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Selected Papers.

Notes on the B. P. Solutions of Iodine, and other Pharmacopœial Preparations.*

BY WILLIAM MARTINDALE,
Dispenser, and Teacher of Pharmacy to the University College Hospital.

There are three solutions of iodine in the Pharmacopœia,—the tincture. liquor, and liniment.

Tinctura Iodi.—The formula for this is the same as that of B. P. 1864, and the quantity of iodine is equal to that in tinctura iodini composita, P. L. 1851, but the iodide of potassium is only one-fourth. This quantity of iodide of potassium does not seem to be of any practical utility that I can conceive,—in fact, for one purpose for which it is used, it is a decided objection. The quantity of the iodide in the London tincture, and it was much in excess for the purpose, rendered it miscible with water, but that in the present tincture does not, as on its addition to water, the bulk of the iodine is precipitated.†

If it be necessary, and for internal administration it is necessary that it should mix with water, why not make it with water in the first instance, more especially as it has been stated that a spirituous solution of iodine undergoes decomposition on being kept? I find practically that 23 grains of the iodide will dissolve 20 grains of iodine in 1 ounce of water. A little excess of the iodide renders the iodine more readily soluble, as in liquor iodi, B. P., 30 grains are employed to dissolve 20 of the iodine in the same quantity of water. This liquor is known as Lugol's solution, when diluted, it is the best preparation for injecting in hydrocele, etc.

I would suggest the use of two liquors, one to be called liquor iodi (in place of the tincture), and the other liquor iodi fortior.

The case in which the presence of the iodide in the tincture is objectionable, is, when it is added to boiling water, to yield the vapour of iodine for inhalation; for this purpose the iodine would be more completely vaporized if not held in solution by the water. The old Edinburgh simple tincture of iodine answers best for this purpose.

For external use spirituous solutions have this disadvantage—they have not "body" enough, as the spirit volatilizes too quickly, leaving the iodine in a free state upon the skin, in which condition little of it is either absorbed, or produces any counter-irritation, as it, too, becomes vaporized.

Iodine and Oil of Tar.—A solution, or rather a mixture, as it is not a mere solution, of 1 part of iodine with 4 of light oil of wood tar, makes a useful application. In mixing the iodine and oil of tar great heat is evolved—part of the oil oxidized and becomes resinous. This resinous portion, being held in solution in the excess of oil, on applying the mixture to the affected part, acts like a varnish and prevents the vaporization of the iodine. This application is found to be very useful in ringworm and similar skin affections.

Linimentum Iodi.—When Iodine is intended to produce counter-irritation, or promote the absorption of glandular swellings, this is a suitable application, but for the reasons I have stated, it has not "body" enough—much of the iodine is vaporized and produces no effect; moreover, when this liniment is applied repeatedly, which is often desirable, the skin gets hardened, and the iodine takes but little effect until this dead skin has peeled off. Its application then causes great pain. Having had it applied to myself for a chest affection, I remember the agony it caused me when painted on the newly formed skins, the deadened cuticle having peeled off. I think the camphor in it might be replaced by an equal quantity of glycerine with advantage. Experiments upon myself and others tend to show that the quantity of glycerine should not be added in excess of that which I have named, that is, one part in forty, especially when employed to produce counter-irritation; if more glycerine be used, its effect cannot be localized, as the application gets rubbed by the clothing before it has sufficiently dried on the skin. The quantity I have suggested seems, likewise, to promote its absorption.

My experiments were not carried far enough to produce constitutional effects, but as a counter-irritant, I did not perceive that an iodine liniment containing iodide of potassium had any advantage over one not containing it.

The Ointments of Iodine, and Iodide of Potassium.—The application of these is generally aided by friction, and as, before its addition to the lard, the iodide of potassium is directed to be dissolved, in the one case in proof spirit, and in the other in water, these solvents become evaporated, and the iodide crystallizes out. When, therefore, the ointments are applied, these sharp crystals act like pieces of glass, and irritate the part in such a manner that their continued use, which in glandular affections is necessary, cannot be persisted in. Here again glycerine diluted with spirit for iodine ointment, and with water, for iodide of potassium ointment would be a better solvent. This brings me again to the unfortunate—

Linimentum Potassii Iodidi c. saone.—This preparation I consider is a step in the right direction, as, if iodide of potassium produces any effect, when applied externally, in the liniment, the objections I have raised about the ointment are avoided.

Some samples of olive-oil hard soap I have lately tried, even made by the same maker as that which I have found repeatedly to yield good results, have not proved so uniform in this respect. The soap answers better recently prepared, and that bearing the brand of F. Court Payen. I find it makes a satisfactory preparation, if the solutions of the salt and the soap be mixed by trituration at equal temperatures, but it will not keep much above a week without separating.

Iodide of potassium seems to have a similar effect, in a modified degree, on a solution of olive oil and soda soap that chloride of sodium has in its manufacture; it precipitates it in time, but in a hydrated state, so that if more of the soap were used, there would be no separation of water. I find what Mr. Squire states is correct, that if prepared with powdered soap, which contains less water, there is no separation.

Mr. Smith, of Cheltenham, in this month's Journal confesses he has led us into error. The hard soap he meant to be cured soap, which is not officinal in the Pharmacopœia.

On the 24th Jan. last, I made the samples exhibited bearing that date, and this morning likewise prepared a little, marked No. 6, with strictly B. P. quantities. It is what I consider the preparation ought to be, but it will not keep in this condition.

1. B. P. Made 24.1.70.—Separated into two strata; the upper one is about one-third of the whole, and contains all the soap, as the lower one will not produce the lather which is characteristic of soap.

2. Made with powdered B. P. soap 24.1.70 – A firm, solid semi-opaque jelly: it has a leprous appearance against the sides of the bottle, but has not separated.

3. Made with common yellow soap 24.1.70 —A solid, white and opaque jelly.

4. Made with white curd soap 24.1.70—White and opaque or semi-opaque, being more translucent than 3.

5. Made with B. P. soft soap.—Clear, transparent, and semi-gelatinous.

6. Made with recent olive-oil hard soap bearing the brand of F. Court Payen. Semi-transparent, more gelatinized than 5, and, when slightly agitated, it exhibits some of the characters of the jelly of the pastry-cooks.

Acetum Scillæ.—This preparation, which is one of the oldest galenical formulæ in the Pharmacopœia, its origin by Pereira being ascribed to Pythagoras, has been the subject of some remarks by Mr. Bland. He objects to the addition of proof spirit. My experience of it is that, either with or without the spirit, there is always a deposit formed in it, but I think less when the spirit is added. In the London Pharmacopœia of 1721 spirit was not mentioned in the formula for its preparation, but in the next edition there is directed to be added to it "about one-twelfth its quantity of proof spirit, that it may keep the longer from growing mothery."

The squill has always been directed to be dried before digesting or macerating in the vinegar or diluted acetic acid. The volume Pythagoras wrote on squill not being extant, I am not able to certify that it was not so ordered in the original formula; but it would be more rational to use the bulb in the fresh state, seeing that much of its activity is volatilized on drying the squamæ. The fresh bulbs are easily preserved in dry sand, being so exceedingly tenacious of life that Dr. Christison says, "My large bulbs, while lying on my museum table, produced two stems two feet tall, and covered with flower buds, many of which became fully expanded; and a small one, after being kept in the same place for at least eight years without any signs of life, began also, without any change of circumstances, to push forth its stem."

As four-fifths of the weight of the fresh bulb consists of moisture, I think an expressed juice mixed with acetic acid, and clarified by defæcation or other means, would yield the best preparation. Rectified spirit might likewise be added to the expressed juice in sufficient quantity to separate the greater portion of the probably inert mucilaginous matter, thus a preparation would be produced corresponding to succus taraxaci and other expressed juices. This might supplant the tincture of the present Pharmacopœia.

It is somewhat curious that up to 1851 the fresh bulbs had always been officinal in the London Pharmacopœias, but, as before free-

*From the Pharmaceutical Journal, London.

† In all proportions between one part of the tincture and from three to forty of water, this precipitation or crystallization of the iodine takes place, but it is most evident on mixing one part of the tincture with six of water. My attention has been frequently drawn to this fact when rinsing with water a measure glass has contained the tincture, the free iodine causes the glass to have a greasy appearance, in which condition it has a repulsion for water On adding the liniment of iodine to water, a still more abundant separation of the iodine occurs.

trade principles had come into vogue, the duty on the fresh bulb and dried squame is equal, for the sake of economy squill was always imported in the dried state. I think that medicine, especially if it has to make a sacrifice of some of its virtues, ought not thus to bow to commerce, and as I now believe both are admitted free of duty, we could easily, by making our request known, be supplied with the fresh bulbs. I have made frequent inquiries for them, but have always been informed that the fresh bulbs do not now come into the London market. I took the trouble, when in Paris three years ago, to get two procured for me. One of them I noticed put forth a shoot last year, and I think both are yet possessed of life. I obtained them with the intention of trying to make the preparations I have suggested, but a fitting opportunity did not then occur. As many of the outer scales have become dry, I fear they will not now yield much expressed juice, but I intend trying them.

Oxymel Scillæ.—The directions for making this preparation are concise and definite, but not very practicable—"Mix and evaporate by a water-bath until the product, when cold, shall have a specific gravity of 1·32." The plan generally adopted in making it is, to make the acetum with half the quantity of diluted acetic acid, using it one-half stronger than B. P. This thoroughly exhausts the squill if the "mark" be well pressed. One pint of the acetum, where two of the other are ordered in the formula, added to the honey, requires little evaporation to bring the oxymel to a proper consistence. If it be true that part of the medicinal property of squill is volatile, will not this preparation be much impaired by the long-continued application of heat? What advantage is there in evaporating the honey and acetum mixed together? In the London Pharmacopœia, 1851 the acetum was ordered to be concentrated by evaporation, and the honey added afterwards. This is more reasonable, although, on account of the difference in consistency of honey the oxymel produced would vary a little in this respect.

If made with a strong acetum, prepared from the fresh bulbs as I have suggested, concentration would be unnecessary.

Tinctura Aurantii.—This is directed to be made by macerating dried bitter orange-peel in proof spirit. As it is a flavouring agent, and seeing that fresh peel is so much superior to the dried in this respect, it has been suggested that the tincture should be prepared from it. No housewife thinks of preparing marmalade from dried orange-peel, nor should pharmacists be directed to prepare a tincture from it, seeing that a certain season of the year Seville oranges can be had at nearly every village shop in the kingdom. The fresh peel yields a tincture which, when diluted with water, still remains clear, not like the present tincture, as it, on account of some of the aromatic principles having become resinous, and therefore insoluble in aqueous fluids, on the addition of water forms a milky mixture. If made with the fresh peel rectified spirit should be used; the juice contained in the peel will bring the tincture down to about the same strength of spirit as that of the present tincture.

Unguentum Hydrargyri Ammoniati.—This preparation containing one part of white precipitate in eight of the ointment, is unnecessarily strong, it is, in fact,, dangerously so, when it has been freely used for any length of time, such application being necessary in some skin diseases. If made with one-twelfth the quantity of white precipitate even, the precaution being taken to levigate it carefully with a little oil previous to the addition of the lard, it is, according to Dr. Tilbury Fox, of sufficient strength for nearly all cases where its application is desirable.

Plasters.—This group of preparations are rarely "home made," and as a rule their appearance, rather than their utility, is the point most considered in the wholesale trade. There seems to be a great redundancy of them in the Pharmacopœia. The same ingredients with the proportions varied, are contained in emplastrum saponis. My experience of these plasters leads me to believe that in any case where they are used, their application might be replaced with advantage by the simple lead plaster, provided it be properly made. Lead plaster has not then the much admired opaque whiteness, which is preferred in the trade. The Pharmacopœia directions for its preparation are not sufficiently definite; nothing is said about the glycerine that is formed in the process, whether it is to be separated, or evaporated away—the plaster to be allowed to absorb as much of it as possible, or to be washed out by the "pulling" operation under water, which it generally undergoes to give it the saleable appearance.

My experiments with this and other preparations are not yet completed; on some future occasion I hope to be able to publish the results.

Among the other plasters two are likewise very redundant in composition,—emplastrum picis and emplastrum calefaciens. In the latter formula, quantities of simples will have to be meted out no less than nineteen times. The effect of this redundancy is that nostrums, much simpler in composition, meet with a much larger sale—Poor Man's Plaster, for example. One likes to know "the reason why" there should be such exuberance in their composition. I, in my teaching, am continually asked this question, and rightly so; if the formula are what they ought to be, they must be consistent with reason.

Posology.—Are the doses given meant for the guidance of the dispenser as well as the prescriber? If so, is a dispenser justified in refusing to compound prescriptions ordering medicines in larger doses? It is desirable to give the smallest dose of medicine that will have the required effect, still the maximum doses stated are frequently much too small. For example, the dose of gallic acid is given, at 2 to 10 grains. I have not dispensed a less dose than 10 grains for years, and at times as much as 60-grain doses for albuminuria. Of extractum filicis liquidum, the dose given is 15 to 30 minims; I more frequently dispence 60 minims for a dose. Tinctura ferri perchloridi, 10 to 30 minims, it is given in 60-minim doses. Potassii iodidum, 2 to 10 grains, often 30-grain doses are administered.

The effect of this is often mischievous, as in the following instance. A few years ago, before the present Pharmacopœia was published, and when bromide of potassium was coming into use as a remedy for epilepsy, a physician wrote a prescription for a case ordering 20 grains in the mixture, to be taken three times a day. The patient took it to a chemist, who refused to dispense it, and neglecting the tact he ought to have shown, he sent the patient back to the physician to ask him if there was not some mistake. It afterwards came to an establishment with which I was connected, and was dispensed without the least hesitation, as it had become with us an every-day prescription.

If the doses of the preparations must be stated, there ought to be three given,—the minimum, the maximum, and the poisonous dose,—to avoid the possibility of cases of this kind occurring.

In conclusion, I think the subject is so broad, that before another edition of the Pharmacopœia is published, the formulæ and preparations should be discussed here *seriatim*, like the clauses of a bill before a Committee of the House of Commons: Those that are good would meet with our approval, those that are capable of it would be amended, and those that are bad and obsolete, would be condemned, as they only cumber the ground of the Pharmacopœia, our pharmacies and the medical student's mental capacity. From my point of view, it may be that I am connected with a medical school of whose professors the unjust remark has been made, "they have no faith in medicine," but by the performance of my duties, I am able to take a wide survey of this subject, and I am convinced that much of it has either become obsolete, or is fast becoming so. Who, in the medical profession, believes in the efficacy *per se* of such medicines as, thus, castor, expressed oil of mace, hops, myrrh, saffron, red sandal-wood, etc.? They enter into the composition of different compound formulæ, with very questionable advantage,—often to complicate them unnecessarily, and to obscure the effect of their action. Some things are almost too sacred for discussion. Among these are the Pharmacopœia, and, I should have thought, that bulwark of English liberty, trial by jury; yet I attended a debate the other evening at which youths in their teens, with all the assurance of a prime minister, condemned even this. Infallibility has been so much discussed of late, that to apply such a term to the Pharmacopœia would be more presumptuous than to the Pope, or a British sovereign, who, according to our constitution, can do no wrong. As a register of the strength of preparations, the Pharmacopœia is a necessity, and whatever deviation we may make in manipulation, we should ever be loyal in this respect.

We must not use a microscopic eye to search for little imperfections in it, but we may suggest improvements, which in the routine of our daily occupation experience has taught us are necessary. The present Pharmacopœia I consider is a marvel of correctness for such a work, taken into account the arduous task Dr. Redwood had in overcoming the prejudice each of the three kingdoms had formed against the previous edition. In this he has been eminently successful, which is some reward for his labours. I have to thank him for much information which I have always found him ready to give, and more especially for that contained in his excellent course of lectures delivered here; these form a good groundwork on which to build a Pharmacopœia.

I have sometimes noticed the want of it, and as it is our guide, I beg to propose that a copy of the Pharmacopœia be always placed on the table at these meetings.

University College Hospital, March 2, 1870.

NOTE.—After the reading of the above paper, a discussion was entered into by several members present; and as it relates to subjects in which all our readers are interested, we reprint it entire.—ED. PH. JOUR.

The Chairman felt sure that, after the way in which the members had from time to time received the observations of Mr. Martindale, he had only to suggest to them that which they were anxious to give him, and that was a hearty vote of thanks for the important practical remarks which he had placed before them. He (the Chairman) did not think they would regret the adjournment of the discussion till that night, if only for the observations to which they had just listened. Mr. Martindale had suggested that every formula of the Pharmacopœia should be submitted to this Society in the same way that every clause of a Bill was submitted to the House of Commons. It had been shown that evening that great practical results did arise from bringing these formulæ before them and discussing them. At the last meeting it was suggested by Professor Attfield, that they would be glad to receive the suggestions and experiences of the younger members of the pharmaceutical body, those who are daily in practical contact with the working of the Pharmacopœia; and he (the Chairman) hoped that some of those present were prepared to give some of their experiences, to state their difficulties, and to ask for an elucidation or explanation of them.

Mr. Gerrard (of Guy's Hospital) said he wished to make a few remarks with regard to compound ointment of mercury, which he had found a difficulty in preparing. The directions in the Pharmacopœia were to add the oil to the melted wax. It did not say that the oil was to be hot, and from the directions given, he should infer that it was to be cold; but when they added oil to the wax it was immediately precipitated. When the mixture was nearly cold they were told to add camphor and ointment of mercury, and in doing so they got an unsatisfactory preparation, especially in making a large quantity. The Pharmacopœia instructions for making this ointment in small quantities might be practicable, but they were not practicable for making the quantity ordered in the Pharmacopœia. In dealing with a large quantity of camphor,—say four or six ounces,—it was difficult to get it in a state of powder sufficiently fine to make a smooth ointment; and the only way of getting over it was to melt the wax and oil together, then put in the ointment of mercury, and stir well; and when the mixture was getting cold, or towards a solid state, to put in the powdered camphor, and, by stirring it, they would get an ointment perfectly smooth and consistent. Then, again, with reference to hemlock poultice. In the Pharmacopœia it was ordered to be made with dry powdered leaf; but would it not be better to use extract for this preparation? because they knew very well that in the experience of eminent men the dry leaf of hemlock was found to contain scarcely any active principle. He had heard the opinion of several eminent medical men upon this point, and in the house where he was, they were in the habit of using the extract instead of the powdered leaf, and found it answered better.

Mr. Dartwright remarked that Mr. Martindale had dismissed the subject of fresh tincture of orange-peel more briefly than he should have liked, because it so happened that he had made tincture of orange-peel from fresh Seville oranges and rectified spirit, with all the assurance of certain eminent men at his back, that it was considered immeasurably superior to the officinal form, that of the British Pharmacopœia, but unfortunately, the British public preferred the tincture made with the dried peel. He should, however, like to know what proportion of fresh peel Mr. Martindale would substitute for the dried.

Mr. Martindale thought about double the quantity, the peel being cut thin.

Mr. Sandford considered one and a half for one a fair proportion, the thinly cut fresh peel contained much less of the inert white interior than the dried.

A member remarked that there was a deficiency of tests given in the Pharmacopœia for some of the articles ordered. For instance there was no chemical test for glycerine.

The Chairman said it certainly appeared to him to be a defect that in the Pharmacopœia that there was no test but that of specific gravity for glycerine, which was daily becoming more and more important. It was a fact that some specimens of glycerine possessed all the physical characteristics required in the Pharmacopœia which were not fit to be used in making tannic acid glycerine and the gallic acid glycerine.

Dr. Redwood said it was new to him to hear that the Pharmacopœia was deficient in the number of tests ordered. A statement had, indeed, been made in quite the opposite direction during the discussion of the subject, namely, that the Pharmacopœia required too much in the use of chemical tests and in the requirements of purity in the substances employed. He was not prepared to say that their might not be individual cases—he had no doubt there were, and the one referred to might be of that description—where the tests were not so complete as they might be, or as it was desirable that they should be. It was, however,—and he had adverted to the fact before—absolutely impossible to give such a complete system of tests of the substances ordered to be used in medicine, as would ensure the absence of all impurities in them without greatly complicating the work, and enlarging it to an extent which would be very undesirable. Whilst they give the leading tests for indicating the principal impurities most likely to occur, and which it was most important to guard against they must leave much to the knowledge, skill and judgment, of those who had to put the work into effect. And, therefore, whilst they were educating their young men, and enabling them to provide against the introduction of such impurities in medicines as would interfere with their efficacy, they must from time to time, in successive editions of the Pharmacopœia, increase the number of tests, as they had done in those which had recently appeared. But he could not say that he ever expected to see a Pharmacopœia that would give tests for the detection of all impurities.

At the conclusion of the meeting, Dr. Redwood made some remarks on the preparation of the diluted nitro-hydrochloric acid of the Pharmacopœia. He said this had already been made the subject of several communications by gentlemen, who alluded to the fact that, when made as directed in the Pharmacopœia, it was liable to considerable variation in strength, arising from the loss of some of the evolved gases. Mr. Porter had suggested a special apparatus for its preparation, by which the loss of gas was avoided; but Mr. Porter's apparatus, although ingenious, was rather complicated and expensive. Mr. Porter, in his paper, alluded to the use of a more simple arrangement, but did not recommend it. Now, he (Dr. Redwood) found that by using two Winchester quart bottles, putting the mixed acids into one, and the water into the other, and connecting the bottles by a tube, partly of glass and partly of india-rubber, the loss of gas may be almost entirely prevented, and a uniform product obtained, which nearly answered to the tests given in the Pharmacopœia.

Mr. Tilden said he thought in one respect the product, in whatever way it might be made, would not answer to the Pharmacopœia test, and that was in its neutralizing power. He found by calculation that the acids, in their unmixed state, had less neutralizing power than was assigned to them when mixed. But he had also shown that the acids, if mixed at once with the water, yielded a similar result to that obtained by the Pharmacopœia method if it be kept exposed to the light for about a week.

Fluid Extracts.*

B. N. GRAY BARTLETT.

No topic connected with Pharmacy has, during the past year, occasioned more discussion than the subject of this article; and, indeed, its importance, especially as the revision of the Pharmacopœia is near at hand, justifies the amount of labor that has been bestowed upon it. When the list of this class of preparations was extended at the last revision, it was hoped and believed that many, if not the majority of apothecaries would undertake their manufacture, instead of relying upon the commercial articles. This anticipated advantage has never been realized; at the outset, the high tax upon alcohol, placing its value above $4 per gallon, and the great loss of menstruum entailed by many formulas seriously militated against any attempt at the preparation of fluid extracts on a scale suited to the wants of the dispensing chemist. The large manufacturers, having facilities for the economical use of alcohol, not to mention a suspected economical use of the respective drugs, were enabled to offer their products at figures so low, comparatively, as to secure their very general use from economical considerations. These manufacturing pharmacists were not slow in discovering the immense demand that would arise for their fluid extracts, could they once induce apothecaries to prepare the weaker preparations, such as tinctures, wines, syrups, and infusions from their "concentrated" products, and they were unsparing in their efforts to secure such a harvest, and gratuitously furnished "books of formulæ," giving the requisite information, and enumerating the advantages of the extemporaneous process. Self-interest makes conviction easy, and their arguments were not unheeded; indeed, it may be safely said, that a large majority of apothecaries, in city and country, make their wines, tinctures, syrups, etc., from fluid extracts, purchased from manufacturers, and give, consequently, to the former preparations all the uncertainty that pertains to the latter. It will not be disputed that commercial fluid extracts are far below the officinal standard, for this is not only evidenced by the physical properties of the articles, and the experience of physicians, but by admissions of manufacturers, if published doses and formulas can be considered as indicative

* From the Pharmacist.

of strength. The practice alluded to is most reprehensible; it has been attended by serious detriment to pharmacy in general, and has insidiously undermined and weakened the respect due to the national Pharmacopœia. It is the duty of every college of pharmacy to take a decided stand, and positive action against this great and growing evil.

It is well to inquire if the officinal processes may not be, to a certain extent, responsible for the indisposition of druggists to prepare fluid extracts; the difficultics in the way of their general employment are numerous, and certainly defeat in some measure, the very object of their adoption. In criticism of the officinal processes for this class of preparations, the following defects and objections may be mentioned:

It is impracticable to prepare powders of the degree of fineness indicated as essential to the proper execution of many processes, and a resort to commercial powders does not always meet the officinal requirement of division, and a powder of uncertain quality may be procured; while in many instances it is easy to decide the value of a crude drug by simple inspection, in a powdered state, this decision becomes usually utterly impossible. No less an authority than Dr. E. R. Squibb, reporting on rhubarb, selected and powdered in his establishment, acknowledged his inability to distinguish the inferior from the superior varieties by simple examination of them when pulverized.

There is a wasteful use of alcohol, unless recourse be had to distilation, which requires suitable apparatus, and the expenditure of time, and fuel.

The processes require much close attention during their various stages. The proper moistening of the powder and adjustment in the percolater; the gradual addition of menstruum, the watchfulness necessary to guard against the entire disappearance of the fluid from the surface of the powder, the reservation of a measured quantity of the percolate; the evaporation of the remainder at various prescribed temperatures to a definite measure; the admixture of this with the reserved portion, and the subsequent filtration, all unite to render the preparation of fluid extracts laborious and difficult. It is a duty which even the accomplished apothecary, in the press of urgent business, is prone to neglect.

If there be any method by which the processes may be simplified, without depreciating the quality of the products, it is worthy of most serious consideration.

In this connection a brief review of the literature of this subject seems desirable, and the modifications suggested will be mentioned, with the more prominent advantages and defects pertaining to each.

N. Spencer Thomas patented a method consisting in moistening the powder with a fraction of its weight of a suitable menstruum, and, after an interval of maceration, expression of the liquid by a powerful hydrostatic press, the residue to be repeatedly subjected to the same treatment, until the expressed liquids, together, measure a pint for each sixteen ounces of the drug employed. The utility of this process has never been practically demonstrated, as far as the knowledge of the writer extends, and there are certain theoretical objections which practice might or might not remove; aside from this consideration, however, the requirement of a press of the most perfect and expensive pattern, in itself worth some hundreds of dollars, would condemn its general adoption.

Dr. E. R. Squibb demonstrated, beyond reasonable doubt, that the process of percolation would yield, when carefully and skillfully executed, from sixteen troy ounces of powdered drug, twelve fluid ounces of percolate, representing at least three-fourths of the medicinal properties of the drug employed. Without recommending it for adoption, he suggested it as one means of securing economy in the use of alcohol, and facility in the preparation of fluid extracts. This method, of course, dispenses with all application of heat and evaporation, is easy of execution, and when properly conducted, yields excellent results. The process requires the utmost attention to certain details; as the fineness of the powder, and proper adjustment in the percolator, and, indeed, actual skill and experience are needed to obtain uniform and satisfactory results. On this account the process cannot be recommended for adoption in the Pharmacopœia.

Subsequently Dr. Squibb presented an admirable paper in continuation of the same subject, and brought forward the process of repercolation. This affords excellent products, and avoids the use of heat, and waste of menstruum. A fatal objection to its general employment, in the opinion of the writer, is the complication of the process, the increased attention necessary to secure the several fractional percolates, and the time and labor required to make, with the attending details, three distinct percolations, where at present, but one is required. These considerations alone would discourage most apothecaries from attempting the preparation of fluid extracts, for, while this method would result in saving much alcohol, in comparison with the officinal processes, it would entail even more labor, and at the present time the latter commodity is relatively more valuable than the former.

Mr. C. Lewis Diehl has also made some practical observations on the process of repercolation (PHARMACIST, March and June, 1859); his experience coincided closely with that of Dr. Squibb, and his conclusions were favorable to the adaptability of the method to general use. Mr. Diehl made a suggestion in this paper which will be again referred to, namely, to reduce the strength of fluid extracts to one-half the present standard of a fluid ounce from a troy ounce of the drug. Mr. Campbell has brought forward a modified method of percolation, resembling, in certain particulars, that employed in the early days of the displacement process. The writer's first acquaintance with this pharmacal operation is associated with a tapering percolator, terminated with a stop-cock. In this instrument the drug, reduced to powder by grinding, was placed, and the menstruum was gradually poured on the surface until it appeared at the open cock; the latter was then closed and after a maceration of several days percolation was allowed. Mr. Campbell's modifications of this process, and its adaptation to the preparation of fluid extracts are valuable contributions to our stock of knowledge, and they will exert a considerable influence toward a revision of the officinal formulas. The method, in general terms, may be described as follows.

First.—The use of glycerin as a solvent, associated with alcohol or water, or both, is almost invariable.

Secondly.—The drug, in moderately coarse powder, is moistened with a measured quantity of menstruum (usually four fluid ounces for sixteen troy ounces of the powder), and properly adjusted in the percolator. The menstruum, which should measure, with the quantity used for moistening, a pint for sixteen troy ounces of the drug, is then poured on the powder; when the liquid begins to escape from the powder, the orifice of the instrument is closed, and maceration for three or four days allowed. Percolation is then re-commenced, and continued by the addition of more menstruum, until the percolate measures a pint for every sixteen troy ounces of the drug employed. The advantages pertaining to this method will be hereafter referred to.

Mr. A. B. Taylor has highly commended this process, while offering a few suggestions for its improvement. In a paper presented to the American Pharmaceutical Association he detailed experiments, with results highly favorable to the process of Mr. Campbell.

Mr. R. P. Reynolds, in his experiment with this method, failed to completely exhaust the drug with the prescribed quantity of menstruum.—*American Journal of Pharm. Nov.* 1869.

Mr. James T. King has made similar observations: sixteen troy ounces of rhubarb requiring twenty-two ounces of percolate.—*Ibid., Jan.* 1870.

Mr. Geo. Kennedy reports very satisfactory results, obtained while operating upon large quantities of powder; 20 to 40 pounds. —*Ibid.*

In the opinion of the writer, such a process for fluid extracts should be made officinal as will secure, first, a thorough exhaustion of the drug, without excessive expenditure of time or the exercise of the highest degree of skill; secondly, an economical use of the menstruum with no necessity for special apparatus; thirdly, the use of such powders as can be prepared by the apothecary.

These objects being attained, it cannot be doubted that fluid extracts would be generally made by a large class of druggists, who, with the recognized processes of to-day, would regard such a course as impracticable or impossible. The present officinal requirements are like obsolete laws, existing but ignored—their very presence weakening the moral force of every other statute; theoretically useful, practically worse than useless, and better dropped from the pharmacopœia entirely than perpetuated in their present impracticable form.

A radical change is needed. Let processes be adopted, which, while securing excellent products, will be *simple of execution* and *involve no pecuniary loss*, then it may be reasonably hoped that apothecaries will regain their lost prerogative, and be inspired with new confidence in, and respect for, the national pharmacopœia.

The means for securing these results are at hand. Mr. Diehl struck the key-note to reform, in his suggestion to *reduce the strength of fluid extracts to one-half the present standard*, making, as a rule, a pint of fluid extract from eight troy ounces of the drug. Mr. Campbell has ably assisted in the work of reformation, and the combined ideas of these gentlemen will furnish a process fulfilling every requirement. With the proposed reduction of strength, there can be no doubt that the method of Mr. Campbell would

always furnish perfect products, even though performed by an unskilled hand.

It is proper to remark that reference is made to the manipulations advised by Mr. Campbell, rather than to his extensive use of glycerin. While glycerin is a valuable solvent, and, doubtless, highly useful in many cases, the writer is by no means willing to admit its indiscriminate employment, as proper or desirable.

The opinion has been expressed by several experimenters, and some positive testimony has been given that Mr. Campbell's process will not exhaust the generality of drugs in the proportion of sixteen troy ounces to the pint of percolate. The evidence in favor of its being capable of yielding fluid extracts of the strength proposed, is entirely satisfactory, inasmuch as no experiment has yet been published, where the proportionate amount of percolate requisite for complete exhaustion of the drug, exceeded *twenty-two fluid ounces for sixteen troy ounces of the powder.*

To recapitulate, the advantages to be secured by the proposed method are as follows: complete exhaustion of the drug, independent of the greatest degree of skill on the part of the operator; the utmost facility of preparation, with but little expenditure of time and attention; economy in the use of the menstruum; the use of powders properly prepared by the druggist himself; the absence of special or expensive apparatus; the avoidance of the deleterious effects of heat and evaporation, and collectively the much desired result—the manufacture by apothecaries of their own fluid extracts, to the exclusion of the inferior commercial substitutes that now flood the market.

On the Technical Analysis of Soap.*

BY M. GASTON TISSANDIER.

The name of soap is given to true salts formed by combining fatty acids (oleic, margaric) with alkalies, such as soda or potash. The quality of a soap is ascertained by determining the proportion of fatty acid and alkali which it contains, and also the foreign substances—such as chlorides, alkaline sulphates, moisture, &c.—which always occur in varying proportions.

Fatty Acids.—Dissolve 5 grms. of the soap in question in ½ a litre of distilled water heated in a porcelain capsule; when dissolved, add a slight excess of dilute sulphuric acid, and let it boil for some minutes, so that the fatty acids may become separated and float upon the liquid. To weigh the fatty acids, cool them, and they will form a cake of grease, which must then be fused, in order to dry them, in a small tared porcelain capsule; this capsule, when again weighed, will give the amount of fatty acids corresponding to 5 grms. of soap.

Wax may also be used to facilitate the weighing. After the first part of the operation has been performed, and the fatty acids are floating, add 7 grms. of white wax, which will melt and mingle with them; cool the whole, take out the cake of wax, and weigh it, previously drying it between double filtering papers. The excess of weight gives the proportion of fatty acids.

Ash,—Soda.—Calcine, at red heat, 5 grms. of soap in a platinum capsule. Weigh the ash thus obtained, and dissolve it in 200 c. c. of distilled water; determine the proportion of soda in 100 c. c. by means of normal sulphuric acid (alkalimetric standard), evaporate to dryness, and notice the action of bichloride of platinum upon the residue dissolved in water, to ascertain whether it consists of potash or soda. The estimation of the soda may be verified by directly taking the alkalimetric standard of the soap (5 grs.)

Chloride of Sodium.—Estimate the chlorine in 50 c. c. of the solution with the standard silver solution.

Sulphate of Soda.—The sulphuric acid is estimated in the remaining 50 c. c. of the solution with chloride of barium.

Non-Saponified Fatty Bodies.—These also occur in soap, and may be detected as follows:—Dry 5 grms. of soap at 110°, after which treat it with common ether. Agitate it with that liquid in a flask, filter it, wash with ether, and evaporate the solution at 100°; the residue will be the non-saponified fatty bodies. The ether may, perhaps, dissolve a little of the soap; it must, therefore, be ascertained that the residue is really fat—melt it, and try whether it will soil glazed paper.

Non-Saponified Carbonate of Soda.—Cut 5 grms. of soap into small fragments, and treat them with boiling alcohol, which does not dissolve carbonate of soda. Filter and treat the insoluble residue with alcoholic acetic acid, which dissolves the carbonate of soda without acting on the sulphate of soda and chloride of sodium. The acetic solution, evaporated to dryness and calcined, leaves, as a residue, carbonate of soda. Weigh it, and, if verification be required, take its alkalimetric standard.

Glycerine.—Dissolve 5 grms. of soap in boiling water, decompose it with dilute sulphuric acid, and separate the isolated fatty acids by decantation. The liquid, which is completely neutralised by the carbonate of soda, is now evaporated to dryness over a water-bath at 100° C; the residue, composed of sulphate of soda and glycerine, is taken up by alcohol, which dissolves only the latter; it is then filtered and evaporated to dryness, when the residue will be glycerine. This is again taken up by alcohol, re-evaporated, and the residue again weighed, after ascertaining that it possesses all the properties of glycerine.

Water.—Cut the soap into thin slices; weigh 5 grms., and dry them on a stove at 120° C.

Composition of various kinds of Soap.

Substances estimated.	I.	II.	III	IV
Water	46.12	24.76	17 55	14 09
Soda	4.98	7.30	8.48	9.01
Fatty Acids	37.99	64.50	71.45	74.68
Chloride of sodium	6.30	3.12	2.12	2.00
Sulphate of Soda	0.72	0.32	0.40	0.22
Fatty Bodies	1.00	—	—	—
Glycerine	2.89	—	—	—
Total	100.00	100.00	100.00	100.00

*From the Moniteur Scientific in Chemical News.

On Baume's Arcometer.*

BY M. BAUDIN.

Sundry divergences occur in Baumé's arcometer, according to different authors. Upon examining this instrument, I found the figure given for 85 parts of distilled water and 15 parts of well-dried chloride of sodium to be 1·111 absolute density at 15°. Francœur found 1.109; Soubeiran, 1·116; Terlach, 1·114; and M. Coulier, Professor of Chemistry, gives 1,110725. The work of the latter may be considered as the most important of those upon the subject.

Repeated experiments have convinced me that the figure of density 1·111 is most correct; I have therefore, employed it to reconstruct the actual scale of Baumé. The figure, 1·116, given by Soubeiran, does not correspond with Baumé's formula (85 parts of water and 15 of salt) and indicates that the instrument marks 66° in a sulphuric acid whose point of concentration is undefined; this arbitary scale is by no means that of Baumé. Serious results arise from these discrepancies—manufacturers are uncertain as to which Baumé-arcometer they should trust, and endless disputes ensue. Brisson's densimeter should be the only one employed, as any one can manage it.

Comparison of Baumé's Scale (Acidimetric) with the Scale of Density.

Baume. Degrees.	Francœur. Density.	Baudin. Density.	Soubeiran. Density.
0	1000	1000·0	1000
5	1034	1034·4	1036
10	1070	1071·3	1075
15	1109	1111·0	1116
20	1151	1153·8	1161
25	1196	1200·0	1210
30	1245	1249·9	1262
35	1299	1304·2	1320
40	1357	1363·5	1383
45	1420	1420·4	1453
50	1490	1500·0	1530
55	1567	1578·9	1615
60	1652	1666·6	1711
65	1747	1764·6	1819
70	1853	1875.0	1942

*From the Chemical News.

Self-Mutilation.

It is stated that a youth named Jacob Harnish, seventeen years old, deliberately cut off his foot on Saturday last, in Lampeter, Penn, and when asked why he did it, replied that we are told if our hand or foot offend us, we should cut it off. He had struck three blows, and picking up the foot, hurled it some distance from him. The mutilation proved fatal.

Some years ago we knew of an instance in which a man castrated himself on the same principle. Suppose every one was as conscientious in thus giving the words of our Saviour a literal interpretation, how many "lame, halt and blind," and otherwise mutilated would be met in our daily walks (or limpings?) and what a harvest there would be for surgeons—if indeed, they were not all in the same boat!—*Med and Surg. Reporter.*

Writing Prescriptions.

Dr. Monod in the *Bulletin de Thérapeutique* urges physicians to use no abbreviations or figures in writing prescriptions, but to write everything out in full. Instead of

Tinct. op. deod., ... ℥iss,

he would have

Deodorized tincture of opium, one-and-a-half fluid drachms.

He adds: "I am certainly not the first to express the wish that prescription be written so as to avoid errors; God grant that I be the last." To which if there were any hope of it, we would say, Amen!—*Med. and Surg. Reporter.*

CANADIAN PHARMACEUTICAL SOCIETY.

PRESIDENT, - - - WM. ELLIOT, ESQ.

The regular meeting of the Society take place on the FIRST FRIDAY *evening of each month, at the Mechanics' Institute, when, after the transaction of business, there is a paper read, or discussion engaged in, upon subjects of interest and value to the members.*

The Society admits as members, Chemists and Druggists of good standing, and their assistants and apprentices, if elected by a majority vote, and on payment of the following fees:

Principals, - - - - - $4 00 per Annum
Assistants & Apprentices, 2 00 "

The JOURNAL *is furnished* FREE *to all members.*

Parties wishing to join the Society may send h eir names for proposal to any of the members of the Society. A copy of the Constitution and By-laws of the Society will be furnished on application.

HENRY J. ROSE, *Secretary.*

THE CANADIAN

Pharmaceutical Journal.

E. B. SHUTTLEWORTH, EDITOR.

TORONTO, ONT., MAY, 1870.

Correspondence and general communications, of a character suited to the objects of this JOURNAL, are invited, and will always be welcome. The writer's name should accompany his communication, but not necessarily for publication.

Subscriptions will not be acknowledged by letter, as our sending the paper may be taken as sufficient evidence of the receipt of the money

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

"EDITOR CANADIAN PHARMACEUTICAL JOURNAL TORONTO."

DOCTOR AND DRUGGIST.

Pharmacy has truly been termed the handmaiden of medicine. The relations of the two professions are of the closest and most intimate character; each has the same end in view, and without one the other could not exist. But though mutually dependent, the physician and pharmacist pursue different yet parallel paths; the calling of each is clearly marked out and well defined, and the shortest way to success in either is to "keep the road." There was a time in earlier, and we might say barbarous days, when the two vocations were vested in the same individual, but in that age medicine and pharmacy made but little progress. The terms ignorance, superstition, and quackery best describe the period when the calcination of a toad was the ultimatum of pharmaceutic art, and the administration of its ashes one of the highest achievements of therapeutic skill. We do not mean to say that this miserable state of things was to be attributed, solely, to the fact of the dispensing of medicines being in the hands of the physician, but we think, nevertheless, that it had a retarding influence, and this is the more plausible when we consider that it was not until the severance of the two callings that pharmaceutical science could be said to exist.

There are times and circumstances when the physician may be perfectly justifiable in exercising this double vocation. In regions where the services of a pharmacist cannot readily be procured, and where drug stores are inaccessible, the doctor is compelled to dispense his own medicines. In a new country like our own this state of things frequently exists, but if a druggist is at hand we hold that to him alone belongs the right of preparing medicines. We know that there are very many incompetent and careless druggists, but as far as our own observation goes the dispensing physician is, as a rule, the worst of the lot. It sometimes happens that doctors of this class pay more attention to their drugs than to their patients—this is generally the case when drugs pay best—but it will nearly always be found that one or the other suffers. The profession of medicine or rather the practice of it, demands all the skill, and the utmost concentration of effort which any single individual can bestow upon it. The qualified pharmacist can relieve the physician of much responsibility and no inconsiderable share of labor by performing the part which legitimately belongs to him, and we know that in doing so he will have ample scope for his energies also. The testing of drugs—the estimation of their strength—the detection of adulteration—the manufacture and preparation of the various compounds, and the dispensing of medicine, are quite sufficient to engross the whole attention of one man.

But in order to perform, satisfactorily, these multifarious duties, a thorough qualification is necessary, and this can only be attained by preparatory training. If the confidence of the medical profession and the public is to be gained, it can only come through the channel of education. On this point we cannot do better than quote a few paragraphs from the *Michigan University Medical Journal.* In alluding to the subject of pharmaceutical education in the United States a writer says:—

But a very small proportion of our druggists have had facilities of college education in pharmacy. Without more exceptions than rules admit, they have received only the industrial opportunities of the drug-shop, and the tuition of its untaught masters, toward scientific preparation for life work. No profession furnishes occasion for more "self-made men;" perhaps no other scientific profession includes a larger number of such; young men, who, from chance books, with poor advice and fragmentary tuition, have made their own paths through to the highways of science, where they are now marching among scholars, and leading in research.

Difficulties may strengthen individuals, but it has not been shown that educational deprivation serves to cultivate classes of men. Suppose we had no medical colleges. Here and there a "learned blacksmith" would raise himself, with an acquired wealth of medical science. But those who have attempted the study of medicine in the preceptor's office, and have there tried the efficiency of instruction imparted by doctors full of business and rusty in learning; and then have found what lectures, and demonstrations, and cabinets, and social incitement can do to stimulate the learner, elucidate the subject, and make thorough the philosophy, from experience may judge of the possibility of *a scientific profession educated without colleges.* It is no personal discredit to earnest young men, who have served three or five years and become first clerks in our best drug stores, that, when with worthy purpose they leave business and enter upon a college course of pharmaceutical chemistry, they are most often found deficient or destitute in the alphabet of the science before them. A very small proportion of American pharmacists have been instructed in the colleges of pharmacy which are established in our larger cities, and which are the only distinctive schools of pharmaceutical science in our country.

It is not alone because adulterations and dilutations abound in the drug trade, that the pharmacist (for the most restricted exercise of his duties) should invariably be an analytical chemist. No other training can equal that of chemical analysis, especially quantitative analysis, in giving that discipline of habitual accuracy and care, needed to make the pharmacist a safe dependance for the physician. There may be difference of opinion as to whether the first years in the shop preferably come before or after college instruction. Certainly the youth already schooled in science, disciplined in accuracy, informed of the materia medica and practiced in its preparations, will profit more richly by experience, will cause his employer less annoyance, and will serve the public more securely during briefer probation, than can be untaught.

While people and profession lament the imperfection of our technical and professional college systems of education, the fact has been overlooked that pharmacy is practically destitute of any college education. When the time comes that over fifty per cent. of the American pharmacists graduate at insti-

tutions which shall require years of study and training, and employ the entire time and energy of students; then we shall doubtless hear more criticism upon the quality of pharmaceutical education than we do at present. But we should not await the arrival of that period, before we begin to consider to what extent studies of botany, physiology, and mineralogy, of liberal general culture, and of modern languages, ought to be required for university gradation in pharmacy.

In the German Universities pharmacy is as much of an organized and provided course as is medicine; France has her thoroughly established schools of pharmacy; and Britain has numerous laboratories of pharmaceutical chemistry. In America, the young pharmacist who is self-impelled to qualify himself for his vocation, has been obliged to gather instruction at colleges devoted to other purposes, and to adapt the fragments to frame his own education. At the third International Pharmaceutic Congress, held in Bavaria last September, and in which our nation was represented, it was unanimously resolved that "high schools of pharmacy, as an integral part of the universities, with graduated pharmacists as professors, are essential to the interest of the public and the profession.

Pharmacy is a pursuit which must be scientific, not only for the safety of medicine and society, but for its own relief. Years of practice may give facility in dispensing, deftness in wrapping and tact in sale; qualities having a positive value in the labor market; but they do not relieve the vocation from the drudgery of trade and the humiliation of ignorance. It is pitiful that a man with the name of pharmaceutist should plod through life ignorant of the material in his hands and the changes under his eye, deaf to the chemical language by which all matter is defined, and blind to the scientific movements stirring the world.

THE ADVENTURES OF CINCHONINE.

Despite the exertions and assurances of manufacturers of the cinchona alkaloids, it appears to be utterly impossible to find a market for cinchonine. It is vain to quote Wood and Bache, or Dr. Turner, that sulphate of cinchonia is nearly equal in antiperiodic power to sulphate of quinia; the druggists won't believe it, neither will the doctors, and a man shaking with ague does not usually feel in the humor to become the subject of experiment. Cinchonine, as such, evidently won't sell; another expedient must be adopted.

Try another name, says one, call it *Sweet Quinine*. The experiment is tried and sweet quinine is launched upon the world with every outward prospect of success. Brought out under the fatherly hand of one whose name was thought sufficient guarantee for the genuineness of the preparation, it flourished for a time, but, alas for sweet quinine—the hand of the chemist was upon it—the deceit was unveiled—its doom was sealed, and its end was bitterness indeed.

Once more thrown upon the world, this adventurous alkaloid finds its way to the English metropolis, to reappear on this side of the Atlantic in a dignity suited to its late residence, "*Light Sulphate of Quinine; manufactured by Lord Bros., Ludgate Hill, London.*" The title relishes much of the stability of a London house, not a worthless preparation without its maker's name, but "Lord Bros.," and "Ludgate Hill" no less; surely none will question the genuineness of our alkaloid this time. But what says our Chicago friend, *The Pharmacist*:—"The 'quinine' was submitted to analysis and found to be hydrochlorate of cinchonine. The manufacturers have taken advantage of this resemblance to perpetuate an extensive and most reprehensible fraud, and it is to be hoped that their field of operations may be transferred from Ludgate to 'Newgate,' with the privilege of conducting business in the latter locality for an unlimited period." Cruel *Pharmacist*, this is too bad, but we will try again.

This time the public are to be approached with greater caution, they must be taught that quinine is not *the* antiperiodic, but that other cinchona alkaloids, of equal if not superior power exist; and that quinia only acquired the rank of superiority as a febrifuge by reason of priority of discovery. Having been satisfied on these points by a perusal of "The Chemistry of the Cinchona Barks," in the Boston *Journal of Chemistry*; and also understanding thoroughly the whole matter from the careful study of a gratuitous treatise "On some of the Chemical Constituents of Calisaya Bark, and the Methods usually employed in their Separation," the coast is clear for the introduction of the latest novelty in medicine—"*Cincho-Quinine*;" the history of this valuable preparation is, briefly, as follows:—A manufacturing firm in Boston being convinced that a combination of all the alkaloidal principles of bark would be very desirable, instituted a series of experiments with a view of obtaining such a preparation. To use their own words "this desirable end has been accomplished" and cincho-quinine is the result. According to their statement it contains: 1, Quinine, 2, Cinchonia, 3, Quinidia, 4, Cinchonidia, 5, other alkaloidal principles present in the bark.

Mr. Wenzell, a member of the California Pharmaceutical Society, has been experimenting a little on this cincho-quinine, and has embodied the results in a paper published in the last number of the *Pacific Medical and Surgical Journal*. His conclusions are as follows:—That cincho-quinine contains neither quinia, quinidia, or cinchonidia, but that it really consists of cinchonia containing about two per cent. of quinicia and cinchonica, Mr. Wenzell further thinks that to purchase cinchonine as cincho-quinine at four times its value is not by any means economical—a conclusion which our readers will readily endorse, and thank Mr. W. for the information.

Thus closes the third scene in this chapter of humbug, all of which has been enacted during the past year. What further attempt may be made we cannot tell, but think it is surely time to change the programme. To use a vulgar but expressive phrase, cinchonine is "played out." The opium alkaloids offered a tempting field, but from the timely note on *Scopia*, by Prof. Croft, published in our last, we think the attempt will scarcely be tried.

Cod Liver Cream.

A correspondent of the *Chemist and Druggist*, gives a formula for the preparation of this delightful compound. The cream is said to acquit itself creditably in comparison with an average custard. Why not call it Cod Liver Oil Custard? the title is irresistably tempting, if not decidedly epicurean. A quarter of an ounce of gum tragacanth, elect, is steeped in sixteen ounces of cold water for twenty-four hours, during which time it should be occasionally stirred; the resulting mucilage is shaken with one-sixth to one-half its bulk of the oil, adding to each ounce of the mixture one drachm of alcohol, containing a drop of essence of lemon, almond, and oil of cassia: a permanent emulsion is formed.

An Ancient Pharmaceutical Ensign.

An advertisement in one of our country papers closes with the following patriotic reminder: "Remember the Red Mortar and the Union Jack, that flag which has stood the battle and the breeze for over a thousand years, God save the Queen." Not being familiar with the quartering of arms we have consulted Burke, and other eminent heraldic authorities, but by a strange oversight, the "Red Mortar and the Union Jack" although of such undoubted antiquity, receives no notice. We should like to have the flag for the Museum.

MEMBERS of the Society are reminded that the nomination of officers takes place at the next meeting, which will be on June 2nd. We hope there will be a good turn out of resident members.

Action of Caustic Soda on Alcohol.

At a recent meeting of the Chemical Society, Mr. Chapman announced the fact that caustic soda is not merely unable to dry alcohol, but that it actually hydrates it. Investigation proved the sodium to have taken the place of the hydrogen of the alcohol, whilst the displaced hydrogen takes the place of the sodium in the caustic soda, thus producing water.

The Canadian Literary Institute report a want of full success in teaching chemistry from the difficulty of obtaining a suitable text book. If any of our readers think they can eclipse Fownes, Roscoe, Odling, Williamson, or Brande and Taylor, an excellent opportunity for authorship is presented, which, if successfully prosecuted, might relieve the authorities of the Institute from what must really be a painful and perplexing dilemma.

BOOKS AND PAMPHLETS.

ARCHIVES OF OPHTHALMOLOGY AND OTOLOGY; Edited and printed, simultaneously, in English and German. By Prof H Knapp, M.D., in New York, and Prof. S. Moos, M.D., in Heidelberg. Vol. 1, No. 1. New York, Wm. Wood & Co.

This journal is especially devoted to subjects relating either to the pure anatomy and physiology, or to the pathology and therapeutics of the organs of sight and hearing; and from the number before us we think that the departments of ophthalmic and aural surgery have good reason to be proud of the publication. The high standing of the editors is in itself a sufficient guarantee of the character of the work, and amongst the contributions we notice the names of many of the most eminent ophthalmologists and otologists of the old and new worlds. The present number comprises about 360 pages, and is illustrated by numerous woodcuts and lithographs, together with several very fine colored plates It is proposed to publish the "Archives" half yearly, in spring and autumn; each number to contain from 250 to 300 pages, and two numbers to form a volume. The subscription price is $7 American currency, per annum, which may be sent to the publishers, Wm. Wood & Co, New York.

THE ARTS: Chicago, April. Vol. 1, No. 2.

This is the title of a new monthly, devoted to science and the industrial arts. It is conducted by Mr. Joseph M. Hirsh, a gentleman whose name is doubtless familiar to many of our readers. The journal contains much that is interesting to druggists, and cannot fail to prove acceptable to the general reader. The subscription price is $1 per annum.

CANADIAN PHARMACEUTICAL SOCIETY.

The regular monthly meeting of the Society was held in the Lecture Room of the Mechanics' Institute, on Friday evening, the 6th inst. In the absence of the President, the chair was taken by Mr. Dunspaugh.

After routine business had been disposed of, the following new members were elected:

PRINCIPAL.

D. V. Bogart, M.D., Trenton.

ASSISTANTS.

C. A. Van Felson, Chatsworth.

Alfred White, Trenton.

The librarian acknowledged the receipt, from R. W. Elliott, Esq., of four volumes of Thomson's Chemistry, as a donation to the library.

The Committee on Text Books handed in the following list of books, as best suited to the use of students:

GENERAL CHEMISTRY.

Wilson's Chemistry, edited by Stevenson Macadam, M.D.

PHARMACEUTICAL CHEMISTRY.

Wittstein's Practical Pharmaceutical Chemistry, edited by Darby.

BOTANY.

Gray's Manual of Botany.

MATERIA MEDICA.

Garrod's Essentials of Materia Medica.

PHARMACY.

Parrish's Practical Pharmacy; British Pharmacopœia, latest edition.

LATIN.

The Pharmaceutical Latin Grammar.

The chairman, called attention to the fact, that the next meeting of the Society, was that on which the nominations of the officers of the Society and the Council were to be made, and hoped that there would be a full attendance on that occasion.

Meeting adjourned.

H. J. ROSE,
Recording Secretary.

An Anglo-American Turkish Bath.

One of the editors of the *Scientific American* has been indulging in this Oriental luxury, and thus amusingly recounts his experience:

Reader you have without doubt, heard something about Turkish baths. You have probably read more or less about them; but did you ever take one? *We* have. The "gentle spring's etherial mildness" had given us a cold. The cold brought with it a daily headache Not one of those attacks which, though severe for a short time, yield to a cup of tea, and a nap on the sofa; but a lurking treacherous ache that came unannounced, always accompanied with a qualm at the stomach, and then left, to return again when least wanted—if it be possible to suppose degrees of desire for that which is utterly undesireable.

"The Turkish bath is the thing for you," said a friend who has tried it extensively, and who—having probably never been sick in his life—has been cured of every thing by this universal remedy. We took his advice, and the ticket with which the advice was accompanied, which in due time secured the bath.

Presenting our ticket at a little ante-room of the building in which the Anglo-American Turkish bath is administered, we were presently shown into a little stall, in which privacy was secured by a thick curtain. This would hardly seem necessary, unless it is to carry out the general principle of graduation, which underlies the administration of a Turkish bath, as the subsequent operations and manipulations constituting the entire process, gradually increase in vigor, until they arrive at a pitch where feelings of delicacy, having decreased in precisely the same ratio, nearly vanish.

We found in our stall a long linen towel, which we were directed to wrap round our loins, when we had completed our disrobing. This towel is an embarrassing affair to a novice, who has not inventive talent to adjust such primitive costume in a permanent manner. Having wrapped it about us a well as we could manage it, we fell to wondering what would be the next step in this new experience. Thrusting our head out at one side of the curtain, we found a swarthy Mongolian standing sentinel at the door of our cell. This individual had a pleasant expression of countenance, but his clothing was as meager as our own; though so much more gracefully and securely adjusted, as to make us blush for our own want of taste in matters of dress. We immediately put ourselves under instructions, and succeeded in getting the thing on, in a manner that we fancied would not wholly disgrace a primitive barbarian.

We were then inducted by the man and brother who had us in special charge at this stage of the proceedings, into—Whew!—a room heated to 120° Fahrenheit, where we felt as though we would at once expand and burst open, like a roasted oyster.

With what gratitude we looked upon our Mongolian friend, who at this instant relieved us of all our oppressed feelings by clapping upon our head a large sponge, filled with tepid water, which ran down our beard, and o'er our scanty robe, now sadly in need of readjustment, but not so extensive in its environment as to absorb much time in the operation.

In this room we took a seat, and put our feet in a small tub of hot water, opposite a small boy, young in years, but much older than ourselves in experience of the Anglo-American Turkish bath. This old boy informed me that he "took it offun." We inquired had he rheumatism? "No." Had he gout? No." Did he take the baths to relieve the system of former mercurial treatment? "No. He took them for pleasure." We looked at his feet. They resembled infant boiled lobsters. We looked at our own; they appeared like large boiled lobsters. Nevertheless, we experienced a sort of pleasure in inspecting them, analogous to that experienced in youth, when reading of martyrs compelled to walk over red hot ploughshares. We came to the conclusion that the sufferings of those martys had been mentally exaggerated. We now deemed it quite possible to encounter anything in the way of heat without much pain.

At this instant appeared at the door an-

other barbarian, clad in a pair of calico pantaloons of the latest cut, only extremely short at both ends. We judge the legs could not have been more than eight inches in length. He was a grim and gaunt barbarian with a mustache, and an eye that seemed to glow with eager anticipation. Like the spider in the fable, this attendant invited us into his parlor, and like the fly in the fable, we accepted his invitation. We found the tesselated marble floor of this apartment so hot that we could not rest our feet upon it, but the barbarian placed under them a wet towel, which felt good and comfortable.

Glancing at a thermometer which hung near, we found it marked full 140.° The barbarian turned down an hour glass, of the extreme accuracy of which we feel some doubts, and left us to watch it and the thermometer. Whether the labor of this watching was so severe, or whether it was because the room was so warm, we soon found *ourselves dripping with perspiration from millions* of pores. We tried to recall our physiology, and to speculate upon the source from which all this fluid was drawn, but found ourselves capable of nothing but watching the thermometer and the hour glass.

From this not unpleasant Inferno, barbarian No. 2 took us into a little room where we saw the last of our primitive raiment. Here we were placed prone and shampooed. That is, we were rubbed and scrubbed by the barbarian; were pulled and hauled and toweled and pumped upon by a hose in the hands of the barbarian; were soaped, brushed and kneaded; our limbs were stretched and twisted, and our head was rubbed until consecutive thought was an utterly impracticable achievement.

Pop! went an explosion like a Kentucky rifle, at which we jumped up in alarm. We were reassured by the barbarian, who explained how the thing was done. This he did experimentally on his own person. The hand is held so as to form a sort of cup, which is filled with suds. Brought suddenly down upon the flesh it makes a loud crack, but does not hurt much. Down we laid again, and the barbarian fired a successive volley, ending in general firing, all along the line of our spine. Then we were again drenched by a discharge of hot water from the hose, and plunged into a large vat of pure water at 70°. We found the power of consecutive thought at once fully restored by this plunge, and immediately analyzing our sensations, found them to be wholly Oriental.

We felt an intense longing for fleet horses, and tents in the desert; for flocks, and herds, and opium pipes, and harems and sherbet and coffee; for loose trousers, and shoes with pointed and turned up toes, and a turban. We tried a word or two of Arabic, but whether it was from our ill pronunciation, or whether the barbarian was such only in the matter of his skin and dress, we could not make him comprehend us.

The free use of towels having removed the moisture from our cuticle—that is, the rudimentary cuticle which the Anglo-American Turkish bath permits to remain—we began to resume delicacy and dress in the form of a linen wrap, which we folded about our person, and we were then led to the cooling and drying room, where we were placed in an easy chair with a support for our feet, and abandoned to rest and dreams. Opium and coffee are not served, which is considered an improvement upon the Oriental custom, but a refreshing drink of hot lemonade is furnished in the first stage of the sweltering process.

From a period of blissful rest we were aroused to resume our every day day dress and revisit the earth, which we were all the more ready to do from a feeling of intense hunger experienced at the moment.

Issuing from the establishment, we heard the bells striking six p. m., and could almost imagine the voice of the *muezzin* calling to prayer from distant minerets, and perfumes of "Araby the blest", blending with the less aromatic odors of our metropolitan asmosphere.

The Philosophy of Cataplasms.

The *Journal des Connaissances Medicales* publishes an article, by Dr. Herbert, on a subject which may not be uninteresting to families . viz., cataplasms, those especially which have mustard for their base. The *seeds of the black kind, which, in a pulverized* state, are used for poultices, owe their proprieties to a liquid, acid, and volatile substance, being nothing but essence of mustard. This, however, does not exist ready formed in the seed; it is generated by a kind of fermentation, caused by the action of an albuminoid body, called myrosine, which plays the part of leaven, on a peculiarly fermentescible compound, mysonate of potash. This transformation which has been called *sinapisic*, can only take place by the intervention of water at a temperature higher than freezing point, and lower than seventy-five deg. centigrade, those being the usual conditions requisite for producing fermentation. This is a circumstance which is not commonly taken into account in practice. The generation of essence of mustard diminishes under temperature ranging between fifty deg. and seventy five deg. centigrade, and entirely ceases at the latter. Hence, boiling water, or even such that cannot be born by the hand, will spoil both the poultice and the sinapized foot bath. Again, alcohol, acids, metallic salts, and any other agents having the power of stopping fermentation or retarding it, are detrimental. Besides, the two principles mentioned through whose joint action the essential oil of mustard is produced, the seeds of this plant contain various others, among which there is a fixed and inactive oil, having some of the properties of that of rapeseed, and which may easily be extracted from mustard-powder, either by strong pressure, or, better still, by acting upon it by lixiviation in sulphuret of carbon. When this oil is extracted, what remains is much more powerful, and will, moreover, keep indefinitely. Many years ago, M. Robinet attempted to bring *this mustard-flour, deprived of its fixed oil,* into general use; but prejudice and routine proved too strong for him, and it was not until this powder was gummed to paper, then cut into squares, and sold in elegant tin boxes, that it came into fashion. But what every family should keep in mind is this, that mustard poultices ought not to be made with hot but lukewarm water.—*The Druggist—N. Y. Med. Journal.*

Michael Faraday.

The following interesting sketch, taken from Dr. Benco Jones' "Life and Letters of Faraday," appears in the *Scientific American:*

"Toward the end of the last century, in an obscure part of London, over some stables in a yard, lived an honest blacksmith named James Faraday. He was the son of a stonemason and tiler, and was one of a family of ten children, all of whom were laboring men and women in the humblest walks of life.

"James had married the daughter of a farmer, and was a member of a peculiar religious sect called Sandemanian, after its founder, and was a thoroughly religious man. He had four children, Elizabeth, Robert, Michael, and Margaret. Michael was born in 1791. And when a little boy used to tend his baby sister in the stable yard, and sometimes was able to earn a penny by holding a horse or running an errand. When he got to be big enough to be trusted with parcels he was regularly installed as a newspaper boy, and on Sundays hurried through with his business so as to be at home in time 'to make himself neat and to go to church with his parents.' Robert chose the father's *profession and was apprenticed to a black* smith. He appears to have been a generous man, as he used occasionally to give his brother Michael money to go to chemical lectures or to buy apparatus for experiments; but we soon lose all track of him, and his fame never went beyond the sound of his anvil.

"We are not told why Michael was apprenticed to a book-binder rather than to some other mechanic, but can infer that he read the papers he carried and showed an early fondness for books, so that his father placed him at a trade where he could earn something and yet have an opportunity to read. The book-binder and stationer with whom Faraday learned his trade was a kind master, and evidently pleased with the fidelity and industry of his apprentice.

We find that Faraday, while binding books, took occasion to look at their contents, and among other works that fell into his hands was one by Mrs. Marcet, on chemistry. He had a great fancy for proving the accuracy of all the statements in the book by simple experiments, and spent all the pennies he could spare in procuring the necessary apparatus. An article on electricity, in the 'Encyclopedia Britannica,' particularly attracted his notice, and he set about to construct an electrical machine. His master was so much pleased with the success of this effort that he showed the apparatus to a member of the Royal Institution, who came to the shop to have some work done. This gentleman had some conversation with the apprentice, and finding him uncommonly bright and intelligent, invited him to go to hear Sir Humphry Davy lecture at the Royal Institution. This was a treat of the utmost importance to the young man. He wrote out full notes of the lecture *with such drawings and illustrations as he* could make, and afterwards sent them with a letter to Sir H. Davy. "The reply was immediate, kind, and favorable;" and some time afterward a grand carriage, with a servant in livery, drove to his humble lodgings with a note, asking him to call to see Sir H. Davy, and offering him the place of assistant, just vacant, at a salary of twenty-five shillings per week, with the use of two rooms at the top of the house. On March 1, 1813, Faraday was regularly appointed by the board of managers to be Davy's assistant. His days of bookbinding were thus brought to an end, and he became himself the maker of books for other people to bind and to prize most highly.

"Sir Humphry Davy in a letter to the managers recommending him for the place, wrote that he 'had found a person who is desirous to occupy the situation in the Institution lately filled by William Payne. His name is Michael Faraday, a youth of twenty-two years of age. His habits seem good, his disposition active and cheerful, and his manner intelligent.'

"The youth of twenty-two years had made a marvelous use of his time previous to the appointment under Davy. He had read everything he could lay his hands upon, and in a note book wrote down the names of the books and subjects that interested him. This he called 'The Philosophical Miscellany—being a collection of notices, occurrences, events, etc, relating to the arts and sciences, collected from the public papers, reviews, magazines, and other miscellaneous works, intended to promote both amusement and instruction, and also to corroborate or invalidate those theories which are continually starting into the world of science. Collected by M. Faraday, 1809-10.'

"Fortunately this book has been preserved and can serve as a model for all young men of humble origin and slender means. We are astonished at the extent and variety of his reading at that early day, as gathered from that collection, and as displayed in a correspondence with Mr. Abbott, a Quaker clerk. The letters to Abbott, commencing when Faraday was twenty years of age, are often verbose, inflated, and abounding in big words, but nevertheless display the early training, study, reflection, and anxiety to learn, of the book-binder's apprentice. Abbott had been educated at a good school, and hence Faraday looked upon him as greatly his superior.

"There is a great temptation to quote from these letters, as they cover a period of Faraday's life hitherto wholly unknown to the world. In his first letter he gives an account of some galvanic experiments, and of a pile he had constructed out of disks of malleable zinc (a great curiosity in those days), copper coins, 'and pieces of paper soaked in a solution of muriate of soda.' He was surprised to find that with seven pairs of plates he could decompose the sulphate of magnesia. In another letter he has a good deal to say about chlorine, and gives the theory of bleaching as maintained by scientific men of the present day. 'Pure chlorine has no effect upon vegetable colors; but when water is present it decomposes it, and the oxygen causes the change of color.' He writes to his friend some admirable ideas on the subject of lectures, how they should be prepared and how delivered, which show the foundation upon which he afterwards built up his fame as the best lecturer in England. Here is a choice passage, written when Faraday was twenty-one years of age:

"'A lecturer falls deeply beneath the dignity of his character when he descends so low as to angle for claps and asks for commendation. Yet have I seen a lecturer, even at this point. I have heard him dwell for a length of time on the extreme care and niceness that the experiment he will make requires. I have heard him hope for indulgence when no indulgence was wanted, and I have heard him declare that the experiment now made cannot fail from its beauty, its correctness, and its application, to gain the approbation of all. Yet surely such an error in the character of a lecturer cannot require pointing out, even to those who resort to it; its impropriety must be evident, and I should perhaps have done well to pass it.'

"In reference to the choice of a friend he writes: 'A companion cannot be a good one unless he is morally so; and however engaging may be his general habits, and whatever peculiar circumstances may be connected with him so as to make him desirable, reason and common sense point him out as an improper companion or acquaintance unless his nobler faculties, his intellectual powers, are, in proportion, as correct as his outward behavior.'

"And in the same letter he adds: 'In every action of our lives, I conceive that reference ought to be had to a Superior Being, and in nothing ought we to oppose or act contrary to His precepts.'

"We have thus a picture of Michael Faraday before he went to act as an assistant to Sir Humphry Davy. The son of religious parents, himself a thoroughly conscientious man, endowed with good health and indomitable industry, his start in life was such as to inspire his friends with every confidence in his ultimate success. As soon as he entered the Royal Institution he continued the researches he had begun with humble means while working as an apprentice, and, with such a teacher as Sir Humphry Davy, was soon able to overcome all defects of early training. Davy and Faraday were two widely different characters. The former was also of humble birth, and had been aided by Mr. Gilbert, who heard that the "boy was fond of making chemical experiments," and had by his remarkable discovery of the metals of the alkalies, rendered his name famous, and had won knightly honors. He had become Sir Humphry Davy, and it was not long before he gave up further original investigation, and retired to Geneva in Switzerland, where he died in 1829. He was always seeking for honors and eternally pining for rank, and in his early treatment of Faraday displayed unworthy traits of character. For example, while traveling on the continent, he declined to accept an invitation to dine because Faraday, his Secretary, was also invited. The host, De la Rive, of Geneva, sent back word, 'then I shall be obliged to give two dinners.' And Davy opposed Faraday's election to the Royal Society. But Faraday uttered no word of complaint, and never ceased to feel and express gratitude to his early benefactor.

"It is probable that no man of science ever lived whose whole life could better serve as a model than Faraday's. Although born poor he never coveted riches, but on the contrary gave up all remunerative occupations in order that he might devote himself exclusively to scientific research. Of humble birth he never sought social distinctions, but declined the offer of knighthood, and utterly refused to accept the office of President of the Royal Society which was pressed upon him. The humility, simplicity, singleness of purpose, and liveliness of disposition never deserted him even in the height of his prosperity. He was ever ready to help a beginner, and seemed never to forget how he had been aided at a critical period of his life. He was indeed a perfect contrast to Sir Humphry Davy.

"In 1821 Faraday was married, and having been appointed superintendent of the house and laboratory, took his wife to reside in the Royal Institution. He never was blest with children, but lived for forty-seven years of perfect happiness with the choice of his youth; the only change being, as he said, 'in the depth and strength of its character.'

"When Faraday first went to the Royal Institution, he took up the study of chemistry with great zeal, and among other important discoveries made by him was that of benzole, to which we virtually owe the whole aniline industry. His researches on the condensation of gases, in which he proved them to be the vapors of volatile liquids; also on regelation, on glass, on steel, on alloys, were among his earliest works; but the crowning glory of his life was the publication of his 'Experimental Researches on Electricity,' which he commenced at the age of forty and continued during a period of twenty-six years. The value of these discoveries to the world cannot be easily overrated. We can trace them into practical life, in the electric light, in magneto-electric machinery, in electro-metallurgy, in the applications of electricity to medicine, in telegraphy, and in the success of the submarine cable, and yet the work was carried on in penury; he made himself poor that others might be rich, and he has left a name without parallel in the annals of science.

"The Queen of England, no doubt instigated by Prince Albert, assigned a house for Faraday's use in the royal park, at Hampton Court, and had it put in thorough repair for his occupancy. Here he spent the declining years of his life, surrounded by affectionate relatives and devoted friends, and in the summer of 1867, while sitting in his arm chair at his study window, was suddenly summoned to his eternal rest.

"The same year of his marriage Faraday joined the Sandemanian church by profession of faith, and he afterwards became an elder and used to preach; but in his sermons there was wanting that clearness and precision, that familiarity with the subject, that characterized his lectures on scientific topics. He never adopted the same course of reasoning in religious matters that he did in scientific. In science he believed nothing without the facts or experimental demonstration; but in religion he accepted everything with the humble faith of a Christian."

Miscellaneous, &c.

Action of Shellac upon some Aniline Colours.

M. Labouret.—When a salt of rosaniline is added to a solution of any resin, that solution is red-coloured, if the salt of aniline is soluble in the solvent used to dissolve the resin; the colour has, however, a tendency to turn violet as soon as the solution is heated or evaporated to dryness. An alcoholic solution of shellac, to which fuchsine has been added, turns, on evaporation, to a most magnificent blue colour. This material is insoluble in ether, but soluble in alcohol and acetic acid, the solutions exhibiting a blue colour. The product is however, very unstable; and the only use this reaction could be turned to is, according to the author, the detection of shellac among other resins, since a very minute quantity of the last-named resin may by this means be detected. —*Moniteur Scientific. in Chem. News.*

Detection and Estimation of Arsenic in the Rosaniline (Fuchsine) of Commerce.

Dr. Riecker.—This very lengthy paper is essentially devoted to the testing of the correctness of the methods for the quantitative estimation of arsenic, and the possibility of

the quantitative estimation of arsenious and arsenic acid separately, when both these substances are present. As regards the qualitative detection of arsenic in fuchsine, the author states that the pigments of that name tested by him, and obtained from various sources, all contain arsenic in some form or other. That this quantity is not small may be inferred from the results of the author's quantitive analysis, from which we gather that a sample of fuchsine obtained direct from a manufacturer contained, on an average, 2.073 per cent. of arsenous acid and 7·593 per cent. of arsenic acid. Another sample, obtained from a wholesale drysaltery, contained, on an average (several analyses were made), 1·008 per cent. of arsenious acid and 4·4705 of arsenic acid. This research was undertaken with the express view of testing the question, whether the use of fuchsine, as a colouring matter for syrups, sweetmeats, and the like, is or is not to be prohibited, as can be done in Prussia by a simple police order. It is quite evident that fuchsine should not be indiscriminately used for such purposes.—*Neues Jahrbuch für Pharmacie, von Dr. F. Vorwerk.—Chem. News.*

Gutta-Percha Vessels for Chemical Uses.

Erroneous views have been held and circulated concerning the durability of gutta-percha under the action of the various reagents. We are ordinarily told that it is absolutely unacted upon by cold mineral acids, with the single exception of the sulphuric at 1·6 sp. gr. and upwards. This is far from being the case. There is, indeed, no immediate corrosion, or other rapid and striking change; but in the course of time, the surface becomes overspread with a thin buff-coloured layer, which may easily be rubbed off. This change extends gradually deeper and deeper, till the whole mass loses its coherence and splits in various directions. I have before me a number of jugs which have been used for nitric, clorhydric, and and dilute sulphuric acids, as, also, for solutions of stannous, stannic, and ferric salts, and which in three years' service, have become quite worthless; on being sent for repairs to a dealer in such articles, they were returned with the remark that they "could not be mended, as they had been used for acids." I find that the disintegration in question can be very much retarded if the vessels are always rinsed in cold water immediately after being used.—J. W. Slater, *in Chem News.*

Contribution to our Knowledge of the Bases Contained in Opium.

M. Hesse.—After referring to the labours of M. Merk, and his own former researches on this subject, the author describes meconidine, lanthopine, and laudanine. Meconidine, $C_{21}H_{23}NO_4$, is a rather readily decomposable compound in the presence of strong acids, and especially when heat is simultaneously applied; this base yields salts with difficulty, and these compoudds are very unstable. Laudanine is readily soluble in benzole and chloroform, also in boiling alcohol, but difficultly soluble in ether and alcohol when cold; this base, although tasteless by itself, yields, with acids, very bitter salts; fuses at 165°, formula, $C_{20}H_{25}NO^3$; yields salts with acids; well-defined chemical compounds. Lanthopine. $C_{23}H_{25}NO^4$; this substance is best soluble in chloroform, difficultly so in alcohol, ether, and benzol; it yields with acids, salts. Thebenine, $C_{19}H_{25}ClO_6$ (formula of the hydrochlorate of this base), is an amorphous substance, and rather prone to decomposition.—*Annalen Chem. in Chem. News.*

Artificial Kirschwasser.

M. Reinsch.—The genuine alcoholic fluid of this name owes its flavour to the presence of a small quantity of hydrocyanic acid and ethereal oil of bitter almonds (hydruret of benzoyl.) The author suggests that, when a certain quantity of young leaves of the peach tree (a handful is named) is beaten up in a porcelain mortar, next digested with 4 litres of water during two days, and this mixture added to 2 litres of strong alcohol (94 per cent.), and submitted to distillation, and the distillate diluted with water to a strength of 60 per cent alcohol, a fluid is obtained fully equal in taste and aroma to the best Swiss kirschwasser made from cherries bruised up with the stones and kernels they contain. The author cautions against the drinking of too large quantities of this liquor; and so he may, since cases of accidental poisoning with this and similar alcoholic liquors (Persico among the number) are by no means rare.—*Pharmaceutische Zeitschrift für Russland, in Chem. News.*

Red Fire.

The *Pharmacist* gives the following formula for "Red Fire," which will not evolve sulphurous acid during combustion.

Nitrate of strontia, dry and in powder, 1 lb.
Chlorate of potassa in powder, ½ lb.
Shellac, in coarse powder, ¼ lb.

These ingredients to be mixed by gentle stirring or sifting. On no account should they be rubbed together in a mortar, as an explosion would probably result.

Reduction of Angelic Acid to Valerianic Acid.

M. Ascher.—When angelic acid is heated to about 200°, along with hydriodic and amorphorus phosphorous, for about eight hours, it is entirely thereby converted into valerianic acid, as was fully proved by the elementary organic analysis of the silver and baryta salts of the last named acid.—*Chem. News.*

Medical Properties of Eggs.

The white of an egg has proved of late the most efficacious remedy for burns. Seven or eight successive applications of this substance soother pain, and effectually excludes the burn from the air. Extraordinary stories are told of the healing properties of a new oil which is easily made from the yolk of hens' eggs. The eggs are first boiled hard, and the yolks are then removed, crushed, and placed over a fire, where they are carefully stirred until the whole substance is just on the point of catching fire, when the oil separates and may be poured off. One yolk will yield nearly two teaspoonsfull of oil. It is in general use among the colonists of South Russia, as a means of curing cuts, bruises and scratches.

Notes and Queries.

S. V. R.—Fusel Oil, as obtained from the distillers, always contains a small per centage of alcohol, which may be got rid of by washing with water and subsequent distillation, until a constant boiling point of 270 F. is observed. The specific gravity of this product is 818; it consists, mainly, of amylic alcohol having the composition $C_5H_{12}O$, but nearly always contains traces of the fatty acids—as butyric, caproic and enanthylic. A purer product may be obtained by substituting milk of lime for the water used in washing. Amylic alcohol has, so far, received but limited use, it is an ingredient in certain burning fluids, and is employed as a source of valerianic acid; but there are, doubtless many useful purposes to which its solvent powers might be applied. Most of the resins dissolve in it, but its offensive and pungent smell will always be a hindrance to its employment. We have frequently been asked if it is not possible to deodorize it; this is of course impossible, but the odor may be modified and rendered less disagreeable by the action of certain chemical agents.

Shop Counters may be cleaned by the use of the following mixture, which must be sparingly applied by means of a rubber of cotton:

Ol Lini	1	pint.
Alcohol	4	oz.
Acetic Acid	4	"
Ol Terebinth	4	"
Antim. Murias	1	"

Trade Report.

Trade during the past month has been variable. The bad state of the roads, and the fact of farmers being busy getting in their crops, served to make it rather dull.

The spring fleet are coming in rapidly, and stocks are filling up, so that buyers may rely on their orders being fully executed, an undertaking which has been pretty difficult of accomplishment during the past month or two.

There has been a strong demand for Quinine, which has resulted in clearing out all the wholesale houses; and unfortunately, Messrs. Howard & Sons, the eminent manufacturers of this article, have, owing to large government orders, been unable to attend to their customers in this country. The changes in price have been few, as stocks on hand are light, and any alterations which may occur from this spring's importations will only be trifling.

Camphor has been in large demand at a much reduced price.

Dyestuffs are coming on at slightly reduced rates.

Paints and Oils are in brisk demand, and are all unchanged in price. In Machinery Oils there is an upward tendency, Olive and Lard being much firmer.

Spirits of Turpentine is very high. Other Naval Stores are a little easier.

WHOLESALE PRICES CURRENT.—MAY, 1870.

Drugs, Medicines, &c.	$ c.	$ c.
Acid, Acetic, fort	0 14	@ 0 15
" Benzoic, pure	0 28	0 35
" Citric	0 75	0 85
" Muriatic	0 05	0 07
" Nitric	0 11½	0 15
" Oxalic do	0 25	0 30
" Sulphuric	0 04½	0 07
" Tartaric, pulv.	0 36	0 45
Ammon., carb. casks	0 17	0 19
" " jars	0 18	0 20
" Liquor, 880	0 18	0 25
" Muriate	0 12½	0 15
" Nitrate	0 45	0 60
Æther, Acetic	0 45	0 50
" Nitrous	0 22½	0 25
" Sulphuric	0 48	0 55
Antim. Crude, pulv.	0 14	0 15
" Tart. "	0 50	0 60
Alcohol, 95%	1 72½	1 87½
Arrowroot, Jamaica	0 20	0 22
" Bermuda	0 45	0 65
Alum	0 02½	0 03½
Balsam, Canada	0 24	0 35
" Copaiba	0 78	0 80
" Peru	3 80	4 00
" Tolu	1 20	1 40
Bark, Bayberry, pulv.	0 20	0 25
" Canella, "	0 17	0 20
" Peruvian, yel. pulv	0 42	0 45
" " red "	1 50	1 60
" Slippery Elm, g. b.	0 18	0 20
" " flour, pkt's	0 28	0 32
" Sassafras	0 15	0 18
Berries, Cubebs, ground.	0 30	0 40
" Juniper	0 08	0 10
Beans, Tonquin	0 60	1 10
" Vanilla	11 50	12 00
Bismuth, Alb.	5 00	6 00
" Carb.	5 00	6 09
Camphor, Crude	0 40	0 45
" Refined	0 47	0 55
Cantharides	1 60	1 70
" Powdered	1 70	1 80
Charcoal, Animal	0 04	0 06
" Wood, pow'd.	0 12	0 15
Chiretta	0 30	0 35
Chloroform	1 25	1 50
Cochineal, S. G.	0 85	1 00
" Black	1 30	1 75
Colocynth, Pulv.	0 80	0 90
Collodion	0 60	0 65
Elaterium oz.	4 50	5 00
Ergot	0 70	0 80
Extract, Belladonna	2 00	2 20
" Colocynth, Co.	1 25	1 75
" Gentian	0 50	0 60
" Hemlock, Aug.	1 12	1 25
" Henbane, "	2 90	3 00
" Jalap	5 00	5 50
" Mandrake	1 75	2 00
" Nux Vomic. oz	0 60	0 70
" Opium "	Variable.	
" Rhubarb	7 50	—
" Sarsap. Hon. Co	1 00	1 20
" " Jam. Co	3 25	3 70
" Taraxicum, Aug	0 70	0 80
Flowers, Arnica	0 25	0 35
" Chamomile	0 36	0 45
Gum, Aloes, Barb. extra	1 00	1 10
" " " good	0 50	0 55
" " Cape	0 15	0 20
" " pow'd	0 25	0 30
" " Socot	0 60	0 75
" " " pulv.	0 90	1 00
" Arabic, white	0 60	0 65
" " pow'd	0 57	0 65
" " sorts	0 34	0 37
" " pow'd	0 50	0 60
" " com. Gedda	0 13	0 16
" Assafœtida	0 31	0 40
" British or Dextrine	0 13	0 15
" Benzoin	0 48	0 55
" Catechu	0 15	0 20
" " pow'd	0 25	0 30
" Euphorb, pulv.	0 32	0 40
" Gamboge	1 40	1 60
" Guaiacum	0 32	0 50
" Myrrh	0 48	0 60
" Sang Dr...on	0 69	0 70
" Scammony, pow'd	5 63	—
" " Virg. "	14 50	—
" Shellac, Orange	32	0 35

Drugs, Medicines, &c. *Continued.*	$ c.	$ c.
Gum, Shellac, liver	0 20	@ 0 35
" Storax	0 65	0 75
" Tragacanth, flake.	1 05	1 40
" " common	0 35	0 40
Galls	0 32	0 37
Gelatine, Cox's, 6d.	1 10	1 20
Glycerine, com.	0 25	0 30
" Vienna	0 25	0 40
" Price's	0 65	0 75
Honey, Canada, best	0 17	0 20
" Lower Canada	0 16	0 18
Iron, Carb. Precip.	0 20	0 25
" " Saccher.	0 40	0 45
" Citrate Ammon.	0 90	1 00
" " & Quinine oz.	0 43	0 48
" " & Strychnine "	0 17	0 25
" Sulphate, pure	0 08	0 10
Iodine, good	4 50	5 00
" Resublimed	5 60	6 00
Jalapin oz.	1 40	1 60
Kreosote	1 60	1 70
Leaves, Buchu	0 30	0 50
" Foxglove	0 25	0 30
" Henbane	0 35	0 40
" Senna, Alex	0 30	0 60
" " E. I	0 12½	0 20
" " Tinnevilly	0 20	0 30
" Uva Ursi	0 15	0 20
Lime, Carbolate brl.	5 50	—
" Chloride	0 04½	0 06
" Sulphate	0 08	0 12½
Lint, Taylor's best	1 20	1 25
Lead, Acetate	0 14	0 17
Leptandrin oz.	1 90	—
Liq. Bismuthi	0 50	0 75
" Opii, Battley's	6 60	8 00
Lye, Concentrated	1 50	2 00
Liquorice, Solazzi	0 38	0 45
" Cassano	0 23	0 40
" Other brands	0 14	0 25
Liquorice, Refined	0 35	@ 0 45
" " Hessin's doz	2 00	
Magnesia, Carb 1 oz.	0 20	0 25
" " 4 "	0 17	0 20
" Calcined	0 65	0 75
" Citrate...gran.	0 40	0 50
Mercury	0 65	0 75
" Bichlor	0 70	0 80
" Biniodid oz.	0 25	0 35
" Chloride	0 90	1 00
" C. Chalk	0 45	0 60
" Nit. Oxyd	0 90	1 00
Morphia, Acet	6 00	—
" Mur	6 00	7 00
" Sulph.	6 20	—
Musk, Pure gram oz.	21 00	—
" Canton	1 00	1 20
Oil, Almonds, sweet	0 46	0 55
" " bitter	14 00	15 00
" Anniseed	4 00	4 50
" Bergamot, super.	6 00	7 00
" Carraway	4 00	4 20
" Cassia	2 50	3 00
" Castor, E. I.	0 15	0 20
" " Crystal	0 22	0 25
" " Italian	0 26	0 28
" Citronella	1 60	1 85
" Cloves, Ang.	1 00	1 10
" Cod Liver	1 55	1 60
" Croton	2 50	3 00
" Geranium, pure, oz	2 00	2 20
" Juniper Wood	0 80	1 00
" " Berries	6 00	7 00
" Lavand, Ang	19 20	20 00
" " Exot	1 40	1 60
" Lemon, super.	3 30	3 60
" " ord.	2 60	2 80
" Orange	3 00	3 20
" Origanum	0 65	0 75
" Peppermint, Ang	15 00	17 00
" " Amer	3 60	4 00
" Rose, virgin	7 75	8 00
" " good	4 40	5 50
" Sassafras	0 35	1 05
" Wintergreen	5 00	5 50
" Wormwood, pure	5 80	50
Ointment, blue	0 65	0 70
Opium, Turkey, about	11 50	12 00
" " pulv	14 00	14 50
" " good	0 12½	0 20
Orange Peel, opt.	0 65	0 75
Pill, Blue, Mass	0 70	0 75

Drugs, Medicines, &c. *Continued.*	$ c.	$ c.
Potash, Bi-chrom	0 15	@ 0 20
" Bi-tart	0 25	0 28
" Carbonate	0 16	0 20
" Chlorate	0 40	0 45
" Nitrate	8 50	9 00
Potassium, Bromide	1 80	2 00
" Cyanide	0 70	0 75
" Iodide	7 80	4 50
" Sulphuret	0 25	0 35
Pepsin, Boudault's oz.	1 25	1 50
" Houghton's, doz	8 00	9 00
" Morson's oz.	0 82	1 10
Phosphorus	0 75	0 85
Podophyllin	0 50	0 60
Quinine, Pelletier's	1 80	—
" Howard's	1 85	1 90
" " 100oz. case	1 80	—
" " 25 oz. tin	1 80	—
Root, Colomba	0 14	0 20
" Curcuma, grd	0 12½	0 17
" Dandelion,	0 25	0 35
" Elecampane	0 14	0 17
" Gentian	0 08	0 12½
" " pulv.	0 15	0 20
" Hellebore, pulv	0 18	0 25
" Ipecaac	2 40	2 60
" Jalap, Vera Cruz	1 55	2 —
" " Tampico	0 90	1 —
" Liquorice, select	0 13	0 17
" " pow'd	0 15	0 20
" Mandrake, "	0 20	0 25
" Orris "	0 20	0 25
" Rhubarb, Turky	4 40	5 50
" " E. I., China	1 25	2 00
" " " pulv.	1 40	2 50
" " " " 2nd	1 30	1 50
" " French	0 75	—
" Sarsap., Hond	0 45	0 50
" " Jam.	0 75	0 80
" Squills	0 10	0 15½
" Senega	0 70	0 70
" Spigelia	0 35	0 40
Sal., Epsom	3 00	4 00
" Rochelle	0 28	0 35
" Soda	0 02	0 03
Seed, Anise	0 16	0 30
" Canary	0 05½	0 07
" Cardamon	3 50	4 00
" Fenugreek, gr'd	0 10	0 15
" Hemp	0 03½	0 05½
" Mustard, white	0 14	0 16
Saffron, Amer.	3 00	3 50
" Spanish	14 00	16 00
Santonine	10 50	12 00
Sago	0 07½	0 09
Silver, Nitrate, cash	14 90	16 50
Soap, Castile, mottled	0 11½	0 14
Soda Ash	0 03	0 04
" Bicarb. Newcastle	3 75	4 00
" " Howard's	0 14	0 16
" Caustic	0 04	0 05
Spirits Ammon., arom	0 27	0 35
Strychnine, Crystals	2 30	2 75
Sulphur, Precip.	0 10	0 12½
" Sublimed	0 4	0 05
" Roll	0 03	0 04½
Tamarinds	0 15	0 20
Tapioca	0 15	0 18
Veratria oz.	0 25	0 30
Vinegar, Wine, pure	0 55	0 60
Verdigris,	0 35	0 40
" Pow'd	0 45	0 50
Wax, White, pure	0 90	0 95
Zinc, Chloride oz.	0 20	0 25
" Sulphate, pure	0 10	0 15
" com	0 06	0 10
Dyestuffs.		
Annatto	0 40	@ 0 60
Analine, Magenta, cryst	5 00	—
" " liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitriol, pure	0 08	0 10
Camwood, pure	0 06½	0 09
Copperas, green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 03	0 04
Indigo, Bengal	2 40	2 50
" Madras	1 15	1 20
" Extract	0 28	0 35
Japonica	0 05½	0 06½
Lacdye, pow'd	0 35	0 40
Logwood	0 02½	0 03

Dyestuffs—*Continued*	$ c.	$ c.
Logwood, Camp	0 02½	@ 0 3½
" Extract	0 12½	0 14
" " 1lb bxs	0 14	—
" " ½lb "	0 15	—
Madder, best Dutch	0 16	0 18
" 2nd quality	0 14	0 15
Quercitron	0 03	0 05
Sumac	0 06½	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
Spices.		
Allspice	0 08½	@ 0 10
Cassia	0 48	0 50
Cloves	0 12½	0 15
Cayenne	0 18	0 25
Ginger, E. I.	0 12	0 14
" Jam	0 25	0 30
Mace	1 35	1 40
Mustard, com	0 20	0 25
" D. S	0 40	0 45
Nutmegs	0 65	0 75
Pepper, Black	0 11½	0 12½
" White	0 20	0 22
Paints, Dry.		
Black, Lamp, com	0 07	@ 0 08
" " refined	0 25	0 30
Blue, Celestial	0 08	0 12
" Prussian	0 65	0 75
Brown, Vandyke	0 10	0 12½
Chalk, White	0 01	0 01½
" Red	0 05½	0 10
Green, Brunswick	0 07	0 10
" Chrome	0 20	0 25
" Paris	0 30	0 35
" Magnesia	0 20	0 25
Litharge	0 08	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 06½	0 08
" Venetian	0 02½	0 03½
Sienna, B. & G.	0 10	0 15
Umber, "	0 07	0 10
Vermillion, English	0 90	1 00
" American	0 25	0 35
Whiting	0 85	1 25
White Lead, dry, gen.	0 07½	0 09
" " " No. 1	0 06½	0 08
" " " No. 2	0 05½	0 07
Yellow Chrome	0 12½	0 35
" Ochre	0 02½	0 03½
Zinc White, Star	0 10	0 12
Colors, in Oil.		
Blue Paint	0 12	@ 0 15
Fire Proof Paint	0 06	0 08
Green, Paris	0 32	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1lb tins	0 14½	0 16
Putty	0 03½	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25lb tins	2 35	—
" " No. 1 "	2 10	—
" " No. 2 "	1 90	—
" " No. 3 "	1 65	—
" " Com. "	1 30	—
White Zinc, Snow	2 75	3 25
Naval Stores.		
Black Pitch	4 50	@ 5 50
Rosin, Strained	3 75	4 50
" Clear, pale	5 75	10 00
Spirits Turpentine	0 65	0 70
Tar Wood	4 00	5 00
Oils.		
Cod	0 70	@ 0 70
Lard, extra	1 25	—
" No. 1	1 12½	—
" No. 2	1 00	—
Linseed, Raw	0 77½	0 80
" Boiled	0 82½	0 85
Olive, Common	1 30	1 35
" Salad	1 80	2 30
" " Pints, cases	4 20	4 40
" " Quarts	3 60	3 00
Seal Oil, Pale	0 85	0 90
" " Straw	0 77½	0 80
Sesame Salad	1 30	1 35
Sperm, genuine	2 40	—
Whale, refined	0 85	1 00