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CANADIAN
PHARMACEUTICAL JOURNAL

VOL. VII, No. 7. TORONTO, FEBRUARY, 1874. WHOLE No. LXX

Original and Selected Papers.

ON THE EFFECT OF GLYCERIN IN MODIFYING THE
ACTION OF ASTRINGENTS.

BY E. B. SHUTTLEWORTH.

There have been few additions to the materia medica, which, in so short a time, have attained a more universal popularity, have been applied to as manifold uses, or been more generally extolled than glycerin. Its powers as a solvent, equalling, if not exceeding, those of alcohol, have opened up a wide field of usefulness which has generally been entered upon with great advantage. It may be, however, quite possible, and even probable, that a property of such ready adaptability, and of so wide a range, has been too generally made use of; sometimes under circumstances in which its effects may have proved the reverse of beneficial. Of such a character is the indiscriminate employment of glycerin in the preparation of tinctures or fluid extracts of vegetable substances of complex composition; when, though a presentable and permanent compound

may be obtained, inert, or, perhaps, injurious agents, which would have been much better undisturbed, are dissolved and retained in solution.

It is not, however, to this modifying action that I would, at present, call attention, but to an effect depending on another cause. Physicians who have been in the habit of using astringents—as tannic acid, and some of the preparations of iron—have noticed that when these substances are mixed with glycerin, a different, and much milder effect is realized than when an aqueous solution is employed. During the last few months, some of the pharmaceutical journals have alluded to this effect;* and, at the last meeting of the British Pharmaceutical Conference, it was made the subject of a short discussion.† It was then stated, by the president, that he was aware of an instance in which three hundred grains of perchloride of iron, dissolved in glycerin, was swallowed, by mistake, and without any ill effects. It is certain that a much smaller quantity, in aqueous solution, would have produced serious results. The common experience of physicians with regard to the comparative inefficiency of *glycerinum acidi tannici* was also alluded to. Again, at a meeting of the Pharmaceutical Society held Dec. 3rd,‡ it was stated as a well-known fact, that, if a greatly astringent effect is desired, the solution of tannin in glycerin must be diluted with water; and that the same is true in regard to the styptic action of a solution of perchloride of iron in glycerin. It was also stated that *glycerinum acidi carbolici* was much milder in action than an aqueous solution of similar strength. At the last meeting of the American Pharmaceutical Association the effect of glycerin on astringents was alluded to as having been noticed; as all these statements coincide with the opinions of observant physicians, this modifying action of glycerin may be recognized as an acknowledged fact.

It becomes interesting for us to ascertain the cause of this modifying action; and, in this endeavour, we may consider, first: the nature of the physiological and therapeutical effects produced by astringents; and, secondly, the effect of glycerin on the chemical properties of this class of remedies.

* Glycerin: by A. H. Mason, F.C.S., *Chemist & Druggist*, April 1873, p. 119; and *Can. Pharm. Jour.*, No. lxii, p. 396.

† *Pharm. Jour. & Trans.*, Oct. 1873 and *Can. Pharm. Jour.* Vol. vii, p. 172.

‡ *Pharm. Jour. & Trans.* Dec. 1873, p. 451.

In regard to the first point we find that the action of astringents is, in great part, if not entirely, to be attributed to their chemical agency. In most instances, these bodies have an affinity for certain constituents of the animal solids and fluids, and effect changes by direct combination. Pharmacologists are generally agreed on this matter, and it is thought that, whether applied externally or taken internally, these remedies have a more or less local action, producing astringency or corrugation of the tissues, or coagulation of the fluids. In regard to tannic acid,* Pereira says "Tannin acts on the animal tissues by virtue of its affinity for their constituents. It forms, with albumen and gelatine, compounds which are insoluble in water; and it also combines with fibrin, when taken into the stomach it unites with the constituents of the epithelium, and of the mucous membrane of the alimentary canal." It may therefore be assumed that astringents are, in general, merely chemical agents, and if their anticipated effect is to be realized, their chemical composition must not be modified or disturbed.

In order to determine the chemical action of glycerin on astringents I have commenced a series of experiments, which has, so far, only being completed so as to afford indications of a definite and satisfactory conclusion. The substance chosen as best representing the class of vegetable astringents is gallo-tannic acid—the tannin of commerce; the mineral astringents may be aptly represented by the perchloride and persulphate of iron.

The effect of reagents on an aqueous solution of the *glycerinum acidi tannici* is precisely similar to that produced on a simple aqueous solution of tannin. The salts of iron, tartrate of potash and antimony, chloride of sodium, sulphuric and hydrochloric acids, and gelatin, give, in both cases, colorations and precipitates, alike in appearance. In order to ascertain the comparative power of the two solutions in precipitating gelatin, solutions equal in tannin strength were prepared, and it was found that an equal number of measures of the same solution of gelatin were required for precipitation.

Being unable to detect any difference in the behaviour of these aqueous solutions, a solution of tannin in glycerin, undiluted, was treated with solution of gelatin, and it was found that the tannin was *not precipitated*; or, at least, that only a small portion of the glycerin solution which was in immediate contact with the water con-

* Elements of Materia Medica and Therapeutics, Vol. 1, p. 98.

tained in the solution of gelatin was so affected. This superficial layer of coagulum was, on the application of a gentle heat, immediately dissolved. This result is, so far, satisfactory, and affords a possible explanation of the fact before alluded to—that, in order to realize the full astringent effect of the glycerin preparation of tannin, dilution with water is necessary.

I have not had time to pursue this subject further, or to examine into the effect, noted by some observers, that glycerin prevents the precipitation of some of the salts of iron by alkalies.

Speculating on this subject, and bringing to our aid those facts relating to the properties and affinities of glycerin which are already known, we find that this substance is by no means chemically inert, not indeed sufficiently so as to admit of a general application as a solvent. The range of glycerin compounds is not at all a limited one, but quite extensive, comprising salts many of which are well defined, and which possess strong individual characteristics and properties. Of those are the simple compounds of glycerin and the inorganic and organic acids, or the more characteristic glycerides or glyceryl ethers. I would hazard the suggestion that when glycerin and tannic acid are left in contact for a considerable time, or when heat is applied as in the pharmacopœial process, that a glycerotannic acid, or ether is formed. The distinguishing termination *in* applied to ethers of this kind would not, in this case, be appropriate.

I hope to resume this subject when sufficient leisure for further experiment presents itself.

Toronto, Jan. 10, 1874.

A NEW SOLVENT OF PHOSPHORUS; ITS PREPARATION AND PHARMACEUTICAL USE.*

BY A. W. GERRARD,

Dispenser and Teacher of Pharmacy to the University College Hospital.

The principal known and most generally adopted solvents of phosphorus for pharmaceutical purposes are bisulphide of carbon, chloroform, ether, alcohol, oil of almonds, oil of theobroma, and mutton suet.

The power of these bodies to dissolve this element varies from any proportion to less than half per cent.; the most powerful being bisulphide of carbon, the least, alcohol.

Most of the above solutions of phosphorus, when dispensed, are of an unsatisfactory and unstable character. Those which are fluid and miscible with water in the presence of mucilage—the manner in which it is usually prescribed—are rapidly decomposed and become inert; they are likewise nauseous and objectionable to the patient in an extreme degree. The solid forms are but little better and are exceedingly troublesome to manipulate.

Bisulphide of carbon has been recommended by Mr. Proctor, of Newcastle, as a means of dispensing phosphorus in the pill form, and it answers the purpose very well, with the exception that the pills retain a compound smell of phosphorus and bisulphide of carbon, which is repulsive in the utmost degree.

The new substance which I propose to add this evening to the list of solvents of phosphorus is resin, that body described in the Pharmacopœia as the “residue of the distillation of the turpentine.” This substance suggested itself to me amongst others as a probable solvent, and the result of my experiments upon it is that I have found it capable of dissolving four or more per cent. of phosphorus; the limit of its solubility is a question for further experiment.

I would call this substance phosphoretted resin. The method of preparing it is thus:—Take a strong wide-mouthed well-stoppered bottle and weigh it, then melt a quantity of resin sufficient to fill the bottle; let the bottle be warmed, then pour in the resin to nearly but not quite fill the bottle, reweigh, and for every ninety-six parts of resin take four of phosphorus. Now observe that the resin is in a fluid state; if so, add the phosphorus, and fix the stopper tightly. Place in a sand-bath previously warmed, and apply heat to 200° C. or 392° F.; digest at this temperature, and shake frequently until the phosphorus is dissolved.

* Read at a meeting of the British Pharmaceutical Society, and reported in the *Pharmaceutical Journal & Transactions*.

The kind of resin to be used in this preparation is the black translucent variety, known in commerce as rosin, not that pale yellowish kind usually met with in chemists' shops, unless it has previously been deprived of its water, of which it contains a varying amount, sometimes ten per cent.

In conducting the process, it is necessary to observe the following precautions:—In adding the phosphorus, if possible let it be in one piece, and take care that the resin is previously in a fluid condition, as then the phosphorus readily sinks below the surface, and is covered by the resin; otherwise, if the phosphorus were in small pieces and the resin semi-fluid, the phosphorus would rest on the half-hot resin, and speedily take fire; but by observing the above precautions, this accident may be prevented.

A bottle full of the preparation should be made at a time, as I find there is great risk of accident (having had one myself) if the vessel is only partly filled. The phosphorus is also volatilized, and deposited in the upper portion of the bottle.

Keep a thermometer in the sand-bath during the process, and maintain the temperature between 200 and 210 C. At higher temperatures the resin boils, and the heat is liable to change the phosphorus to the red amorphous state.

When the prepared resin has cooled it is difficult to remove it unless the bottle be broken; the method I have adopted is to draw it from the bottle, when partly cooled, under hot water.

It is a pharmaceutical process which, like many others, requires care and attention to ensure success, but whatever difficulties may arise, to a practical person a remedy will suggest itself.

I will here mention a curious change which takes place if this phosphoretted resin be reheated. When it reaches a certain temperature it becomes of a whitish cream colour throughout, if the temperature be raised still higher it again becomes transparent; this phenomenon does not occur in the cooling. It is probably due to the influence of molecular change.

The formula I would suggest for its exhibition is the following:
Take of—

Phosphoretted Resin, 4 per cent.....25 grains.

Powdered White Sugar.....75 “

Tincture of Tolu, a sufficient quantity.

Pulverize the resin, mix with the sugar, and form into a mass with tincture of tolu,—eight to ten drops are sufficient; then divide into twenty pills, each pill will contain one-twentieth of a grain. This forms a mass of an excellent consistence, and pills made therefrom retain their form and present an elegant appearance without the addition of any coating; they have but a faint odour of phosphorus, and that may be completely removed by the addition of oil of peppermint.

The experience gained from the administration of these pills in

the in-and out-patients' departments of the hospital to which I am attached proves that the therapeutic properties of the phosphorus are in no way injured or modified by this combination, but that it is fully equal to any that had been previously used.

In conclusion, I consider the advantages of this preparation to be that it is inoffensive to the taste of the patient, definite and reliable for the prescriber, ready and convenient to the dispenser, and I believe judging from its nature it has unlimited keeping powers.

The reading of this paper gave rise to the following discussion:

The President said they were much obliged to Mr. Gerrard for bringing this subject forward. I was very difficult to manipulate phosphorus for medicinal use. Mr. Gerrard had not only the advantage of making this preparation, but of hearing what medical men said, and they seemed to approve of it.

Mr. Gerrard added that he had asked medical men what was their experience of its therapeutical effects, and they had told him that it was equal to anything that had been previously dispensed.

Mr. Greenish mentioned that Mr. Gerrard had put into his hands some of the phosphoretted resin a day or two before, upon which he had made several experiments, with the object of obtaining from it a preparation in a liquid form; he found that, mixed with mucilage, it gave a deposit after a time. If the resin were dissolved in chloroform, and the proportion of spirit required to make it spirit of chloroform added, a more satisfactory result was obtained. A little orange-flower water mixed with the solution concealed the taste of the phosphorus. He should prefer some method of sending out phosphorus in mixture rather than in pills. Mr. Greenish asked Mr. Gerrard whether his attention had been directed to a phosphorus pill which had been brought out, and which appeared to be prepared from some kind of resin.

Mr. Gerrard said that he had experimented on samples of the pills to which he supposed Mr. Greenish referred. He had placed one of them, as well as a pill prepared according to his own formula, to digest in a ten per cent. solution of hydrochloric acid. The latter, as might be expected from the quantity of sugar it contained, commenced to dissolve immediately, but the former was quite unacted upon at the end of twenty-four hours.

Mr. Martindale thought Mr. Gerrard's form of making the preparation would be very useful. There were two or three preparations of phosphorus before the public at the present time worthy of note, especially those phosphorus pearls which contained about one-thirtieth grain of phosphorus, and were coated with gelatine. These seemed to be most agreeable to the patient, because they had no smell of phosphorus at all, and they were, as a rule, very efficacious. It has been stated by a writer in the *Practitioner* that one grain of phosphorus was soluble in three fluid drachms of alcohol; this was

true, so long as heat was applied, but when the alcohol became cold, it deposited nearly the whole of it—at least three-fourths were deposited. Such statements about its solubility would make the dose very different from what might be expected.

Professor Attfield asked in what state the phosphorus existed in the resin—whether Mr. Gerrard had made any experiments with the view of getting the phosphorus back—whether the phosphorus was in a state of solution, or whether chemically combined? These were points which must be therapeutically as well as chemically interesting. As some present had enquired for a fluid preparation containing phosphorus it might be worth the while of those who were interested in these researches to try those bodies which were produced when phosphoric anhydride was made to act on the aldehydes found in many essential oils. A sort of resin and phosphoretted oil was said to be obtained in that way which would no doubt be soluble in alcohol, and which might be made into emulsion.

Mr. Gerrard thought that phosphorus was objectionable in the form of a mixture which would not keep after being made a day or two. Under the changes of composition a patient might on the third day take a dose not more than one-tenth part of that of the first day. If a little of the resin were taken and rubbed between the fingers it would be found that the phosphorus was evolved. He was inclined to think that if treated with alcohol, the alcohol would remove the resin, and the phosphorus would separate.

Mr. Bland said, he had had an opportunity of examining one of the pills made by Mr. Gerrard, although he did not know exactly how long it had been made; but having burnt it, it was quite evident that the phosphorus existed in the pills in an uncombined state. He should judge, however, that it was rather a mechanical mixture than a chemical solution.

Mr. Williams said that what medical men wanted and were seeking for was phosphorus in the active state, or lower condition of oxidation. He had made large quantities of hypophosphites, and had lately turned his attention to phosphites. He had been gratified in discovering solid phosphorus acid, and had now got it in crystals, and a beautiful body it was. It was probably the terhydride of phosphoric acid, and he believed the phosphites would prove valuable salts for the use of the medical man, because the phosphorus was contained in the half oxidized or probably more active condition.

Mr. Greenish said he forgot to mention that one tablespoonful of such a mixture as he had prepared and submitted to the meeting contained about one-twentieth of a grain, which should be a dose. He rubbed down some of the resin, and examined it under the strongest power of a microscope, and there were no indications of the presence of undissolved phosphorus.

OBSERVATIONS ON THE ACTION AND USES OF
CROTON-CHLORAL HYDRATE.*

BY OSCAR LIEBREICH, M. D.

Professor of Materia Medica in the University of Berlin.

I have the honor of directing attention to a new remedy, which serves to corroborate the theory I have propounded with respect to the action of hydrate of chloral.

When chlorine gas acts on aldehyde, croton-chloral is formed, as has been demonstrated by Dr. Kramer and Dr. Tinner. In order to avoid a mistake which is apt to be caused by the name, I must here remark that this body possesses no relation whatever to croton oil, although its chemical constitution proves it to be the chlorated aldehyde of crotonic acid. Croton-chloral differs in its outward appearance from hydrate of chloral by its being dissolved with difficulty in water, and by its crystallizing in small glittering tablets. Its action, though similar to that of hydrate of chloral, differs widely from the latter with regard to its physiological effects. Four grams, or a drachm, of this substance, dissolved in water, and introduced into the stomach, produce in the course of fifteen or twenty minutes a deep sleep, accompanied by anæsthesia of the head. Whilst the eyeball has lost its irritability, and the nervous trigeminus shows no reaction whatever on being irritated, the tone of the muscles remain unaltered.

I have experimented with this remedy on maniacs during an attack of mania. They remained quietly sitting on their chairs in a deep sleep, their pulse and respiration being unchanged for two whole hours together. If anæsthesia had reached so high a degree in consequence of the application of hydrate of chloral, the patients would have dropped from their chairs, and both their pulse and respiration would have been considerably retarded. I have seen croton-chloral acting in the same way on healthy individuals. In some cases of tic douloureux, the remarkable phenomenon is exhibited that pain ceases before sleep sets in. I am sorry to say, however, that this remedy acts only as a palliative in this dreadful disease. I nevertheless prefer its action to that of morphia, because it has effects as good as the latter remedy, without being so detrimental to the constitution in general. I have never observed any unfavorable effects of croton-chloral on the stomach or any other organ, although I have made frequent experiments with it.

The indications for the use of this remedy are to be found—1. In cases where hydrate of chloral is inapplicable on account of heart

* From the British Medical Journal, Dec. 20.

disease; 2. In cases of neuralgia in the district of the nervus trigeminus; 3. In cases where very large doses of chloral are necessary to produce sleep. I there recommend the addition of croton-chloral to hydrate of chloral.

Whilst examining the difference between the action of hydrate of chloral and that of croton-chloral, I have discovered the remarkable fact that it is not the first, but the second product of decomposition of the latter substance which is brought into action, on account of the first being too rapidly destroyed. Croton-chloral, when subjected to the influence of an alkali, first forms allyl-chloroform, a trichlorated body, which is rapidly decomposed into a bi-chlorated substance called bichlor-allylene. Now, both chloroform and trichlorated substances act, as I have shown, in their first stage upon the brain, in the second on the spinal cord, and in the third on the heart. The retardation of respiration is to be explained by the agency of these substances on the last-mentioned organ. Bichlorated substances act differently, as is proved by bichloride of ethylene. Even if the circulation of the blood in an animal have been stopped by this latter agent for one minute, life may be restored by artificial respiration, which is impossible whenever trichlorated substances have produced this effect, in which case the muscles of the heart remain paralysed. Well, in animals poisoned by croton-chloral to such a degree that both circulation and respiration are stopped entirely artificial respiration is able to restore the action of the heart immediately, and the life of the animal may thus be saved. Bichlor-allylene, inhaled by the lungs, produces the same effect on animals as croton-chloral. We thus see these bichlorated substances acting on the brain, spinal cord, and medulla oblongata, but not on the heart, which explains the fact that both respiration and circulation remains unaltered in man by a medicinal dose. It is a highly interesting fact, however, that under favorable conditions, we still are able to produce in animals the effects of the first product of decomposition of croton-chloral—*i. e.*, of the trichlorated substance, or of allyl-chloroform. In order to observe these effects it is necessary to introduce immense doses of croton-chloral into the body, when paralysis of the heart actually does ensue.

EMULSION OF COD LIVER OIL.*

BY WILLARD M. RICE, JR.

The high and important position occupied by cod liver oil in the lists of the materia medica, has induced many pharmacists and others to turn their attention to perfecting some mode by which this nauseous remedy may be rendered palatable and acceptable. Many of the formulæ so elaborated have been published in this and other pharmaceutical journals, while it is to be regretted that others have been withheld, thus placing their authors in the constantly increasing lists of nostrum venders. But none of the efforts thus far made have succeeded in *completely* masking the unpleasant fishy taste and smell of cod liver oil, although some approach very nearly to this "consummation devoutly to be wished."

After a series of experiments, at the request of, and assisted by, a medical friend, the writer of this has perfected the following formula, which he offers to his professional brethren, hoping that it may prove useful:

Oleum morrhuæ	fl. ℥viii.
Tragacanth	ʒj.
Sacchar. alb.,	ʒiv.
Ol. gaultheriæ.....	gtt. lx.
“ sassafras.....	gtt. l.
“ amygd. amar.,.....	gtt. x.
Aquæ.....	fl. ℥viii.

The tragacanth and sugar are to be dissolved in the water and the mucilage strained. In this is to be incorporated first the essential oils then the cod liver oil. This makes an elegant-looking emulsion, not too thick, containing fifty per cent of the oil, and of a rather pleasant taste and smell.

Many manufacturers combine the lacto-phosphate of lime, etc., with the cod liver oil mixture, but as physicians often consider this decidedly objectionable in a medicine intended, as this is, in most cases, for continued use for a considerably protracted length of time, the author has been induced to omit it. It can be added, however, by a slight modification of the above formula.

* American Journal of Pharmacy, Dec. 1873.

HOMŒOPATHY IN 1874.

At a recent meeting of the Clinical Society of London, England, Dr. George Johnson read a paper on "Homœopathic Poisoning by Camphor" in which several instances were given of the most serious results having been produced by the homœopathic tincture of camphor. This tincture contains the *infinitesimal* quantity of one ounce of camphor to one and a quarter ounces of spirit, and is, therefore, more than seven times stronger than the authorized allopathic preparation.

In reference to this subject the *Pharmaceutical Journal and Trans.* gives the following extract from an article which appeared in the *British Medical Journal*.

"We had occasion lately to point out that homœopathy which had begun as a delusion, is now ending as a fraud. This also appears to be the verdict of the Clinical Society of London, delivered on the occasion of an interesting paper by Dr. George Johnson. Dr. George Johnson has the art of provoking interesting debates; both the Clinical and the Medical and Chirurgical Societies owe to him some of their "best nights." The clinical lectures and the papers of this accomplished physician have always the quality of novelty and sterling thought. It is always either a new fact or a new thought which Dr. Johnson contributes. His paper on "Homœopathic Poisoning by Camphor" was one of the least elaborate of his contributions to medicine; but he rightly judged that it had considerable collateral interest, and it made the Society the scene of an interesting debate. It has long been known to practitioners in London that persons practising pseudo-homœopathy, and catching the sunshine of whatever fashionable notoriety attaches to that as to other delusive innovations, have in fact long since abandoned all scientific claim to be considered as the apostles of a theory, and have been in the habit of administering the time-honoured medicines in time-honoured doses, and on the ordinary common-sense principles embodied in the maxims, *Contraria contrariis curantur*, and *sublatâ causâ tollitur effectus*. We have all of us heard of, and most of us have seen, patients who, under "homœopathic treatment," have been leeches, poulticed, fomented, and even blistered; who have had opiates administered to relieve pain, purgatives to remove constipation, iron to remedy anæmia, strychnia and phosphorus to cure nervous paresis or neuralgia, and so on through the whole pharmacopœia and through the whole range of disease. It is less generally known, but it is still known to a great many, that homœopathic pharmacy has undergone a corresponding transition. No doubt there are staunch homœopaths to be found of the old deluded sugar-plum school; and there are amateur homœopaths, deluded unprofessional persons, to whom nothing stronger than sugar-plums can be entrusted for their zealous

and misguided ministrations. But these are the neophytes. Ministrants behind the veil practise other mysteries. Harmless sugar-plums, of absolutely neutral character, and chemically innocent of anything but starch, sugar, and dextrine, are the pellets with which the public are encouraged to play. The enlightened homœopathist of the present day takes the drugs of rational medicine and concentrates them to the furthest extent to which modern chemical skill can furnish the means, and administers them in single drops, apparently in order to maintain the appearance of practising the old delusion after the old seeming method. Great precautions are taken to prevent neophytes from cutting their fingers with these sharp weapons. Persons now asking for the "strong tinctures" and the mother tinctures of nux vomica and belladonna, are politely told that they cannot be furnished without a doctor's order. Reason enough there is for this precaution. Dr. Stewart mentioned at the Society, in the course of the discussion last Friday, that he had occasion to order "tincture of strychnia" for a lady who mentioned that she had some in the house. He suggested, accordingly, that she should take ten drops at stated hours. She mentioned, however, that it was "homœopathic tincture," and so strong that three drops was a dose. Cases in which severe twitchings have followed the domestic use of one-drop doses of a homœopathic tincture of strychnia, in which belladonna-poisoning, with mania lasting for several days, followed the use of a homœopathic tincture of belladonna, and in which dysentery followed the use of a homœopathic aperient drop (probably croton oil), are within our own knowledge. The epoch of dynamisation, of cure by the imperceptible action of inappreciable doses, has merged into a period of concentration and of return in secret to the ancient paths of medicine, trodden over under the disguise of the old war-paint, and with the old outcry.

"There is no question that the homœopathist is a much more dangerous person under his new than in his old disguise. Alkaloids are more dangerous weapons than sugar pellets. The most strenuous efforts will not very long suffice to keep the amateur homœopathist in the dark, and induce him or her to rely for mild domestic ailments on starch and dextrine in globules, put up in variously labelled bottles. The course of nature will do much for anxious relatives. The study of the natural history of disease, and of the tendency of disease towards spontaneous cure, has been largely aided by the earlier homœopathic efforts; and for this, as for their earnest though overstrained and delusive protests against anything like polypharmacy, we owe them thanks. But this is a vein which may be worked too freely. It cannot, as they and their patients have found to their cost, be followed with invariable success. Mothers will sigh for the mother tincture; for the tincture of aconite, of which a drop every hour allayed fever; for the nux vomica, the belladonna, and the jalapine; and, confounding the plaything with the poison, accidents will happen

and the fraud will appear. Mr. Brudenell Carter told, at the Society, an amusing story of the customary practice of a wholesale homœopathic purveyor of globules and his ways, which were dark. The story not long since appeared in print, without authority, and we are glad to have his authority for a statement which is of great value when so authenticated. We are favoured by Dr. Alfred Swaine Taylor with a further communication to the like effect, and of an extremely decisive and weighty character. He has many times examined homœopathic globules, and, in general, has found them to be composed of sugar and starch only—the sugar, sometimes cane or sucrose, and sometimes sugar of milk or lactose,

“In Dr. Smethurst’s case, Drs. Taylor and Odling examined sixty-four small tubes of homœopathic globules, averaging fifty-two globules to a grain, and including, as would appear from the attached labels, every variety of mineral and organic poisons and medicines—arsenic, antimony, charcoal, sulphur, arnica, strychnia, morphia, etc. They satisfied themselves of the absence of any trace in the globules of the substances mentioned; for all the most delicate tests gave negative results. They then mixed up some thousands of the globules with distilled water, and drank off the mixture between them. No effects followed. They used hundreds of the globules in testing, and could easily have found in them the 14000th part of a grain of arsenic or mercury. As their tests gave no indication, it was quite obvious that if labels dropped off, or bottles were jumbled together, or the manufacturer put, by mistake, the arsenic label on the strychnine bottle, or *vice versa*, no one could find out the mistake. In those days, no homœopathist, unless he himself prepared the globules or powders could be sure of what really he was giving to a patient; and we have yet to learn that there is greater security for the community at the present time. Perhaps the public analysts will look to the matter. There is here an obvious source of public danger which needs to be guarded against. Homœopathists have, in the words of Dr. George Johnson, “passed from the irrational and ludicrous extreme of infinitesimal dilutions to the dangerous extreme of the greatest possible concentration of active and poisonous drugs.” Hampered by their partiality for infinitesimal doses, they usually prescribe none but powerful medicines. As Dr. Stewart expressed it, “being identified in the mind of the public with their own absurdity of infinitesimal doses, and being unwilling publicly to renounce it, they have recourse to concentrated tinctures, in order to produce an appreciable effect by very minute doses.” Evidence was adduced before the Clinical Society, of this concentration of strength in modern homœopathic tinctures, solutions, powders, and globules—but especially in the tinctures. The public are kept ignorant of this change, and are using the potent poisons as though they were the original trillionths, which might be either charcoal or arsenic, and might be taken with equal impunity, in doses varying from a globule

to a malt-shovelful. Already serious results, even death itself, have arisen from this ignorance of the changed conditions of the case. It were a charity to warn the deluded disciples of this fraud of the dangers they run. Homœopathic medicines, made according to the old plan, can be of no use; when manufactured after the modern fashion, they are the most dangerous (because the most concentrated) medicines which can be handled. The one is a fool's bauble; and the other is a double-edged sword.

It will, of course, be urged by the advocates of homœopathy, that these charges were advanced at the Clinical Society by practitioners interested in the overthrow of the system. We reply, that they were made by men who have the discovery of truth for their object, and who would practise any mode of cure could they ascertain that its principles are based upon sterling facts, capable of standing the test of experiment. They fulfil their duty now in denouncing the fraud, as they fulfilled their duty before, in contemning the delusion which is known as homœopathy.

PRESERVING GRASSES, FERNS, AND FLOWERS.*

The following details in the art of preserving flowers, etc., are given by a lady correspondent of the *Villa Gardener*:—Grasses should be gathered early in July, if we desire them to retain their bright hues without the aid of art. Gathered then, tied up in large bunches, and hung away in a dark closet, they come forth at our bidding, fresh and green as when plucked. Now, by brook-side or in shady places, we can find graceful grasses, which will prove additions to our winter bouquets, but they will lose their colouring, and require a dip into "Judson's Green Dye." Dye them again, and they will last for years. Wild oats, feather-grass, and all their various species are very ornamental in winter, and, mingled with the everlasting flowers—*Acrolinium*, *Xeranthemum*, and the white, yellow, and crimson *Helichrysums*—they vie with their more perishable sisters, whose glories are on the wane. We have just arranged two small vases for the coming winter. The brilliant pink and white *Acroliniums* add much to their beauty. The white *Helichrysums* can be dyed a brilliant purple or scarlet with "Judson's Dyes," and exquisite bouquets can easily be manufactured. These "everlasting" flowers should be gathered as soon as the outer leaves open. Tie them up in bundles as you pick them, and hang up, flowers downwards, to dry. Treated in this way, the stems are straight and more easily used. They can be hung to dry in one's chamber, not requiring a darkened place. Most of these flowers are allowed to remain

*Chemist and Druggist.

too long upon the bushes, and their beauty is spoiled. As they become dusty under the frequent sweepings of carpets, we dip them in cold water; their petals close entirely. We dip the grasses also, to cleanse them, else they will acquire a dingy hue.

Many persons like crystallized grasses. These are easily made by dissolving one pound of alum in one quart of boiling water, suspending the grasses just over the steam—not to touch the water—and as it cools, the crystals gather. Grasses need not be dyed before they are crystallized. A few of them mingled with the green grasses and brilliant-hued flowers light up well.

Ferns are much sought after for floral decorations. Their feathery plumes, pinnated leaves, and graceful forms are very beautiful. They differ from the grasses, for those gathered late in autumn retain their colours better than the fresh ferns of June. The sap has hardened in their leaves. We have gathered them late in November when they were surrounded by snow, and they have kept green all winter. The running fern is a lovely decoration for walls and pictures. Its flowers add much to its grace and beauty, but it fades quickly, and by Christmas but a faint green remains. Dip them in "Judson Dye" (following the directions given on the bottle for dyeing ribbons) and you will keep their lovely colour. After they have been thoroughly pressed in heavy books, then dye them, spread on paper to dry in the shade, and press again. Thus treated, they will last for years. Maidenhair, the most graceful of our ferns, soon loses its colour; but dyed, it is an addition to every collection of grasses or ferns.

Parsley fern is very beautiful; its soft, feathery leaves are always sought after. These, if gathered late in the autumn, will retain their colour much better. The male fern, with its stiff stems, if well pressed, looks beautiful. We mingle it with the many coloured leaves of autumn, or we pin it to the wall-paper, around pictures, or over lace or muslin curtains, and its effects are charming.

Bunches of dyed mosses are to be purchased of all seedsmen in the cities; we dwellers in villages cannot avail ourselves of them if we could; but we can make them even prettier than those exposed for sale. Gather the mosses; pick out all the *débris*, cleanse from dirt, and dry in the sun, then dip into Judson's dye, and spread on paper to dry by fire or sun.

PHOSPHATE OF IRON AND ITS COMBINATIONS.*

BY CHARLES GEISSE POLK, M. D., OF PHILADELPHIA.

Iron has long deservedly held a very high place in the list of tonics. At least one hundred different combinations have been proposed, and more than one-third of that number are now incorporated into the different pharmacopœias. These are divided into two chemical classes, the proto-salts and the sesqui-salts, designated ferrous and ferric salts, the former being universally esteemed as the more powerful remedial agents, the latter as the more easily managed pharmaceutical products. Of the former the proto-carbonate, the iron reduced by hydrogen, the proto-sulphate, the proto-citrate, and the proto-phosphate are especially esteemed. Of the latter, the chloric tincture, the amomnio-citrate, the pyrophosphate, and alkaline tartrates receive high consideration. Notwithstanding the numerous objections very justly urged against the tincture of the ferric chloride, it is, and probably ever will be, the most valued, and most extensively used of the preparations of iron. The preparation I especially desire to consider in this paper, the phosphate of iron, although by no means a modern one, is scarcely ever used in its officinal form. Uncombined it has never gained much favor. The preparation is, however, a good one, and is capable of being combined so as to form some excellent chalybeate pills. The following formulas are very popular ones with me:—

R. Ferri phosphatis.....3 i.
 Quiniæ sulph.....3 ss.
 Ext. ignatiæ amaræ.....gtt. vj.

M.

Divide in pills No. xxx. Take one three times a day.

R. Ferri phosphatis.....scr. ij.
 Quiniæ sulph.....scr. i.
 Ex. belladonnæ alcoholic.....grs. v.
 Ex. aconiti alcoholic.....grs. iij.
 Ex. cannabis indicæ.....grs. x.

M.

Divide in pills No. xx. One pill three times a day.

R. Ferri phosphatis.....scr. ij.
 Quiniæ sulph.....scr. i.
 Acid arseniosi.....grs. i.
 Morphicæ sulph.....grs. i.

M.

Divide in pills No. xx.

But, however valuable a pilular form of iron may be, it is not

* Philadelphia Medical Reporter, in Am. Drug Circular.

that which will hold the popularity of a solution, either in the form of a syrup, tincture, or elixir. Even the iron reduced by hydrogen, which is unquestionably the best restorer of iron to the blood, is comparatively little used. The proto-carbonate still holds the preference of the gray-headed members of the fraternity, while the soluble scaled salts with ammonium-citrate are preferred by the younger members of the profession; the choice is between the citrate and pyrophosphate, with perhaps a predominating preference for the latter. The bibasic phosphate constitutes the iron ingredient in nearly all the proprietary elixirs, sold under the names of Elixir Phosphate of Iron, Quinia, and Strychnia; Elixir of Calisaya ferrated, and Elixir of Gentian; the tribasic phosphate being ill-adapted for the purpose, and a solution in an alcoholic menstruum being very unstable.

The theory, or theories, upon which the phosphates and hypophosphites have grown into the esteem of the medical world may thus be briefly stated: Phosphorus, as is well known, is an important element in the brain and nervous system, the expression, "thoughts that burn," being a physiological fact as well as a poetic figure. Dr. Churchill, an American physician practising in the capital of France, conceived the idea that phthisis pulmonalis emanated from a deficiency of phosphorus in the system. This deficiency he proposed to remedy by introducing phosphorus into the system by means of hypophosphorus acid in the salts of lime and soda. The idea was fascinating, and infatuated a very large portion of the profession. They dreamed that the hitherto relentless upas of human existence was at length mastered, that no longer was its touch withering and its impress death, but that under the life-giving power of the hypophosphites the hectic flush would depart, the cough cease, the emaciated frame resume its former proportions, and as the cause upon which these accrued was removed, health and strength would be restored, and science would, indeed, be triumphant over the foe which heretofore had baffled human skill, and annually consigned to the grave the beautiful and lovely of earth. This beautiful dream, however, proved delusive; consumption still continued its ravages, and the hypophosphites were found to be less efficient than cod-liver oil, yet capable of greatly enhancing the curative power of the latter. But if the hypophosphites did not confirm those high hopes and lofty expectations, they proved to be a powerful remedial combination, capable of giving beneficial results, in wasting diseases hitherto unattained by any known agent. They yet retain the esteem of very many intelligent physicians, although, I believe, the present estimate of them is below their intrinsic value. The formulas for their preparation having been published in Parrish's Pharmacy, and as I presume every physician and pharmacist has a copy of this indispensable book, it is unnecessary to copy them here. A preparation I have long esteemed, containing

two grains of the hypophosphite of iron, one grain of the hypophosphite of quinia, and one-forty-eighth of a grain of the hypophosphite of strychnia in each drachm, I make thus:—

R	Ferri hypophosph.....	grs. 192.
	Quiniæ (alkaloid fresh).....	grs. 96.
	Strychniæ	grs. ij.
	Acid hypophosph.....	grs. i.
	Syrupi, q. s	℥ xij.

Take the freshly precipitated hypophosphite of iron, the freshly precipitated quinia, and the strychnia, and add sufficient hypophosphorous acid to form a solution; mix it with sufficient syrup to measure twelve ounces; bottle and carefully cork. This preparation is a very valuable tonic, and seems to me to be more important than any other combination of the hypophosphites. Mixed with equal parts of the syrup of soda and lime hypophosphites, its value seems to be greatly enhanced. Sometimes combined in equal proportions with the syrup of the hypophosphite of manganese, it proves a powerful restorer of lost strength and vigor.

This formula has proved sometimes very satisfactory:—

R.	Ferri hypophosph	scr. ij.
	Manganesii hypophosph	scr. i
	Quiniæ.....	scr. i.

Divide into twenty pills. Take one pill three times a day.

During the summer of 1857 I devoted especial attention to the study of tuberculosis, and having imbibed the doctrines of Dr. Paine, of the University of New York, directed my attention to the brain and nervous system, with especial regard to their influence over the respiratory system. Analyses of twenty autopsies of the victims of phthisis gave evidence of a marked diminution of the amount of phosphorus in the brain and nervous system, with apparent atrophy of the cerebellum, medulla oblongata, and pneumogastric nerves.

I also found that the excretion of the phosphates was very large during the progress of phthisis, and that whatever arrested the progress of the disease also diminished the quantity of these in the urine. I inferred from this that the pathological lesion consisted in some aberration, not of the phosphorus assimilating, but of the phosphatic eliminating function, and intimately connected with the functions of the pneumo gastric nerve, spinal accessory, phrenic, and hypoglossal nerves. I became convinced that the seat of the disease was in the medulla oblongata; that through the pneumogastric nerve was transmitted, as by a telegraph wire, the morbid impression by which the digestive and assimilating function became impaired, and the tubercle originated in the lungs. It also appeared very probable that the great sympathetic was also deeply involved

in this trouble, and contributed a liberal share of the fatal agency. While I regarded the diminution of phosphorus in the system in tubercular consumption as a concomitant and a coincident intimately interwoven with the origin of the disease, I have never viewed it as the disease per se; *autochthonic* in itself complete, and as to the cause sufficient, irrespective of co-operating and co-ordinating powers, impressions or influences. I, nevertheless, deemed it proper to resort to the use of phosphoric acid with a twofold purpose, to secure the tonic influence on the digestive powers, and the nerve-stimulant effect it so promptly gives, hoping thus to reach important indications. Fifteen years' experience has justified my view. A very similar combination to one now highly esteemed was formed. Out of my speculating grew my sprup of the phosphate of iron, quinia, and strychnia, which, although not filling my early sanguine expectations, is yet highly valued by myself and a dozen of more physicians. I prepared it thus:—

R.	Sulphate of iron.....	grs. 800
	Phosphate of sodium	grs. 1280
	Sulphate of quinia	grs. 384
	Dilute sulphuric acid.....	q. s.
	Aqua ammonia	q. s.
	Strychnia	grs. 10½
	Syrupy phosphoric acid.....	℥ iij.
	Syrup sufficient to make.....	℥ xxxij.

Dissolve the sulphate of iron in three ounces of boiling water, and the phosphate of sodium in six ounces of boiling water. Mix them and wash the precipitated phosphate of iron until the washings cease to be effected by a solution of the chloride of barium. Dissolve the quinia sulphate and the strychnia in two ounces of water by aid of dilute sulphuric acid, and precipitate the alkaloids by slowly adding ammonia water, and carefully wash them. Rub the phosphate of iron, quinia, and strychnia with four ounces of water, add the syrupy phosphoric acid and dissolve them. Then filter the solution into sufficient syrup to make thirty-two fluid ounces. In the formula published in *The Druggists' Circular* it is directed that the syrupy phosphoric acid be mixed in ℥ xvi. of distilled water, the iron, quinia, and strychnia dissolved in the solution, and ℥ xvij + 3 ij. of sugar be added.

The formula here given produces rather a finer pharmaceutical product, and seems less impressible to atmospheric exposure. The formula given in the *The Druggists' Circular*, however, will produce *quite satisfactory results* and answer every purpose. Easton's formula, published originally in Aitken's *Practice of Medicine*, and by some erroneously called Aitken's formula, is prepared thus:—

- R** Sulphate of iron..... \mathfrak{z} v.
 Phosphate of soda..... \mathfrak{z} i.
 Quinia sulphategrs. 192
 Dilute sulphuric acid.....sufficient.
 Aqua ammoniasufficient.
 Strychnia.....grs. vi.
 White Sugar..... \mathfrak{z} xiv.
 Dilute phosphoric acid..... \mathfrak{z} xiv.

Dissolve the sulphate of iron in one ounce of boiling water, and the phosphate of soda in two ounces of boiling water. Mix them and wash the precipitated phosphate of iron until the washings are nearly tasteless. Dissolve the sulphate of quinia in two ounces of water by the aid of dilute sulphuric acid, and precipitate the quinia by aqua ammonia, and carefully wash it. Dissolve the phosphate of iron and the quinia thus obtained, as also the strychnia, in the dilute phosphoric acid; then add the sugar and dissolve the whole without heat.

This formula, the one having semi-official recognition, is somewhat defective, and precipitates the iron in a few weeks, so as to modify its therapeutical powers, and seriously impair its pharmaceutical beauty. The dilute phosphoric acid is not sufficient to dissolve the iron, quinia, strychnia, and sugar, and hold them in perfect solution; the amount of sugar is not sufficient to preserve the preparation from deterioration by age and atmospheric influences, while the preparation by the above formula of mine seems to be free from these objections.

Being desirous of forming a concentrated syrup of much greater strength than the above, so as to be more convenient for use on the tented field, I devised the following formula in 1864:—

- R.** Freshly prec. phos. of iron. grs. 600
 Quinia freshly precipitated. grs. 96
 Strychnia. grs. iij.
 Syrupy phosphoric acid. . f. \mathfrak{z} iv.
 Water. \mathfrak{z} xiv.
 Syrup (very dense), q. s. ad f. \mathfrak{z} xij.

Mix the phosphate of iron, quinia, and strychnia in the syrupy phosphoric acid previously diluted with fourteen drachms of water, and dissolve them. Add sufficient syrup to measure twelve fluid ounces, and bottle with a tight fitting stopper, so as to exclude the air entirely.

Each drachm will represent above five grains of the ferrous phosphate, one grain of the quinia, and one-thirty-second of a grain of strychnia phosphate. There are about three grains of free phosphoric acid and about ten grains in basic combination of the same. Although a good preparation for an army surgeon, it is rather too

powerful for private practice. Outside of my military practice I have never used it, although it was a great favorite of mine in the army hospitals.

In compliance with the wishes of several physicians, Mr. Theodore A. Polk, of Seaford, Delaware, prepares the syrup thus:—

℞ Freshly prec. phos. of iron.	grs. 192
Phosphate of quinia.	grs. 64
Strychnia.	grs. 2
Dilute phosphoric acid	℥ x.
Sugar.	℥ viij.
Essent. tinct. orange.	℥ iij.
Oil of cardamon.	gtt. viij.

Dissolve the phosphates of iron, quinia, and strychnia in the dilute phosphoric acid. Rub the essential tincture of orange and of cardamon with the sugar. Mix all together and dissolve without heat.

Mr. Charles Bullock, of Philadelphia, has proposed a formula which may merit at least a passing notice. The articles and quantity are precisely the same as in Easton's formula. He dissolves the iron and soda in an unnecessarily large quantity of water, and thereby gets a magma rather difficult to wash. His mode of washing on paper-filters has, in many hands, ever proved a very unsatisfactory and annoying process, universally attended with heavy loss. The filters are apt to tear, and portions of the magma will adhere to them. He also dissolves the iron in six ounces of the dilute phosphoric acid and the alkaloids in the remaining eight ounces of the phosphoric acid, and mixes the solutions, then filters, or rather he proposes to filter, through paper, after dissolving the sugar in the solution. By this means the almost unavoidable atmospheric exposure will impair the preparation. The precipitate is generally copious, and discoloration speedily evinced. Of course I speak of my own manipulations of the formula, *which, in my hands, has proved a complete failure.*

LACTO-PHOSPHATE OF IRON AND LIME.

℞ Freshly prec. phos. of iron.	℥ iij.
Syrupy phosphoric acid.	℥ vi.
Concentrated lactic acid.	℥ ij.
Freshly prec. phos. of lime	℥ iij.
Syrup of orange-flowers, q. s.	℥ xij.

Add the phosphate of iron to the syrupy phosphoric acid, previously diluted with two ounces of the orange-flower syrup. Mix the phosphate of lime with the concentrated lactic acid, previously diluted with two ounces of orange-flower syrup, and dissolve. Lastly, mix the two solutions together and add sufficient syrup to measure twelve ounces.

I believe this formula, or a similar one, is destined, at no remote day, to attain the very zenith of professional confidence. I believe it possesses rare intrinsic merit, and embodies curative powers unequalled in certain forms of debility. In convalescence from acute diseases it promises much. Phosphate of lime is well known to be an important element in the human organism, a real essential in the phenomenon of life. Experiments made of depriving animals of it, by removing it from their food, have been attended with rapid prostration and exhaustion, while the restoration to the food restored them to their former condition. The waste of the phosphate of lime is very great during fevers and inflammations, and the depleted organism demands its restoration. True, nearly every article of food contains it in a greater or less degree, yet the stomach is weak, the digestive and assimilative powers impaired. The emaciated frame demands it in a more readily assimilable form, and this very condition is very excellently filled in the syrup of the lacto-phosphate of iron and lime. If given with an elixir of cinchona, like that published in the December number of the *Medical and Surgical Reporter*, the result would be greatly enhanced.

(To be Continued.)

ON THE SOLVENT POWER OF ANHYDROUS LIQUID AMMONIA.*

Professor Charles A. Seely, of New York, states that he has made the discovery that ammonia has a solvent power upon certain metals, and that he has actually succeeded in obtaining a solution of sodium in liquid ammonia. This solution presents all the physical characteristics of a true solution. On evaporation the sodium is gradually restored to the metallic state in the same continuous manner in which the solution has been effected. The color of the solution is a very intense blue, and its opacity or high tinctorial power is urged as an argument in favor of the notion that the metal is in simple solution. Weyl had made the capital discovery that when gaseous ammonia is condensed by pressure and cold on sodium, a blue liquid is the product, but he had mistaken the nature of this product. Professor Seely has experimented on various substances, and has concluded that ammonia is not only a solvent of sodium, but that other metals can be dissolved in ammonia, and the details of his experiments in confirmation of these views will be the subject of another paper.

Chemical News.*

SOLANINE IN POTATOES AND POTATO SHOOTS.*

Solanine is an organic base or alkaloid discovered in 1820 by Desfosses in the berries of the black nightshade, (*solanum nigrum*), from which it takes its name. It is also found in small quantities in the tubers and green parts of the potato. It is very poisonous, two or three grains being sufficient to kill a rabbit in a few hours, first, however, producing paralysis of the hinder extremities. The same symptom has been observed in oxen after eating potato shoots.

O. Bach has instituted a series of experiments with sprouted potatoes to ascertain whether this poisonous alkaloid is present in the potato itself, and, if so, where. His results prove that in both boiled and raw potatoes solanine is found only in the skin and at the base of the sprout. In water, whether fresh or salt, in which potatoes has been boiled, he could find but slight traces of solanine, after evaporating down large quantities of it. Even when boiled for six hours the result was the same. The presence of solanine in the skin was easily proved. Whether, as some suppose, this alkaloid is distributed throughout the plant, and whether fresh potatoes contain it or whether it is generated during germination, this chemist does not decide.

Bach found the best reagent for testing for solanine to be a mixture of sulphuric acid and alcohol. The smallest quantity of solanine gives with this reagent a beautiful rose or cherry red. The most beautiful color is obtained by mixing equal volumes of sulphuric acid (sp. gr. 1.84) and alcohol, and adding a little solanine while the mixture is still warm. This reaction is remarkable for the permanence of the color, which does not fade for five or six hours. The presence of a large quantity of morphine does not interfere with this reaction, which is the more important because, in judicial testing for alkaloids according to Stas' method, morphine and solanine are the only alkaloids not taken up by ether from acid, or from alkaline solutions.

To obtain pure solanine, Reuberg boils fresh potato shoots in water slightly acidulated with sulphuric acid; the rapidly expressed liquid is precipitated, while still warm, by ammonia; the dried precipitate is exhausted with boiling alcohol, and the solanine, which separates almost completely on cooling, is several times crystallized from alcohol, till it dissolves in hydrochloric acid without turbidity. According to Kromayer, it is most easily obtained by precipitating the expressed juice of the potato germs with lime, without using acid, and exhausting the precipitate with alcohol.

* Journal of Applied Chemistry.

EXTRACTUM IPECACUANHÆ FLUIDUM.*

BY RICHARD V. MATTISON.

The preparation of this extract is attended with some difficulty, and seems to have been a source of annoyance to our Pharmacopœia authorities. The last selection (U. S. P., 1870) is unfortunate in furnishing a product very thick and inelegant, though no doubt fully representing all the medical properties of the root.

When this extract is prepared according to the present formula, and diluted with syrup, as the Pharmacopœia directs, the result is a turbid syrup—the abhorrence alike of patients, physicians and pharmacists.

This proving very unsatisfactory in these days of elegant pharmacy, I, in accordance with the suggestion of Prof. J. M. Maisch, instituted a series of experiments, which resulted in the selection of the following formula :

Take eighty troy-ounces of carefully selected ipecac root, grind to appropriate powder, and, after moistening thoroughly, pack firmly in a cylindrical glass percolater, allow to stand four days as directed, then using the official menstruum, allow percolation to proceed slowly until the root is exhausted. To the percolate add ten fluid-ounces of glycerin, and evaporate at a temperature not exceeding 140° Fahr. (if the temperature is allowed to rise higher, a gelatinous mass will result) until reduced to the measure of fifty-five fluid-ounces. Transfer this to a moistened filter and allow to drain. To the soft mass remaining upon the filter, consisting of the peculiar substance usually called resin (though not so, properly speaking), water is added by means of a spritz, and the whole thoroughly washed until the filtrate measures sixty fluid-ounces. This causes a reprecipitation of the resinous substance, which necessitates the refiltration of the filtrate. To this second filtrate twenty fluid-ounces of glycerin is added, and the whole well mixed.

This furnishes an extract containing in each pint two fluid-ounces less of glycerin than the official preparation, limpid, perfectly transparent, and one that can be mixed with syrup without turpidity, and in this respect will, I doubt not, meet the approval of all lovers of elegant pharmacy.

Philadelphia, Tenth month 10th, 1873.

* From the American Journal of Pharmacy.

Editorial.

COUNCIL MEETING.

The regular semi-annual meeting of the Council will be held on Wednesday, the 4th instant. It is hoped that there will be a full attendance, as, in addition to ordinary business, the question of amendments to the Pharmacy Act will come up for discussion, and, if anything is to be done during the present session of the Legislature, will have to be definitely settled.

The semi-annual examination takes place on the day preceding the meeting. The entries are more numerous than on any previous occasion—twenty-one candidates having, already, registered their names. The examination will be held, as usual, in the lecture room of the College of Technology.

MEDICAL LEGISLATION EXTRAORDINARY.

Under the existing Medical Act, the Homœopathists of Ontario are entitled to rights and privileges at least equal to those enjoyed by practitioners belonging to the regular school. In the Medical Council they have a greater proportional number of representatives, and the Board of Examiners is, in part, composed of persons chosen from their ranks. Allopath and Homœopath are alike required to pass examination in those subjects which are common to both schools, while, in special branches, such as the theory and practice of medicine, in regard to which the views of the two schools differ, the homœopath is privileged to be examined according to his own views, and by those of his own school. If the Medical Act favors one side more than the other the homœopaths have decidedly the best of it. Not only are they dealt with in a spirit of fairness, if not leniency, but, as will be at once acknowledged, they derive incalculable advantages from being legally ranked with men, who, as a class, are vastly superior in social and professional position.

It would naturally be thought that, to the homœopaths, this

state of things would be highly satisfactory. Strangely enough, the reverse has turned out to be the case. Harassed by educational restrictions, to which they were unused, and which would fain be over-leaped; brought into contact with associations which have proved the most uncongenial; and cherishing among their number the master spirit of jealousy and discontent, they have merged from a spirit of disaffection to that of open rebellion, and now seek not only to cut themselves loose from existing regulations, but to create for themselves a new law, after the design of their own hearts.

This attempt, in the shape of the draft of a Bill to be known as "The Ontario Homœopathic Act" is now before us, and during the present session of the legislature will be presented for discussion.

It will not be necessary for us to review the details of this proposed measure. We do not, indeed, intend to do more to direct attention to some of the more prominent clauses, which, were they to become law, would endanger the public safety, and tend to the utter debasement of a class, which, for purposes of good government, it is necessary to recognize as forming an integrant part of the medical profession.

It will be necessary to explain that the Bill provides for the organization of the "Homœopathic College of Physicians and Surgeons," and that the powers of this body are vested in a Council consisting of six members; that the meetings of this body are to be of a secret character, even members of the college being excluded; that the council may appoint examiners, who shall report on the fitness of candidates for membership, and that "it shall be lawful for the President, with the consent of the Council, thereupon to grant the Diploma of the College to such candidate, who shall thereby become, and thenceforward be, and be held to be, a Member of the College, and entitled to use the name and designation of "Doctor of Medicine" and any abbreviation thereof, in the Province of Ontario; the Diploma of the College shall be authenticated by the signature of the President, and the seal of the College being appended thereto."

In addition to conferring the degree of M. D., the Council also possess the licensing power, and the newly fledged doctor could snap his fingers at the existing licensing body, and, at once, enter upon the practice of his occupation. It will be seen that the Homœopathic Council would possess privileges greater than those of any University in the country, and would be hampered with very few of

the restrictions which teaching or examining bodies have to regard. The time for passing the matriculation examination is not fixed, nor is it even required that any specified time be passed in study, subsequent to assuming the degree of M. D.

The whole affair savors very strongly of a Canadian development of the Diploma Shop business, and in this opinion we do not stand alone. The *Canada Lancet* in alluding to this subject says:

"The only members of the Homœopathic body who would be benefitted by the passage of this outrageous bill would be the fortunate members of the Council who would fatten on the fees extracted from the candidates who came before them for license to practice. We have no doubt it would be a paying concern, if we may judge from the management of the old Homœopathic Board during the last year of its existence, and we have every reason to believe that the same thing would be repeated on a larger scale. The most serious feature of the whole matter is that such legislation, in whatever shape it may be put, strikes a fatal blow at the groundwork of medical education in Canada, and will once more throw us back into the chaos of the past, when eight or ten different institutions in the Province had power to grant license to practice. If the Legislature in its wisdom should see fit to grant a separate charter to the Homœopaths, they cannot refuse the same privileges to the Hydropaths, Clairvoyants, Mesmerists, &c., &c. The medical colleges of Ontario too, that have surrendered their powers to confer the license upon candidates in medicine will ask to have these rights restored. Other colleges will spring up, and the effect will be to lower the standard of medical education, destroy public confidence in our educational institutions, and prove disastrous alike to the public and to the profession."

THE ADULTERATION CRUSADE IN ENGLAND.

Following closely upon the prosecution of a London druggist for selling adulterated, or rather, factitious citrate of magnesia—the details of which case appeared in our last number—we have now another sensation in the form of an attempt to prosecute a number of pharmacists for selling adulterated spirit of nitrous ether. An inspector procured, from various druggists, a number of samples of this preparation. These were submitted to Dr. Dupre, an official analyst, who, of course, found them to contain a large proportion of spirit and a slight admixture of water. As far as we have been able to gather from the details of a very confused and mixed-up case, it

was contended that these liquids should be regarded in the light of adulterants.

The evidence in the case is very amusing, and that of the analyst particularly so. Harassed with innumerable questions by the opposing counsel, and vainly trying to render comprehensible, to the presiding magistrate, the *rationale* of the chemical changes which are involved in the manufacture of nitrous ether, he appears to have had a very perplexing time of it. A point of peculiar difficulty was that relating to the action of the nitric and sulphuric acids, and the copper, which, in the form of wire, is one of the ingredients in the pharmacopœial process. The magistrate thought that as the analyst had been unable to detect the presence of these acids in the samples of spirit of nitrous ether examined, that it was a case of deficiency rather than adulteration. This point having been explained, a fresh inquiry was set up by the opposing counsel, who pertinaciously pressed for the copper wire.

Mr. Charles Umney, F.C.S. director of the laboratory of Messrs. Herrings & Co., where the sample of spirits of nitre, then under question, was obtained, stated the method of manufacture to be different to that given in the Pharmacopœia of 1867. They had tried that process, their customers were not satisfied with the product, and, consequently, they had to fall back on the method which, for a great number of years, they had successfully followed. This consisted in drawing over, from a mixture of six gallons of alcohol and four pounds of nitric acid, a distillate weighing fifty pounds. This preparation had for centuries been known as sweet spirits of nitre.

After very lengthy evidence, the case was dismissed, costs being allowed to each of the four defendants. The grounds of this decision were that spirits of nitre was not a drug as coming within the meaning of the Adulteration Act; and that the different method of manufacture did not constitute an adulteration. Another consideration of weight was that the samples obtained were procured as "sweet spirit of nitre," while the parties were prosecuted as having sold "spirit of nitrous ether." This, of course, involved a legal difficulty, and one also based on justice, for it may well be contended that the article produced by the distillation of spirit and acid, is much better entitled to the popular and well-known designation, "sweet spirits of nitre," than the more recent and unsatisfactory product of the Pharmacopœia.

The decision that sweet spirit of nitre is one thing and spirit of nitrous ether another, is, however, applicable to circumstances other than those involved in the case alluded to. If these articles are dissimilar they cannot be mutually interchanged, when one or the other may be ordered by prescription. If Sp. *Ætheris Nitrosi* B. P. is ordered, it is the duty of the dispenser to use that prepared by the officinal process; or as stated in the preface to the *Pharmacopœia*, by other satisfactory process "by which a product may be obtained that will accord with the description and tests given for identification." The test of strength for the spirit of nitrous ether is that, under certain treatment, it must yield two per cent of ether. This is the point which we must bear in mind, and though it may be perfectly legitimate to sell, as sweet spirit of nitre, a preparation containing 0.83 per cent of nitrous ether—as that in the case referred to was proved to contain—it is not legitimate for us to use such a spirit when that of the *Pharmacopœia* is indicated.

PHARMACEUTICAL EXAMINATION AT MONTREAL.

The Council of the Pharmaceutical Association of the Province of Quebec, in response to several applications, have decided upon holding their examination on the 21st and 22nd of the present month.

Editorial Summary.

Action of the Cinchona Alkaloids and other Substances upon Bacteria and Colorless Blood Corpuscles.—In the *Pharmaceutical Journal & Transactions* is an extract of a paper by Dr. E. B. Baxter, which originally appeared in the *Practitioner*, and which contains the results of an extended series of experiments on the subject above indicated. Omitting all details, the conclusions arrived at, as given by the author, are as follows:

1. Quinine is doubtless excelled by other antiseptics, but there is no substance equal to it in antiseptic power which can be introduced into the blood in the same proportions without risk of fatal

effects, if we except the other cinchona alkaloids and the sulphate of beberia. 2. Quinine, in such fractional doses as are capable of being introduced into the circulation, exerts an inhibitory, not a toxic, action upon microzymes. It may check septic changes; it cannot destroy the organisms to which such changes are due. 3. The four cinchona alkaloids are very nearly equal in antiseptic power. 5. Among reputed antiperiodics, the sulphate of beberia seems to equal quinine in antiseptic power. 6. Among reputed antiseptics, sodic sulphocarbolate and strychnine have a decided value, though they stand some way below quinine. 7. Sodic sulphite has a feeble, though decided, antiseptic power; sodic hyposulphite little or none. 8. Berberin and æsculin are hardly, if at all, antiseptic. 9. Potassic picrate is a strong antiseptic, almost, if not quite, equal to quinine. It is doubtful, however, whether it can be administered in sufficient doses without danger to life. 10. The action of inhibitory drugs on the vitality of microzymes affords no clue to their action on *Penicillium*. Substances like mercuric chloride, which are immediately fatal to the former, arrest the growth of the latter when employed in the same minute proportions. The action of quinine on the colorless corpuscles of the blood has been studied, but the author thought it desirable to test the various cinchona alkaloids and compare their action with that of other substances. Comparative experiments were therefore made upon the blood corpuscles of the newt, the drugs employed being the hydrochlorates of the four cinchona alkaloids, potassic picrate, æsculin, sulphate of beberia, and nitrate of strychnia. The four cinchona alkaloids, in the proportion of 1 in 1500, were found to speedily arrest the migratory movement of the colorless corpuscles, quinine appearing to stand first in order of power. Sulphate of beberia, which approached them so closely in antiseptic power, rivalled them also as an antiphlogistic. Strychnine had some influence upon the corpuscles, but very much less than the cinchona alkaloids or beberia. Potassic picrate, almost equalling the cinchona alkaloids as an antiseptic, exerted a comparatively feeble influence over the movements of the colorless corpuscles, indicating that the antiseptic and antiphlogistic properties of a drug are not necessarily connected with each other. Æsculin exerted no very marked influence upon their activity.

Cosmolin.—This petroleum product, which has lately been put into the market by the oil refiners, has been made the subject of some experiments by Dr. A. W. Miller, who detailed the results at a late meeting of the American Pharmaceutical Association. (*Am. Jour. Pharm.*) From the most reliable information which the author was able to obtain it appears that the cosmoline is made by distilling crude petroleum so as to remove, successively, the gasolin,

benzin, burning oils, and the lighter machine oils. The residuum is then subjected to greater heat, and its vapor is brought into contact with a jet of superheated steam, by which the last traces of light hydrocarbons are removed. A further treatment with animal charcoal renders the product less odorous. From the manner of preparation the author concludes that cosmolin is simply impure paraffin, or a mixture of paraffin and the heavy oils nearest allied to it. As cosmolin appears to possess some merits, and is certainly gaining favor with the physicians, and as the manufacturers ask an exorbitant price for it, the author proposes to form a similar substance by mixing paraffin with the so-called neutral oil. The latter product is of a density of 32° or 33° , and boils at about 500° C. Before mixing with the paraffin it may be deodorized by percolation through hot animal charcoal. One part of paraffin to three of oil give a product strongly resembling cosmolin. The author does not recommend this formula as the best that can be devised, but merely makes the suggestion for the purpose of directing enquiry to the subject.

Variable Strength of Commercial Hydrocyanic Acid.—Mr. A. Towerzey, (*Pharm. Journ. & Trans.*, Dec. 27th,) gives the result of an examination of nine samples of commercial hydrocyanic acid, which were all supposed to be of B. P. strength. None of them, however, came up to this standard, but ranged from 1.92 to 0.26 per cent. Three samples Scheele's acid were also examined. They gave respectively 3.62, 4.02 and 1.30 of real acid, instead of 5 per cent., the recognized standard for this preparation. In view of this uncertainty and instability of the medicinal acid, the author suggests the use of some other cyanide than that of hydrogen. The double cyanide of zinc and potassium is named. This is a definite crystalline body, not containing water, and so stable as to bear fusion without being decomposed. The hydrocyanic acid it contains is, however, easily evolved by weak acids, such, for instance, as may be presumed to exist in the stomach. The double salt may be easily prepared by dissolving cyanide of zinc in a solution of cyanide of potassium—one equivalent of the former to two of the latter. Octahedral crystals are obtained on evaporation, a solution equal in hydrocyanic strength to the B. P. acid, is formed by dissolving 2 parts of the salt in 42.82 parts of water.

Druggist's Assistants in Berlin.—The German correspondent of the *Chemist and Druggist*, writing from Berlin, says that in that city the assistants universally live in the house of the principal, and until within the last few years it was usual for them to take

meals also at his table. Of late years, however, it has become frequent for a certain amount to be allowed for dinner and supper, which are taken at a restaurant. One hour has been generally allowed for dinner. Each assistant gets three evenings a week after six o'clock, and business closes at ten. One sleeps close by the shop; but the assistants are not quite contented with these arrangements, and have been agitating for one hour and a-half for dinner, an hour earlier for closing, and extra pay for night work. They want the charge for prescriptions at night to be doubled, they themselves to receive the half of the extra payment. At present there is not much prospect of the realization of their demands.

Show Carboy of Three Colors.—A correspondent of the *Druggist* says that he has exhibited, for over a year, a show carboy which has been much admired. It contains three strata of liquid; the lowest, water; the second, oil that will not congeal in winter; the upper strata, water. These are each tintured with a different color. The colors used are not stated, but it will be necessary to avoid those which are chemically incompatible.

Books and Pamphlets.

PHARMACOPŒIA GERMANICA; The German Pharmacopœia. Translated by C. L. LOCKMAN; With an Appendix explanatory of the French Metrical System, and Tables of Weights, Measures, etc. Philadelphia; David D. Elder & Co., Philadelphia, 1873, 12mo., pp. 394.

The original of the work before us was published in 1872, under the authority of the Federal Council of the German Empire. Previous to that time several pharmacopœias were in use, amongst others, the *Pharmacopœia Germaniæ*—which was compiled by the Pharmaceutical Societies of North and South Germany, and was the initiatory step towards the formation of the present work—the Prussian Pharmacopœia, and those of the States of South Germany. To remedy the inconveniences attendant on such a multiplicity of authorities, a committee assembled, in 1869, for the purpose of collecting, revising, selecting and reconciling the various formulas contained in the works referred to. This enterprise was interrupted by the operations of the war, but, after the establishment of the German

Empire, was again taken up, and ultimately resulted in the production of the present work.

In general style, arrangement, and extent of detail, the *Pharmacopœia Germanica* closely resembles that of Great Britain, but the former work is in the Latin language. Of course it embraces many preparations to which we are unused, and not likely to become very familiar, but there are also numerous compounds of considerable pharmaceutical interest, with which we might, with advantage, become acquainted. A noted improvement is the abandonment of measures of capacity in the estimation of liquids; all quantities are expressed by weight, according to the metrical system; and, in the translation under revision, are rendered by parts.

Various useful tables are given at the close of the volume, amongst others, one designating the maximum doses, for adults, which the physician must not exceed in his prescription, when the medicine is intended for external use, except he adds the exclamation point (!). A second table contains the names of medicines which are usually called poisons, and which are required to be preserved very carefully, in closed apartments. This is followed by a table of medicines, which must be preserved cautiously, and separate from all others. The specific gravities of the officinal liquid preparations are given in tabular form; and there is also a table of alcoholometrical equivalents.

As far as we have been able to judge, the translation before us is, in all respects, a very creditable one, and likely to be very useful. To those located in settlements where the German element prevails this book will be a necessary counter companion, and pharmacists generally will derive much interest and instruction from its perusal.

In addition to the matter of the original work, the translator has added several useful tables relating to the intermutation of degrees of temperature, and denominations of weights of various systems; and, in the English translation of officinal names, especially of those of chemicals, has brought the nomenclature as nearly as possible to that adopted in the United States Pharmacopœia of 1870.

The typographical execution of this work is very good; its general style is almost identical with that of the edition of the U. S. Pharmacopœia of 1870. The price is \$2.25, American currency.

Transactions of Pharmaceutical Colleges and Societies.

MONTREAL COLLEGE OF PHARMACY.

The regular monthly meeting of the college was held on Thursday January 8th, the President, Mr. H. R. Gray, in the chair. The Secretary, Mr. James Mattinson, read the minutes of the previous meeting, and announced a donation, from Mr. H. F. Jackson, of a nicely mounted botanical map of the world; and two fine specimens of tea plants from Mr. Chas. E. Smallwood. The usual business having been disposed of, Mr. Hoffman, chemist to the Geological Survey, was called upon for his lecture on the "Cactus Family." The lecturer commenced by giving a general description of the cactus family, in the course of which allusion was made to the extraordinary beauty of the flowers of some of its members; the delicious flavor of the fruits of others, and the immense number of spines with which some of these plants are covered. Passing on, certain genera were selected as illustrative of the most characteristic forms of these plants; a general description of these genera having been given, one or more of the members of each was spoken of in detail. Alluding to the enormous growth attained by some of the order of the *Cerei*, the *Cereus giganteus* was said to attain a height of from fifty to sixty feet; of the *Echinocacti*, the *Echinocati Visnaga* had been known to measure nine feet in height by three in diameter. Of the *Pilocereus senilis* it was stated that in old plants not less than 60 to 80 per cent. of oxalate of lime had been found in individual stems—the lecturer here spoke at length upon the occurrence of oxalic acid in the vegetable kingdom. Some species of *Opuntia* and *Nopalea* were next brought under notice. An account was given of those insects which furnish a dye stuff, in which the cochineal was especially dwelt upon, a detailed account of its propagation being given. The lecture concluded with a description of some species of the genus *Pereskia*, a genus unlike the rest of the order in that its species possess leaves. At the conclusion of the lecture a vote of thanks was proposed by Mr. Lyman, and seconded by Mr. Jackson. Mr. S. L. Lyman's remarks on the Night Blooming *Cereus*, a member of the Cactus family, was listened to with great interest. An interesting lecture is promised for next month.

Varieties.

GUARANA IN SICK-HEADACHE AND THE EXCITEMENT OF EPILEPSY.—Dr. W. Macdowal, of Edinburgh, contributes an article to *The Practitioner* of Sept. on the effects of this drug. He had uniform success in relieving sick-headache in a number of cases, the dose being a half to one drachm, and in some cases of excitement due to epilepsy a drachm of drug would produce pallor of the face and quietude for one or two hours, but the effect was transitory and by no means equal to that of ergot. In experiments upon himself and other healthy persons, Dr. Macdowal observed that guarana will completely prevent the fulness of the head, lassitude and sleepiness following a full meal.—*New Remedies.*

THE INK OF THE ANCIENTS.—In a letter from Mr. Joseph Ellis of Brighton, addressed to the *Society of Arts Journal*, he states that in making a solution of shellac with borax in water, and adding a suitable proportion of pure lamp-black, an ink is produced which is indestructible by time or chemical agents, and which on drying will produce a polished surface, as with the ink found on Egyptian papyri. He made ink in the way described, and proved, if not its identity with that of ancient Egypt, yet the correctness of the formula, which was given him by the late Mr. Hackett.—*New Remedies.*

SOLUBILITY OF ARSENIOUS ACID IN WATER.—Buchner reports (*Neues Rep. f. Pharm.*, xxii., 265) that amorphous arsenious acid is more soluble than crystalline. The experiments were made by shaking with cold water, and allowing to stand for twenty-four hours, when it was found that the solubility of the amorphous variety was 1 in 108, and of the crystalline 1 in 355. Treated with boiling water and allowed to stand for twenty-four hours at 15° C., their respective solubilities were,—Amorphous acid, 1 in 30 parts of water; crystalline acid, 1 in 46 parts.—*Phar. Jour. & Trans.*

THE SULPHURIC ACID MANUFACTURE.—During the late meeting of the French Association for the advancement of Science, at Lyons, M. Aime Girard gave an interesting lecture on the modern process of chemical industry. He first discoursed on sulphuric acid, and traced the growth and importance of this manufacture. Forty years' ago, twenty million kilogrammes of sulphur sufficed to provide for all the sulphuric acid manufactured. Now, if sulphur were employed, two hundred and fifty millions of kilogrammes would be necessary. But sulphur has been discarded in favor of iron pyrites as the base of the manufacture. These were first experimented on for the purpose by D'Artigues, in 1793, at the time when France was cut off from all the rest of Europe. But he failed, and a similar result awaited some English experimenters about the year 1818. Ultimately at Lyons itself the desired end was accomplished by the sulphuric acid manufactory there in 1830. At this time M. Girard reckons the annual production of concentrated sulphuric acid throughout Europe does not fall short of 800 millions of kilogrammes. He stated that this quantity would fill a canal 2 metres deep, 10 metres broad, and nearly 30 kilometres long.

PRESENCE OF SUGAR AND TARTARIC ACID IN VINE LEAVES.—In a note presented to the French Academy in 1869, M. Petit stated that vine-leaves contained 20 to 30 grams per kilogram of glucose, and a quantity of acid varying from 13 to 16 grams. In further investigating the subject M. Petit has found (*Rép. de Pharmacie*, new series, i., 632) that about one-third of this acid is tartaric acid, which exists in the state of cream of tartar. He has also found that much sugar is present as cane sugar, and in taking special precautions to prevent the conversion of the cane sugar into glucose, he obtained from a kilogram of vine leaves—cane sugar, 15.80 grams; glucose, 17.49 grams. The leaves of the cherry and the peach also contain a mixture of cane sugar and glucose, and from a kilogram of peach leaves he obtained—cane sugar, 33 grams; glucose, 12 grams.—*Phar. Jour. & Trans.*

CHEMICAL GASES AND HEALTH.—Dr. Angus Smith has been studying the gaseous effluvia of chemical works in relation to public health. There have been many opinions as to the distances which gases will travel. He thinks we may be sure that sulphuric acid does not remain any perceptible time as a gas when it comes into the open air. Muriatic acid will go several miles; and sulphurous acid, he believes, goes further, but is diluted more rapidly, and therefore, is less perceived. Chlorine will go four miles and be quite distinct to the smell, if the ground be smooth; but if it be roughened by trees or vegetation, the trees obstruct the motion of the air and gases, and the absorbable portion is removed, but not without damage to vegetation. Dr. Smith reports that chemical works generally are greatly on the increase, and the power to repress escapes of gas does not increase with them. He thinks that when new manufactories are proposed the air might be examined, and if the atmosphere be injured to a certain extent, no more of the same manufactories should be allowed at the same place.—*Phila. Med. & Surg. Reporter.*

ANALYSIS OF JUNIPER BERRIES.—E. Donath gives the following (*Ding. Polyt. Journ.*, ccviii., 300) as the result of an investigation of the constituents of the berries of *Juniperus communis* :—

Water.....	29.44
Essential Oil (obtained by distilling the berries with steam)	0.91
Formic Acid	1.86
Acetic Acid	0.94
Malic Acid (combined with a base)	0.21
Fat resembling wax	0.64
Green Resin	8.46
Hard Brown Resin.....	1.29
Juniperin (found not to contain nitrogen).....	0.37
Pectin (extracted from dried berries by water, and precipitated with alcohol).....	0.73
Protein Substances.....	4.45
Sugar	29.65
Cellulose	15.83
Mineral Constituents	2.33

The wax was extracted with ether, and purified by successive treatments with water and boiling alcohol. From this alcohol, after the wax had deposited, was obtained, upon evaporation, the "green" resin, which had acid properties and resembled fir resin. The "brown" resin was obtained from the berries after being treated with ether by means of alcohol and was soluble in alkalis.—*Ibid.*

Practical Formulæ

Quinine Pill Mass.—M. Berquier of Provins publishes (*Rèpertoire de Pharmacie*, N.S., i. 630) the following formula for a quinine pill mass :—

Sulphate of Quinine.	30 grams.
Pulverized Gum	5 "
Pure Glycerine	10 "

Suspend the gum in the glycerine, then incorporate the sulphate of quinine, rubbing the ingredients well together in a mortar. A white mass of good pilular consistence is thus produced, which may be divided and rolled as wanted. The mass should weigh exactly 45 grams, or one-and-a-half times the weight of the sulphate of quinine employed, so that it is easy to calculate any desired quantity. Thebaic extract, or any other substance, may be readily introduced. Pills prepared thus are small, and do not harden so as to become more or less insoluble in the stomach. The mass may be kept indefinitely, and if at length it should lose a little of its malleability, a few strokes of the pestle will soften it without any addition.—*Phar. Jour. & Trans.*

Bottle Wax.—Take 400 grams plaster of Paris, 600 grams white English cement, 300 grams chalk, 200 grams dextrine, 5 litres alcohol varnish, and a sufficient quantity of ochre or other coloring material to produce the color desired. The necks of the bottles are dipped into this mixture and allowed to dry.

New process for Tar Water.—L. Pommier prepares a concentrated tar water by macerating in a covered vessel for eight days a mixture consisting of ten parts each of Norwegian tar and ammonia water, and of one hundred parts of water; the mixture is then boiled to expel the excess of ammonia, then cooled and filtered. Thus prepared, it has a mild alkaline reaction to litmus, and may be diluted as required.—*L' Union Pharm, in Am. Jour. Pharm.*

Registrar's Notices.

NEW REGISTRATIONS.—John Barbour, St. Marys; T. C. B. Fraser, Napanee; P. Moulton, Port Hope.

WHOLESALE PRICES CURRENT.—FEBRUARY, 1874.

	§ c.	§ c.	DRUGS, MEDICINES, &c.—Contd.	§ c.	§ c.
DRUGS, MEDICINES, &c.			Sang Dracon.....	0 60	0 70
Acid, Acetic, fort.....	0 14	@ 0 15	Scammony, powdered.....	6 00	6 50
Benzoic, pure.....	0 23	0 30	“ Virg. “.....	14 50	—
Citric.....	1 40	1 50	Shellac, Orange.....	0 65	0 70
Muriatic.....	0 05	0 06	Gum, Shellac, liver.....	0 60	0 65
Nitric.....	0 11½	0 15	Storax.....	0 40	0 45
Oxalic.....	0 22	0 26	Tragacanth, flake.....	1 10	1 40
Sulphuric.....	0 03½	0 07	“ common.....	0 53	0 65
Tartaric, pulv.....	0 50	0 50	Galls.....	0 28	0 32
Ammon, carb. casks.....	0 23	0 24	Gelatine, Cox's 6d.....	1 15	1 20
“ jars.....	0 23	0 24	Glycerine, common.....	0 25	0 30
Liquor, 88o.....	0 25	0 28	Vienna.....	0 25	0 30
Muriate.....	0 14	0 15	Prices.....	0 60	0 75
Nitrate.....	0 45	0 60	Honey, Canada, best.....	0 15	0 17
Æther, Acetic.....	0 45	0 50	Lower Canada.....	0 14	0 16
Nitrous.....	0 35	0 37	Iron, Carb. Precip.....	0 20	0 25
Sulphuric.....	0 50	0 50	“ Sacchar.....	0 40	0 55
Antim. Crude, pulv.....	0 15	0 17	Citrate Ammon.....	1 65	1 70
Tart.....	0 55	0 65	“ & Quinine, oz.....	0 55	0 58
Alcohol, 95 per ct..... Cash	1 60	1 72	“ & Strychine.....	0 20	0 25
Arrowroot, Jamaica.....	0 18	0 22	Sulphate, pure.....	0 08	0 10
Bermuda.....	0 50	0 65	Iodine, good.....	6 75	7 00
Alum.....	0 02½	0 03½	Resublimed.....	7 50	8 00
Balsam, Canada.....	0 50	0 50	Jalapin.....	1 25	1 50
Copaiba.....	0 95	1 00	Kreosote.....	2 40	2 50
Peru.....	3 75	4 00	Leaves, Buchu.....	0 22	0 30
Tolu.....	0 90	1 00	Foxglove.....	0 25	0 30
Bark, Bayberry, pulv.....	0 20	0 22	Henbane.....	0 35	0 40
Canella.....	0 17	0 20	Senna, Alex.....	0 27	0 60
Peruvian, yel. pulv.....	0 42	0 50	“ E. I.....	0 14	0 20
“ red.....	2 10	2 20	“ Tinneville.....	0 20	0 30
Slippery Elm, g. b.....	0 15	0 20	Uva Ursi.....	0 15	0 17
flour, packets.....	0 28	0 32	Lime, Carbolate..... brl	5 50	—
Sassafras.....	0 15	0 20	Chloride.....	0 06	0 07
Berries, Cubebs, ground.....	0 20	0 25	Sulphate.....	0 08	0 12
Juniper.....	0 06	0 10	Lead, Acetate.....	0 15	0 16½
Beans, Tonquin.....	0 62	1 10	Leptandrin..... oz.	0 60	—
Vanilla.....	30 00	30 00	Liq. Bismuth.....	0 50	0 75
Bismuth, Alb.....	3 40	4 00	Lye, Concentrated.....	7 75	2 00
Carb.....	3 65	4 00	Liquorice, Solazzi.....	0 50	0 55
Camphor, Crude.....	0 38	0 40	Cassano.....	0 23	0 40
Refined.....	0 45	0 50	Other brands.....	0 14	0 25
Cantharides.....	2 80	3 00	Liquorice, Refined.....	0 35	0 45
Powdered.....	2 85	3 10	Magnesia, Carb..... 1 oz.	0 20	0 25
Charcoal, Animal.....	0 04	0 06	“..... 4 oz.	0 17	0 20
Wood, powdered.....	0 10	0 15	Calcined.....	0 65	0 75
Chiretta.....	0 20	0 30	Citrate..... gran.	0 63	0 75
Chloroform.....	1 10	1 65	Mercury.....	1 70	1 75
Cochineal, S. G.....	0 75	0 90	Bichloride.....	1 65	1 75
Black.....	1 10	1 20	Chloride.....	1 80	1 90
Colocynth, pulv.....	0 50	0 60	C. Chalk.....	0 75	80
Collodion.....	0 90	1 00	Nit. Oxyd.....	1 90	2 00
Elaterium..... oz	3 20	4 00	Morphia Acet.....	4 45	4 60
Ergot.....	0 35	0 45	Mur.....	4 45	4 60
Extract Belladonna.....	1 50	1 60	Sulph.....	4 60	4 75
Colocynth, Co.....	1 25	1 75	Musk, pure grain..... oz	25 00	—
Gentian.....	0 50	0 60	Canton.....	0 90	1 20
Hemlock, Ang.....	0 85	0 95	“ sweet.....	0 40	0 45
Henbane, “.....	1 50	1 60	“ bitter.....	14 00	15 00
Jalap.....	5 00	5 50	Aniseed.....	4 00	4 25
Mandrake.....	1 75	2 00	Bergamot, super.....	6 25	6 50
Nux Vomica..... oz	0 40	0 50	Caraway.....	3 20	3 50
Opium..... oz	1 50	—	Cassia.....	2 50	2 60
Rhubarb.....	5 00	5 50	Castor, E. I.....	0 14	0 15
Sarsap. Hon. Co.....	1 00	1 20	Crystal.....	0 22	0 25
“ Jam. Co.....	3 50	4 00	Italian.....	0 26	0 28
Taraxacum, Ang.....	0 70	0 80	Citronella.....	1 25	1 35
Flowers, Arnica.....	0 17	0 25	Gloves, Ang.....	2 75	3 00
Chamomile.....	0 32	0 40	Cod Liver.....	1 25	1 50
Gum, Aloes, Barb. extra.....	0 70	0 80	Croton.....	1 75	2 00
“ good.....	0 40	0 50	Juniper Wood.....	0 80	1 00
“ Cape.....	0 16	0 20	Berries.....	6 00	7 00
“ powdered.....	0 20	0 30	Lavand, Ang..... oz.	0 90	1 00
“ Socot.....	0 50	1 35	Exotic.....	1 40	1 60
“ pulv.....	1 00	0 00	Lemon, super.....	5 00	5 50
Arabic, White.....	0 70	0 75	ord.....	3 20	3 40
“ powdered.....	0 60	0 75	Orange.....	4 00	4 25
“ sorts.....	0 24	0 30	Origanum.....	0 65	0 75
“ powdered.....	0 42	0 50	Peppermint Ang.....	13 00	14 40
“ com. Gedda.....	0 13	0 16	“ Amer.....	3 80	4 00
Assafetida.....	0 40	0 42	Rose, Virgin.....	8 50	8 75
British or Dextrine.....	0 13	0 15	“ good.....	6 80	7 00
Benzoin.....	0 35	0 75	Sassafras.....	0 90	1 00
Catechu.....	0 12	0 15	Wintergreen.....	6 00	6 50
“ powdered.....	0 25	0 30	Wormwood, pure.....	4 00	6 50
Euphorb, pulv.....	0 35	0 40	Ointment, blue.....	1 30	1 40
Gamboge.....	1 40	1 50	Opium, Turkey..... pulv.....	8 50	8 75
Guaiacum.....	0 90	1 00		10 50	10 75
Myrrh.....	0 50	0 70			

