
5	"Bromine," Orillia	10	5	10	10	4.0	5.5	9	53.5
6	G. Inglis, Yorkville	1	10	8	10	6.0	8.0	10	53.0
7	G. Maclagan, Lindsay	10	10	7	8	4.5	8.0	5	52.5
8	J. B. Bond, Barrie.....	5	10	7	7	4.5	9.5	9	52.0
9	J. H. Bowman, London ..	9.9	10	8	10	4.0	2.5	7	51.4
10	J. E. Shore, London.....	1	10	7	10	5.0	8.0	5	46.0
11	"Carbon," Bowmanville..	1	10	7	10	1.0	8.5	5	42.5
12	T. V. Kennedy, Toronto ..	1	9	8	4	5.0	9.5	5	41.5
13	B. Robinson, Kingston....	4	1	8	10	0.5	8.5	9	40.5
14	F. A. Brady, Ingersol	1	1	7	10	3.5	10.0	7	39.5
15	C. B. Hoyt, Ingersol.....	1	1	8	10	1.0	8.0	7	36.0
16	C. McMichael, Hamilton..	2	1	7	9	7.0	6.0	4	35.0
17	R. H. Revel, Woodstock..	1	2	7	10	3.5	5.0	6	34.5
18	R. Muir, Toronto	1	1	10	7	3.0	3.5	8	33.5
19	A. S. Wallace, Prescott ..	1	10	7	4	2.5	2.0	7	33.5
20	A. Werner, Elmira	1	8	9	8	1.0	2.0	4	33.0
21	A. B. Welford, Woodstock.	1	1	8	10	5.5	3.5	5	33.0
22	A. Lakiman, Woodstock ..	1	1	7	10	1.0	6.0	6	32.0
23	"Morphia," Cobourg	..	1	8	7	5.0	5.0	5	31.0
24	H. W, Hobson, Welland..	1	1	8	4	5.0	4.5	7	30.5
25	R. E. Scott, Sarnia	1	1	7	8	5.0	1.0	6	29.0
26	"Oxygen," Bradford.....	1	1	5	10	1.5	4.0	2	24.5
27	"Pilulæ," Whitby.....	1	1	4	5	1.5	6.0	6	24.5
28	G. W. McLaren, Watford..	..	10	6	..	4.0	1.5	2	23.5
29	J. H. Haughton, Waterford	1	1	7	1	1.0	6.0	5	22.0
30	A. R. F., Toronto	1	1	5	3	0.0	3.0	4	17.0

The First Prize is awarded to ALEX. WILSON, Hamilton; the Second Prize to G. BEAMISH, Cobourg.

Prescriptions.—(*F. A. Brady, Ingersol*)—Recipe. Tincturæ Opii, drachmas quatuor; Olei Anisi, guttas octoginta; Magnesiæ Carbonatis, drachmas duas cum scrupulos duos; Aquæ puræ uncias octo. Misce. Capiat cochleare magnum omni bihorio. I have written the prescription as it was given, but it is hardly right to expect to get ½ oz. water, 30 drops Tr. opii, and 10 grains magn. carb. in a dose of half-ounce, *i.e.* 16 doses (equal size) given out of an 8 oz. mixture equals ½ oz. for dose. The dose of Tr. opii is of pretty good size, but not any too large. In compounding I would rub the ol. anisi with the magnesia carb. adding the water and Tr. opii, gradually, shaking the bottle well.

SCHOOL OF PRACTICAL SCIENCE.

This institution—which was formerly known as the College of Technology—was opened for winter classes on Thursday, October 29th, when Mr. Armstrong, C. E. formed a class for Engineering and Architectural Drawing, which will be continued on Tuesday and Thursday evenings.

A course of lectures on Light will be commenced by Mr. Louden, M.A., on Friday evening, Nov. 6th. The class will meet weekly.

In regard to Practical Chemistry no definite decision has been arrived at, but due notice of the commencement of the classes will be given.

Tickets for the courses (which are *free*) may be obtained from Mr. Heys, at the school, any afternoon from 3 to 5 o'clock, and on Saturday evening from 7 until 10 o'clock.

Transactions of Pharmaceutical Colleges and Societies.

AMERICAN PHARMACEUTICAL ASSOCIATION.

(Concluded.)

During the afternoon session the reading of answers to queries was continued. In reply to the question, What is Cincho-Quinine? was read by A. E. Ebert, of Chicago, in which that painstaking investigator showed that this article was an imposition, that it contained no quinine at all but consisted almost entirely of cinchonine. J. L. Lemberger, of Lebanon, Pa., read a paper on a petroleum product called Cosmoline, which was being introduced as a substitute for lard. It appeared to be little else than impure paraffin, with sufficient quantity of heavy oils to give it the proper consistence. Seeing that the price asked for this compound is three or four times as much as that asked for lard it is not likely to take the place of that useful article to any extent. Indeed, we do not see that a better material is needed for the preparation of ointments than *well prepared* benzoated lard. Many other answers to interesting queries were received, read, and referred for publication in the proceedings of the Association.

The Auditing Committee reported that the books of the Treasurer were correct in every particular, and commended this officer for the able manner in which he had conducted the affairs of the Association.

Thursday Morning Session.

The third day's morning session opened at nine o'clock, President Diehl in the chair. The first business was to receive the report of the Committee on the President's Address and the report of the Permanent Secretary, which were read as follows:—

The Committee to whom was referred the consideration of the President's address and the report of the Permanent Secretary, after due deliberation upon both papers, would respectfully offer a motion that the thanks of the association are eminently due, and are hereby offered, to the retiring President for his able and exhaustive address, covering so wide a field, and embodying as it does objects of such vital importance to the Pharmaceutical Association at large.

Resolved, That the officers of this association be empowered to unite with any international body that may have been, or may be, created for the purpose of attempting a unification of the plan upon which the different pharmacopœias have been constructed.

Resolved, That the Executive Committee, with the approval of the

President and Treasurer, be empowered to publish annually with the proceedings, the likeness of one or more of our departed members, and that for the forthcoming volume our lamented friend, Professor William Procter, jr., be selected.

Resolved, That a Committee of three be appointed by the President to report at our next meeting upon the feasibility of the publication of a table of maximum doses, and to devise a plan by means of which physicians can distinctly indicate unusually large doses in their prescriptions.

Resolved, That a Committee of three be appointed by the President to report at our next annual meeting upon the suggestion of our late President in reference to furnishing copies of papers read at our meetings to pharmaceutical journals in advance of their publication in the proceedings.

Professor J. Lawrence Smith being present, at the request of the Association delivered an impromptu address, in which he referred especially to Professor J. Liebig, and suggested that the American pharmaceutists contribute to the Liebig Memorial Fund.

The suggestion was taken up by the association, put in the form of a resolution, and passed.

A motion by Mr. Moore, of Baltimore, that a committee of three be appointed to act in conjunction with the "chemists' committee" in soliciting funds, was passed unanimously.

The monuments designed to be erected in honor of Justus Liebig will be placed at Munich and Giessen.

The President appointed the following Committees:—

On Table of Maximum Doses—Wm. Saunders, London, Ont.; Louis Dohme, Baltimore, Md.; W. H. Pile, Philadelphia.

On Publication of Papers in advance of Proceedings—A. W. Miller, J. F. Hancock, Baltimore, Md.; O. Eberbach.

The remainder of the morning session was occupied in the reading of the answers to queries accepted by different members at the Richmond meeting. These were all accepted and referred for publication in the Proceedings.

Afternoon Session.

Vice-President Joseph Roberts, of Baltimore, in the chair.

Mr. Wm. Saunders, of London, Ont., submitted the following resolutions, which were unanimously adopted:—

Resolved, That in view of the great loss which this association has sustained in the death of one of its founders, Professor Wm. Proctor, of Philadelphia, we desire now to express and place on record our heartfelt sorrow at this sad event, which has deprived us of the presence and valued counsels of one of our best beloved members; and while recognizing with tenderest memory his great worth and lifelong labors in the interests of pharmacy, wish by this resolution to render a spontaneous and grateful tribute to one who has ever been ready to lend a helping hand in every good work, and whose genial social qualities and unvarying kindness to any who needed help, as well as his great scientific attainments, had endeared him to us all; and while fondly cherishing his memory, would convey our tenderest sympathies to his bereaved family.

Resolved, That this resolution be published in the next volume of the proceedings, and that the Secretary be requested to transmit a copy to his family, signed by the officers of the association.

The committee appointed to report on the next place of meeting reported through its chairman, Mr. C. A. Hemitsh, in favour of Boston. Mr. Wm. Saunders, of London, Ont., proposed in amendment that the meeting for 1875 be held in the city of Toronto, Ont. He presented from the Council of the Ontario College of Pharmacy a cordial invitation to the members of the Association to hold their next meeting in Ontario, at the same time urging the claims of Toronto as being centrally located between the east and west, easily accessible from all points, affording abundance of excellent accommodation for all who may choose to attend; and in addition to the attractions afforded by the city itself, it was but a short distance from Niagara. Besides all this the speaker urged that the holding of a meeting in Ontario would greatly stimulate the progress of Pharmacy there, and at the same time give Canadian Pharmacists an opportunity of showing the members of this Association some Canadian hospitality.

The amendment was seconded by Prof. A. E. Ebert, of Chicago, who urged further reasons in favour of Toronto.

A lively discussion followed in which many of the members took part, quite a number expressing themselves in favour of going to Canada. The amendment would no doubt have carried, had it not been for the fact of the approaching Centennial Meeting in Philadelphia, and the general impression among the members that the preliminary arrangements for that grand gathering could be better made in Boston than elsewhere. When the vote was taken Boston carried it by a majority of 13.

After the vote was taken Mr. Saanders suggested that it be generally understood that the meeting following the Centennial should be held in Toronto, to which all the members present cordially assented.

The Business Committee brought in a report suggesting some amendments to the by-laws, following which a lengthy discussion took place on some resolutions offered by G. H. Schaffer, of Fort Madison in reference to the Retail Liquor Dealers' License, which Apothecaries in the United States were now obliged to take out. While it was generally agreed that this was a hardship which in many cases might be justly relaxed, in other instances Apothecaries made liquor sales an important department of their business, and that in the majority of cases more liquor was sold to customers than was needed for medical purposes, in such cases the imposition was a just one, and hence the innocent were compelled to suffer with the guilty.

The remainder of the afternoon session was occupied by Prof. Diehl in reading interesting extracts from the report on the progress of Pharmacy.

THE CLOSING SESSION.

The fourth day's morning session, which is generally understood to be the final one, convened at 9 o'clock. During this session a number of volunteer papers were read. Among the most interesting, we would notice one on "the Antiquities of the Apothocaries' Craft and Title," by J. B. Patton, of Boston; two papers by Dr. Pile—one on the preparation of Bromide of Ammonium, the other on Phosphoretted Resin. Mr. Ebert, of Chicago, exposed the fraudulent dishonesty of a professed Opium dealer who was travelling through the Western States selling what he called American Opium, an article which contained no perceptible amount of Morphia, and was perfectly worthless. This enterprising pedler had submitted in time past sent "salted" samples to both Prof. Proctor and Dr. Squibt, which on examination they found to contain a fair proportion of Morphia, and having no reason to suspect the honesty of the man, they had expressed themselves at first in favor of his preparation. Subseqnent denouncements by these gentlemen of this impostor—as soon as his character was known—are quite disregarded by him, while he glibly quotes these worthy men as endorsing the quality of his opium, and thus imposes a worthless article on many druggists and physicians throughout the country. Mr. Mattison, of Philadelphia, had also been endeavoring to trace this gentleman up and taken some pains to expose his fraud. The thanks of the Association were tendered to Messrs. Ebert and Mattison for their prompt efforts in this matter.

Mr. Ebert presented a paper from the Chicago College of Pharmacy, in which it was proposed to amend the formula for the preparation of Elixirs adopted by the Association at its last meeting in Richmond. After much discussion a committee was appointed to investigate this subject and report such alterations in the formula as they thought desirable at the next annual meeting.

A report from the Committee on Specimens was received and adopted.

A resolution excluding *foreign*, as well as domestic, patent or proprietary medicines and nostrums from the exhibition rooms of the Association was carried unanimously.

The Business Committee then introduced the following resolutions:

Resolved, That the thanks of the visiting members of the American Pharmaceutical Association are due and are hereby tendered to our brethern of Louisville for the courteous reception that they have extended to us; that to them is due the fact that our meeting will rank amongst the most pleasurable that we have ever attended.

Resolved, That the thanks of the American Pharmaceutical Association are hereby tendered to the press of Louisville for the exact and fair reports they have made of our proceedings. Adopted with acclamation.

A motion to adjourn until the first Tuesday in September, 1875, in the city of Boston, at three o'clock p.m., was carried unanimously.

During the intervals between the sessions the Louisville friends did everything they could to add to the enjoyments of their visitors. A musical entertainment was given at the hotel on Tuesday evening. A grand concert and entertainment at the Liederkranz's Hall on Wednesday evening—carriages for the ladies and any of the gentlemen who could accompany them were in attendance to visit places of interest. The Louisville Exposition was free to all the members. On Thursday evening an invitation was extended by Prof. J. Lawrence Smith to an entertainment at his residence, and a further invitation to a concert in Woodland Gardens. On Friday afternoon the Association proceeded in a body by rail to New Albany, where they were shown through the extensive plate glass works and chemical works of the Louisville Plate Glass Co., and the whole process of plate glass manufacture in its various departments carried on and explained by the obliging managers.

The next morning a large party proceeded to Mammoth Cave, Kentucky,—special arrangements having been made for their accommodation, and tickets at reduced fares provided. A smaller party, of which the writer was one, proceeded down the Ohio River to Huntingdon, thence along the Chesapeake and Ohio Road through the Kanawa Valley, in Virginia, one of the richest coal districts in the United States, where we saw in some places small openings in the rocky wooded ridge at the back of each house, where the respective householders dug their own coal from inehaustible deposits, and were thus free from such impositions as short weight and high prices of coal dealers which individuals less favorably located are sometimes obliged to put up with. The river scenery along the Kanawa valley is without doubt the finest in America; the various members of our little party, as scene after scene of increasing magnificence and grandeur opened up before us, soon exhausted the stock of available adjectives, which were felt to be entirely inadequate for the occasion, so we just looked quietly on and drank in the inspiring and ever varying changes, which for hours we gazed upon with admiration. As we approached the Alleghanies we gradually ascended, and when at a considerable height a tunnel of a mile and a quarter took us through the first ridge and suddenly opened out to us from a great height a most extensive view of fifty miles or more of valleys dotted with farms and villages and bounded on all sides in the distance by mountains. We halted at White Sulphur Springs, the Saratoga of the South, where we rested for the night. Resuming our jonrney in the morning, passing through a very interesting region, the scene of much of the strife and bloodshed during the late war; Cedar Mountain, Brandy Station, Fairfax, Culpepper, Gordonsville, Bull's Run, and other noted spots were passed. We crossed the Rappahannock and the Potomac and arrived at Washington early in the evening of Wednesday, where we took the night train for New York and home, completing a journey of 2,100 miles, by Friday morning.

N. S.

Varieties.

DETECTION OF TURPENTINE IN LIQUID STORAX.—Hagar recommends to fuse the storax in a test-tube placed in a water-bath, to add half its volume of absolute alcohol, and effect solution by agitation; this is then agitated with several times its volume of petroleum benzin, and the operation repeated twice. The decanted benzin solutions are united and evaporated in a water-bath, from a tarred vessel. The residue should weigh 45 to 55 per cent. of the storax; it should be colorless, with a blueish opalescence, and of an agreeable odor. If turpentine be present, the residue will be yellowish, of the odor of the turpentine, and larger in weight.—*Am. Jour. Phar., from Phar. Centr.*

COLORING MATTER OF LEAVES.—Prof. Horsford has found that an etherial solution of chlorophyl is separated by hydrochloric acid into a blue and a green layer, the former containing iron, lime and phosphoric acid; zinc and sulphurous acid destroy the blue color. When carbonic acid is sealed up in a tube with ferrous phosphate, it is gradually reduced to carbonic oxide, the iron salt becoming blue. This is interesting as indicating the manner in which leaf coloring matter is formed.—*Jour. of App. Chem.*

A POLISH FOR REMOVING STAINS, ETC., FROM FURNITURE.—Take ½ pt. alcohol, ¼ oz. pulverized resin. ¼ oz. gum shellac, ½ pt. boiled linseed oil. Shake the mixture well and apply with a sponge, brush or cotton flannel, rubbing well after the application.

TO CEMENT BRASS TO GLASS.—Boil three parts of colophony with one of caustic soda and five of water. The soap or emulsion produced is mixed with half its weight of plaster Paris, zinc white, white lead or prepared chalk.

Registrar's Notices.

LIST OF RENEWALS.—CONTINUED.

Bascour, J., Kemptville.
Beauchamp, P., Toronto.
Bray, W. T., Chatham.
Clark, Sibree, Dresden.
Davids, Joseph, Toronto.
Dawes, John, Brooklin.
Dennant, R. E., Delta.
Detlor, W. S. Napanee.
Dyke, T. J., Ridgetown.
Egar, W. G., Millpoint.
Gordon, W. D., Kingston.
Lawrence, Thos., Hamilton.
Lewis, John, Montreal.
Mussell, Wm., Montreal.
Maclagan, H. Lindsay.
McCammon, S., Gananoque.
McCarthy, H. F., Ottawa.
McKenzie, C. B., Goderich.
Nelles, R. A., Duart.
Ruston, W. B., Toronto.
Scott, J. R., Napanee.
Tidey, J. A., Norwich.
Trott, S. W., Collingwood.

NEW REGISTRATIONS.

Clement, J. J., Sarnia.
Detlor, W. S., Napanee.
Scott, J. R., Napanee.

ASSOCIATE.

Cousins, W. C., Ottawa.

GEORGE HODGETTS, Registrar.

DRUGS, MEDICINES, &c.	$ c.	$ c.
Acid, Acetic, fort	0 14 @	0 15
Benzoic, pure	0 22	0 27
Citric	1 40	1 50
Muriatic	0 05	0 06
Nitric	0 11½	0 15
Oxalic	0 22	0 23
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 14	0 15
Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
Nitrous	0 40	0 42
Sulphuric	0 50	0 50
Antim. Crude, pulv	0 15	0 17
Tart "	0 55	0 65
Alcohol, 95 per ct.....Cash	2 02	2 05
Arrowroot, Jamaica	0 18	0 22
Bermuda	0 50	0 65
Alum	0 02¾	0 03½
Balsam, Canada	0 33	0 38
Copaiba	1 05	1 10
Peru	3 40	3 75
Tolu	1 15	1 20
Bark, Bayberry, pulv	0 20	0 22
Canella	0 17	0 20
Peruvian, yel. pulv	0 35	0 50
" red "	2 10	2 20
Slippery Elm, g. b	0 15	0 20
" flour, packets	0 28	0 32
Sassafras	0 15	0 18
Berries, Cubebs, ground	0 20	0 25
Juniper	0 06	0 10
Beans, Tonquin	0 62	1 10
Vanilla	30 00	30 00
Bismuth, Alb	2 90	3 00
Carb.	3 10	3 25
Camphor, Crude	0 38	0 40
Refined	0 45	0 50
Cantharides	2 20	2 30
Powdered	2 30	2 40
Charcoal, Animal	0 04	0 06
Wood, powdered	0 10	0 15
Chiretta	0 23	0 30
Chloroform	1 10	1 55
Cochineal, S. G	0 65	0 70
Black	85	90
Colocynth, pulv	0 60	0 65
Collodion	0 70	0 80
Elaterium oz	3 20	4 00
Ergot	0 32	0 45
Extract Belladonna	1 50	1 60
Colocynth, Co	1 25	1 75
Gentian	0 50	0 60
Hemlock, Ang	0 00	0 95
Henbane, "	1 50	1 60
Jalap	5 00	5 50
Mandrake	1 75	2 00
Nux Vomic oz	0 40	0 50
Opium oz	1 80	
Rhubarb	5 00	5 50
Sarsap. Hon. Co	1 00	1 20
" Jam. Co	3 50	4 00
Flowers, Arnica Taraxacum, Ang	0 70	0 80
Chamomile	0 17	0 25
Gum, Aloes, Barb. extra	0 32	0 40
" " good	0 70	0 80
" Cape	0 40	0 50
" " powdered	0 16	0 20
Socot	0 20	0 30
" " pulv	0 50	1 35
Arabic, White	1 00	0 00
" powdered	0 70	0 75
" sorts	0 60	0 75
" " powdered	0 24	0 30
" com. Gedda	0 42	0 50
Assafœtida	0 13	0 16
British or Dextrine	0 30	0 42
Benzoin	0 13	0 15
Catechu	0 35	0 75
" powdered	0 12	0 15
Euphorb, pulv	0 25	0 30
Gamboge	0 35	0 40
Guaiacum	1 40	1 50
Myrrh	0 45	1 00
	0 50	0 85

DRUGS, MEDICINES, &c.—*Contd.*	$ c.	$ c.
Sang Dracon	0 60	
Scammony, powdered	6 00	6 50
" Virg. "	14 50	—
Shellac, Orange	0 80	0 85
Gum, Shellac, liver	0 60	0 70
Storax	0 40	0 45
Tragacanth, flake	1 10	1 75
" common	0 53	0 65
Galls	0 22	0 30
Gelatine, Cox's 6d	1 15	1 20
Glycerine, common	0 21	0 30
Vienna	0 29	0 30
Prices	0 60	0 75
Honey, Canada, best	0 15	0 16
Lower Canada	0 14	0 16
Iron, Carb. Precip	0 20	0 25
" Sacchar	0 40	0 55
Citrate Ammon	1 75	1 80
" & Quinine, oz	0 57	0 58
" & Strychine	0 20	0 25
Sulphate, pure	0 08	0 10
Iodine, good	5 00	5 50
Resublimed	6 50	7 00
Jalapin	1 25	1 50
Kreosote	2 40	2 50
Leaves, Buchu	0 22	0 32
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 05	0 06
Sulphate	0 08	0 12½
Lead, Acetate	0 15	0 16½
Leptandrin oz.	0 60	—
Liq. Bismuth	0 50	0 75
Lye, Concentrated	1 50	1 60
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 60	0 75
Mercury	2 10	2 20
Bichlor	2 00	2 10
Chloride	2 35	2 45
C. Chalk	0 95	1 00
Nit. Oxyd	2 40	2 50
Morphia Acet	5 25	5 35
Mur.	5 25	5 35
Sulph	5 40	5 50
Musk, pure grain oz	25 00	—
Canton	0 60	1 20
Oil, Amonds, sweet	0 40	0 45
" bitter	14 00	15 00
Aniseed	4 00	4 25
Bergamot, super	7 50	7 75
Caraway	3 20	3 50
Cassia	2 00	2 25
Castor, E. I	0 16	0 18
Crystal	0 22	0 25
Italian	0 26	0 28
Citronella	1 05	1 15
Cloves, Ang	3 50	3 75
Cod Liver	1 05	1 50
Croton	1 75	2 00
Juniper Wood	0 80	1 00
Berries	2 75	3 00
Lavand, Ang. oz.	0 00	1 00
Exotic	1 25	1 50
Lemon, super	4 00	4 25
ord	3 20	3 40
Orange	3 00	3 25
Origanum	0 65	0 75
Peppermint Ang	15 00	16 00
" Amer	5 00	5 50
Rose, Virgin	7 80	8 00
" good	6 60	7 00
Sassafras	0 75	1 90
Wintergreen	6 00	6 50
Wormwood, pure	4 00	6 00
Ointment, blue	1 60	1 70
Opium, Turkey	10 00	10 50
pulv	00 00	12 00

DRUGS, MEDICINES, &c.—*Cont'd*	$ c.	$ c
Orange Peel, opt.	0 30	0 36
" good	0 12½	0 20
Pill, Blue, Mass	1 60	1 65
Potash, Bichrom	0 18	0 20
Bi-tart	0 33	0 35
Carbonate	0 14	0 20
Chlorate	0 40	0 45
Nitrate	8 00	9 00
Potass um, Bromide	85	0 90
Cyanide	0 60	0 75
Iodide	4 00	4 25
Sulphuret	0 25	0 35
Pepsin, Boudault's oz	1 40	—
Houghton's doz.	8 00	9 00
Morson's oz.	0 85	1 10
Phosphorous	0 95	1 00
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	2 40	—
" 100 oz. case.	2 37	—
" 25 oz. tin..	2 32	—
Root, Colombo	0 13	0 20
Curcuma, grd	0 12½	0 17
Dandelion	0 17	0 20
Elecampane	0 16	0 17
Gentian	0 08	0 10
" pulv	0 15	0 20
Hellebore, pulv	0 17	0 20
Ipecac, "	1 50	1 60
Jalap, Vera Cruz	90	1 15
" 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.	0 75	0 90
" " pulv	1 60	1 10
" " 2nd	0 60	0 70
" French	0 75	—
Sarsap., Hond	0 50	0 52
" Jam	0 88	0 90
Squills	0 10	0 15½
Senega	0 90	1 00
Spigelia	0 25	0 30
Salts, Epsom	2 25	3 00
Rochelle	0 31	0 35
Soda	0 02½	0 03
Seed, Anise	0 13	0 16
Canary	0 05	0 06
Cardamon	2 00	2 10
Fenugreek, g'd	0 08	0 09
Hemp	0 06½	—
Mustard, white	0 14	0 16
Saffron, American	0 75	0 85
Spanish	12 00	13 00
Santonine	7 50	8 00
Sago	0 08	0 09
Silver, Nitrate Cash	14 85	16 50
Soap Castile, mottled	0 11	0 14
Soda Ash	0 03¾	0 05
Bicarb. Newcastle	5 75	6 25
" Howard's	0 14	0 16
Caustic	0 05½	0 05¾
Spirits Ammon., arom	0 35	0 35
Strychnine, Crystals	2 25	2 50
Sulphur, Precip	0 10	0 12½
Sublimed	0 03½	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
Aniline, Magenta, cryst	2 50	2 80
" liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitrol, pure	0 09½	0 10
Camwood	0 06	0 09
Copperas, Green	0 01⅛	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 02¼	0 04
Indigo, Bengal	2 40	2 50
Madras	0 85	0 90
Extract	0 26	0 30

DYESTUFFS—*Continued.*		
Japonica	0 07	0 08
Lacdye, powdered	0 33	0 38
Logwood	0 01⅞	0 03
Logwood, Camp	0 01½	0 03
Extract	0 9½	0 12
" 1 lb. bxs	0 13	—
" ½ lb. "	0 14	—
Madder, best Dutch	0 11	0 12
2nd quality	0 10	0 11
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 26	0 28
Cloves	0 55	0 60
Cayenne	0 22	0 28
Ginger, E. I.	0 19	0 20
Jam	0 30	0 30
Mace	1 50	1 60
Mustard, com	0 20	0 25
Nutmegs	1 15	1 25
Pepper, Black	0 22½	0 23
White	0 31	0 32
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 07¼	0 08
Venetian	0 02½	0 03½
Sienna, B. & G	0 07	0 08
Umber	0 07	0 10
Vermillion, English	2 10	2 20
American	0 25	0 35
Whiting	0 90	1 00
White Lead, dry, gen	0 08½	0 09
" " No. 1	0 07	0 08
" " No. 2	0 05	0 07
Yellow Chrome	0 12½	0 35½
" 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 35	—
" No. 1	2 10	—
" No. 2	1 85	—
" No. 3	1 60	—
" com	1 30	—
White Zinc, Snow	2 75	3 25
NAVAL STORES.		
Black Pitch	4 10 @	4 50
Rosin, Strained	3 80	4 25
Clear, pale	5 75	7 25
Spirits Turpentine	0 50	0 52
Tar Wood	4 40	4 50
OILS.		
Cod	0 63 @	0 70
Lard, extra	0 95	1 00
No. 1	0 90	0 95
No. 2	0 80	0 85
Linseed, Raw	0 67½	0 70
Boiled	0 72½	0 75
Olive, Common	1 05	1 10
Salad	1 80	2 30
" Pints, cases	4 20	4 40
" Quarts	3 25	3 50
Seal Oil, Pale	0 75	0 75
Straw	0 68	0 70
Sesame Salad	1 30	1 35
Sperm, genuine	2 55	2 60
Whale refined	0 70	0 75