Upon improvements in rendering medicinal preparations pleasing to the eye and taste, and agreeable to use : a paper read before the American Pharmaceutical Association at its Sixth Annual Meeting, (September 10th, 1857) / by Frederick Stearns.

STEARN (FR.)

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A PAPER

READ BEFORE THE

AMERICAN PHARMACEUTICAL ASSOCIATION

AT ITS

SIXTH ANNUAL MEETING,

(September 10th, 1857)

BY FREDERICK STEARNS, PHARMACEUTIST,

Detroit, Michigan.

DETROIT.
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The following paper, from the "*Proceedings of the American Pharmaceutical Association*," is deemed of sufficient interest to the Medical and Pharmaceutical Professions to warrant its being more generally circulated than the voluminous character of the "Proceedings" will allow, and a small edition has been struck off for the use of the members and their medical friends.

By order of the Executive Committee.

UPON IMPROVEMENTS IN METHODS OF RENDERING MEDICINAL PREPARATIONS PLEASING TO THE EYE AND TO THE TASTE, AND AGREEABLE TO USE.

By Frederick Stearns, of Detroit, Mich.

Next to efforts in the advancement of pharmaceutical skill and science, which secure increased efficiency to medical agents, there are none which meet the more ready appreciation of the physician, or insure the grateful remembrance of the suffering invalid, like those which tend to relieve the remedies employed of all repulsiveness in form, appearance, or taste.

While I am unable, from my own knowledge, to offer as much of value to the Association as could older and more experienced members, yet I submit the following *random* notes, and express the hope that some more skilful pharmaceutist will be appointed to report upon the same subject at our next meeting.

The administration of the officinal vinegars and dilute mineral acids, is rendered more agreeable by the addition of small portions of alcoholic solutions of any of the flavoring essential oils, lemon, wintergreen, pimento, Ceylon cinnamon, etc., or of spices; sugar, when not contra-indicated, is also an allowable adjuvant.

The popularity of the elixir of vitriol over the dilute acid is owing to its agreeability to the taste; dilute phosphoric acid

should have added to it a solution of the essential oil of the sweet orange.

Comp. tinct. cardamom, concent. infus. of rose, are excellent additions to medicated acids or vinegar, covering a portion of their taste, and imparting an agreeable color.

Prussic acid is best given in syrup of marshmallow. Lactic acid, which is now coming into use as a remedy for dyspepsia, indigestion, etc., is made into an agreeable drink with water, sugar and essence of lemon; it is also eligibly exhibited in the form of a pastill, in which form, also, the oxalic, tartaric, tannic and citric acids are most available.

Inert powders, or those which are comparatively so, it is said, can be made to produce a medicinal effect much quicker by long trituration with sugar of milk; in the case of ipecacuanha or of opium, this effect is rendered much greater; long trituration of calomel with the same substance, renders minute doses of it equal, in rapid and permanent effect, to quite large ones of the drug administered in the ordinary way.

Tasteless powders should be administered with aromatics, the milder spices, Ceylon cinnamon and the like; astringent powders can in this way be rendered less unpleasant.

Cane sugar, well dried and reduced to the finest possible state of division, by long trituration in a mortar, is an elegant vehicle in which to administer the alkaloids, and their salts, quinia, morphia, etc.; the *modus operandi* is as follows: instead of triturating the medicine and sugar together, mix the dose in its crystalline state, (without breaking it up,) by means of a spatula on a piece of paper, with a sufficient portion of the sugar previously powdered. In this way each crystal becomes enveloped with a dust of saccharine powder, and when placed upon the tongue and washed down with a draught of water, leaves nothing upon it but the sweet impression of the quickly dissolved sugar.

Mr. Maisch recommends the administration of the saline powders, ammonia salts, iron salts, potassa salts, etc., in effervescing draughts, by which their bitterness or pungency is in a great measure overcome. Those pharmaceutists who furnish "mineral" or carbonic acid water, possess the means of administering many similar substances, in an agreeable manner; a "Seid-

litz" is in this way administered without the necessity of giving an extra dose of tartrate of soda.

By an improvement in the processes of capsulation, the most volatile substances, ether, chloroform, turpentine, are now best administered in capsules of gluten; these are imported from France, and the "Perles d'Ether" of M. Clertan are certainly among the most beautiful and finished of the pharmaceutical productions of our accomplished co-workers, the French pharmaciens. Each capsule contains about five minims of ether, the empty capsule weighing but about two grains.

There is no reason why our list of officinal syrups should not be greatly extended, from the fact that sugar is an excellent preservative of the medicinal virtue of plants, proper regard being paid to the separation of the inert matters which excite fermentation; its agreeability as an excipient renders it grateful to the invalid; the cloying effect of syrups can be counteracted by the addition, at the time of using them, of some pleasant vegetable acid or acid syrup.

Many of the non-officinal fluid extracts, now so popular, could be converted into concentrated syrups by replacing part of the hydro-alcoholic menstruum with sugar.

I have in this way prepared, successfully, syrups of blackberry root, ergot, buchu, blood root, black cohosh, capsicum, cranesbill, dandelion, golden seal, hyoscyamus, horehound, lobelia, sculcap, yellow dock, etc.

Unless alcohol is desirable in fluid extracts, from a therapeutical point of view, it seems to me obvious that sugar could with advantage replace alcohol in nearly all the non-officinal fluid extracts, concentrated tinctures, etc., intended for internal use. A syrup of lime has been introduced as a substitute for lime water, it being a much more concentrated form of lime solution.

The phosphates are most eligibly exhibited in the form of syrups, particularly the phosphate of lime; a syrup composed of a solution in phosphoric and muriatic acids of the phosphates of soda, potassa, lime and iron with sugar, and pleasant flavoring, has come into general use, I believe, in some of the Eastern cities, particularly Philadelphia; it is used in consumption and dyspepsia, and from its elegant appearance and pleasant taste seems to be an eligible preparation.

A tincture formed by macerating the bark of Prunus virginiana in rum, is an agreeable addition in the way of flavor to our officinal concentrated syrup of sarsaparilla. The U. S. syrup of Prunus virginiana I have found to be one of the most delightful of adjuvants to cough mixtures; it is also an elegant vehicle for the administration of the most powerful anodynes, etc., used in pulmonary complaints; prussic acid only serves to give increased flavor of the cherry to this syrup when given in it.

I have found a syrup of roasted coffee excellent in covering the taste of quinia, morphia, etc. An infusion of roasted coffee is valuable in covering the taste of Epsom salts, senna, and of many bitter infusions.

In many extemporaneous mixtures, a syrup prepared from the essential oil and peel of the sweet orange, is agreeable as an adjuvant.

If pharmaceutists would generally prepare their syrup of ginger and tolu after the method of Mr. Finley, as published in the 23d vol. of the American Journal of Pharmacy, I think they would not have cause to regret the change from the turbid, inelegant ones of the U. S. P., to the beautifully transparent and strong ones prepared by his method.

Strong fruit syrups, prepared by dissolving with as little heat as possible, 2 lbs. troy of refined sugar in the expressed juice of any fruit or berry, make delightful adjuvants to numberless extemporaneous prescriptions of the physician; they are agreeable additions to effervescent draughts, and are best for flavoring mineral water syrups.

Syrups of Iceland moss, Irish moss, marsh-mallow, horehound, acacia, liquorice, liverwort, etc., are favorites in certain localities as cough remedies; infusions of the same with gum and sugar are formed into pastes, similar to jujube, and meet with ready sale.

Confections, though considered in their ordinary forms as agreeable methods by which to administer medicines, are improved by introducing the proper dose of any one of them into figs or dates, and prunes freed from their stones.

Jellies of raspberry, current, quince, blackberry, etc., are nice for disguising the taste of powders when given to children. A

little jam or jelly very nicely covers a bitter pill, for those who have a peculiar aversion to swallowing them.

Among the multitude of purposes for which pure glycerin is becoming available, its use as a solvent and preservative in pharmaceutical manipulations is most important; there seems to be scarcely a fraction as yet developed of the uses to which this wonderful substance can be applied in pharmacy.

Its solvent power, in most cases, equals that of alcohol or water, being sometimes even greater.

By mixing it with alcoholic or aqueous solutions, which are liable to change, they are thereby rendered permanent. Solutions of vegetable matter in it do not change or ferment.

It does not itself become rancid, and from its viscidity it can be used instead of cerate or oil as a vehicle for many substances used in embrocations.

The disagreeable sulphurets are soluble in it, and their solutions are among the most available methods of administering them; iodine and its salts, are dissolved by it.

Liq. iod. iron, syr. iod. iron and manganese, syr. iod. zinc, prepared with glycerin are recommended as elegant and eligible.

Escharotics of the deliquescent kinds are rendered particularly available in solution in glycerin, their action is much more controllable, and as the glycerin does not dry, their action is more persistent. The terchloride of antimony (cryst.) iodide and chloride of zinc, nitrate of mercury, chromic acid, etc., are among those suitable to use in glycerin. It forms solutions of the deliquescent salts, of the sulphate of potassa and soda, of the alkaline chlorides, and even of oxide of lead.

The salts of the vegetable alkaloids can be exhibited, dissolved in this substance, as embrocations or otherwise. It will dissolve bin-iodide of mercury in sufficient quantity, so that ½ teaspoonful will contain a sufficient dose. It is useful in emulsions, of copaiba and of oils; it aids in covering the taste of the nauseous ingredients.

It is suggested to use glycerin on account of its superior solvent power over fat or oil in the extraction of the active matters of the leaves of savin, stramonium, cicuta, dulcamara, elder, tobacco, etc., in place of the cerates as now prepared from these plants. It is superior to oil in imparting flexibility to collodion.

Its preservative power is available for the preservation of vaccine lymph, the recent dry scales of which can be dissolved in it and kept unchanged for a length of time.

It is proposed that it be substituted for sugar in some of those medicinal syrups which are so liable to ferment. The properties attributed to it as a fattener would give additional value to it as a vehicle for ague remedies, as in syr. ipecac., syr. scillæ comp. Its bland and soothing properties when applied to the skin in an irritated or inflamed state, have caused it to be much used therefor. And I have seen numerous creams, balsams, lotions, etc., prepared from it by various pharmaceutists, many of which exhibit skill and taste.

The lozenge or pastill has become so common a form in which to exhibit medicinal substances, powders, extracts, juices, essential oils, etc., that I shall notice herein only the following: the efficiency of santonin as an anthelmintic has given rise to its extensive employment in the form of a bonbon or lozenge, delicately flavored, and rose colored; it forms in this shape by far the best and most eligible "worm lozenge" extant.

The preparations termed "Lactinates" find some favor among medical men; they are simply saturated tinctures of any medical plant, inspissated upon cane sugar, or sugar of milk. The applicability of this process depends upon the active principle of the plant not being decomposed by the necessary heat employed in preparing them. I have prepared lactinates of sanguinaria, ipecacuanha, hyoscyamus, digitalis, which possessed perfectly the characteristic odors and properties of those medicines.

Homœopathic globules are made of flour and cane sugar, not of milk sugar, and why can we not learn from the infinitesimal dose-givers something? These pellets (the largest of those they use weighs $\frac{1}{4}$ of a grain) could be made of any size, and when medicated by means of concentrated alcoholic solutions of the more powerful alkaloids, would prove a very agreeable method of administering them.

The usual methods of rendering pills less repulsive by means of coating them with gelatin, gold or silver foil, dried mucilage of linseed, seems to be far superseded by the new and elegant method introduced by French pharmaceutists, by which they are covered with gluten and sugar. *Odor* and taste are destroyed by converting them into bonbons. By this new method the odor of

assafetida is entirely covered, and the most bitter dose rendered palatable. Extracts, all of the officinal pills and others, several decomposable salts, many of the alkaloids, cubebs, copaiba, astringents, etc. etc., are prepared in this form. Those I have seen are from the house of Garner, Lamoreaux & Co., Paris, and are striking evidences of the superior skill of the French pharmaciens.

The preparation of an unalterable pill of iodide of iron after the formula of Blanchard, pharmacien of Paris, has attracted considerable attention. I have prepared these pills for nearly two years, and they have become very popular among my medical friends. I now substitute an ethereal solution of mastic for one of tolu, with advantage in coating the pills as it dries quicker; the varnished pills are not apt to adhere, and the medicinal effect of the mastic aids that of the iron.

A pill or bonbon of oxidized balsam copaiva, under the title of "Copahine Mege," has found much favor lately with physicians. They have the appearance and taste of sugar plums, and consist of copaiba (which has been heated in contact with nitric acid) covered with sugar, colored and flavored. They agree well with the stomach, and seem to produce the curative effects of the copaiba quicker than when it is given by the ordinary methods.

Lycopodium, which costs but a very little more than the best powdered liquorice root, is to my mind much more elegant to use for keeping pills from adhering to each other, than any other powder. Powdered althea root is also used for this purpose.

French pharmaciens who exhibit the greatest skill and improvements in that department of pharmacy of which this paper treats, have brought the process of capsulation almost to perfection, as exampled by the manufactures of Raquin, Clertan and Mathey Caylus, in which copaiba alone, or its various compounds with cubebs, with astringents, etc., the turpentines, ether, essential oils, and numerous other substances, are enveloped in a thin, tasteless and inodorous covering of the gluten of rye flour, of a size favorable to easy deglutition, and yet containing a sufficient dose of each. The filling of them is so perfect that they contain no air bubbles, and the empty capsules weigh only from $1\frac{1}{2}$ to $2\frac{1}{2}$ grains, whereas the gelatin capsule weighs nearer 10 grains.

The empty capsule, another French idea, although now made largely in this country, consists of two short, thin cylinders of gelatin, closed at one end, and sliding one over the other at their open ends. These are made of several sizes, and all that is required in order to use them is to fill the smaller cylinder with the medicine, whether solid or liquid, place the other over it, and having allowed it to soften in the saliva, it is as easily swallowed as a morsel of bread.

The tasteless French wafer is another method of taking powders; they are made white and tasteless, diameter about 3½ inches, and are used by moistening the edges of the wafer with saliva, placing the powder in the center; and folding the edges over the center thus enveloped, the medicine is taken without being tasted.

Numberless methods are proposed for covering the taste of cod liver oil, none of which are so simple and free from objections as that of chewing some bitter substance, as orange peel, previous to taking the dose. Emulsions of cod liver oil are elegantly prepared by means of carbonate of potassa, orange flower water and syrup. Many physicians prescribe cod liver oil in brandy, which tends to cover its taste and aids its medicinal action.

Castor oil is not improved in medicinal action by most of the methods used to disguise it, and the method of giving it floating between spirit and water is doubtless the best, which is as follows: in a proper cup place an ounce or two of mint water, milk or cold infusion of coffee, and having thoroughly wet the sides of the cup with it, pour the dose of oil carefully into the centre of it, pour upon this a little brandy or any agreeable alcoholic tincture; the oil thus prepared can be swallowed without its touching the mouth at all, being completely enveloped by its aqueous and alcoholic vehicle. The essential oil of spearmint possesses the power of covering the taste of copaiba, in emulsions of that substance, in a remarkable degree.

Since fluid extracts were made officinal by the last revision of the United States Pharmacopœia, the number of plants which have been found eligible when used in that form has greatly increased. Messrs. Tilden & Co. now prepare over one hundred varieties of fluid extracts; they have the advantage of being con-

centrated fluid representations of plants with but little alcohol; and in very many of those now preserved by means of alcohol, sugar might with advantage be substituted for that purpose.

Among the non-officinal fluid extracts, those of arnica, blackberry, cranesbill, ginger, buchu, dandelion, dandelion and senna, hyoscyamus, and sarsaparilla compound, I consider especially eligible, and there is no doubt but that there are many other plants which experience will prove to be most valuable in the form of fluid extract.

I have had occasion to prepare, during the past year, several *saturated* tinctures, as some physicians think them less variable, and require much smaller doses. In preparing them I have used a considerable excess of the dried material over and above the amount calculated that the menstruum can exhaust. This method is wasteful, and is only applicable to local prescribing, and when the effects of such preparation can be closely watched.

I have prepared as above, saturated tinctures of bloodroot, belladonna, henbane, lobelia, digitalis, conium, etc.

The compound tincture of cardamom is one of the most elegant of adjuvants to mixtures of tinctures, etc., known.

Most pharmaceutists color their essences or alcoholic solutions of the essential oils of peppermint, spearmint, pennyroyal, and the like, by means of curcuma. Now by placing a small portion of the dried plant, from which the essential oil is obtained, into the solution of oil previous to filtration, a color is obtained which is much more natural. A few red rose leaves impart to essence of winter-green a more delicate color than saunders or cochineal.

The infusion of rose leaves forms a judicious addition to many extemporaneous mixtures, owing to its power of disguising taste, and to its beautiful color.

The modern idea of preparing extemporaneously, and taking infusion of quassia, by drinking water from goblets made of quassia wood, has already become obsolete.

In the preparation of cinnamon water, the essential oil of the true or Ceylon cinnamon should always be used, as it produces a medicated water of delightful flavor and agreeable odor.

Of late years the ligneous portion of slippery elm bark, which is separated when this bark is ground from the mucilaginous

portion by bolting, has been used much for cataplasms in place of linseed meal, bread, etc.; it is cleanly and sweet. There is an article call spongio piline, imported from England, made of a mixture of wool and sponge attached to a thin, but strong sheet of rubber. It is used by simply wetting a piece, cut to the size wanted, with water (warm or cold); the impervious rubber keeps the moisture from evaporating. Infusion of tobacco, belladonna, or any anodyne or narcotic, can by means of this substance be eligibly applied externally.

Ointments when prepared extemporaneously upon prescriptions, should have used in them as a vehicle for the action of remedies, only the sweetest of lard or suet, or else use perfumes to cover any disagreeable odor it may possess. A cerate of wax and oil, the unguentum aqua rosæ and glycerin cerate, are eligible vehicles for powerful substances exhibited in ointment. These should be prepared of various degrees of hardness, so as to correspond with the prepared lard, spermaceti and simple cerate of the United States Pharmacopœia.

Cantharidin tissue, blistering taffeta, cantharidal collodion, solution of canthardin in oil, solution of cantharidin and pure gutta percha in chloroform—all these form new and popular substitutes for the ordinary blistering cerate.

I have been in the habit of preparing for some medical friends an embrocation which is used for piles in place of the nutgall ointment of the Pharmacopœia, prepared by dissolving one half drachm of hyd. alc. extract of tobacco and one half drachm of tannin in two fluid ounces of glycerin.

Hat Case—a sort of oil cloth—forms a useful article in spreading plasters; it is very flexible, accommodating itself to any inequalities of surface, and does not allow the material spread upon it to penetrate its substance so as to show upon the reverse side.

It seems singular that Vallet's mass of proto-carb. iron should not be more generally employed in place of many other more expensive and less eligible forms in which iron is exhibited; its pleasant taste, ready acceptability to the stomach, and efficiency even in small doses, its easy preparation, all render it valuable to the physician and profitable to the pharmaceutist, and yet

there are but comparatively few pharmaceutists who prepare it at all.

Lactate of iron is, perhaps, best exhibited in the lozenge form. I have noticed an elegant pastill of lactate of iron of French make, which are sold by importers.

The oil or butter of the cocoa nut is an elegant vehicle for the preparation of ointments, on account of its snow white color and agreable odor. It is less liable to become rancid.

The butter of cacao, or the chocolate nut, is used sometimes for enveloping pills; also for making suppositories.

Although there seems to be much difference of opinion among English pharmaceutists concerning the value of *concentrated* infusions, as compared with those prepared by the officinal methods, there is one thing certain, that from the ease with which the concentrated ones are kept, in spite of their not becoming officinal, they will be thus prepared and kept by most pharmaceutists.

Of all saline aperients and cathartics the solution of citrate of magnesia seems to have reached the popularity due to it as the most agreeable ever invented. Its use is yet somewhat confined to the larger towns and cities. Though from the improvements made in its preparation, so that it is permanent, it can be kept any length of time and easily transported to any part of the country.

A dry and soluble citrate of magnesia prepared after the method of Robiquet and mixed with flavored sugar, bi-carb. soda and citric acid, forms a portable and exceedingly pleasant aperient salt for travellers to carry.

The French put the soluble citrate of magnesia up into pastills, each of which contains one gramme of the salt.

The fluid magnesia of Sir James Murray is easily prepared by any pharmaceutist possessed of an apparatus for making mineral water. This bi-carbonate is an eligible ant-acid, much used by the English; it is aperient in large doses, its cathartic effect being enhanced by drinking it with a portion of syrup of citric acid, by which a portion of the bi-carbonate is converted into citrate of magnesia with the escape of abundance of carbonic acid gas; it is drank while effervescing. The fluid magnesia is recommended as a vehicle for bitter infusions, covering their

taste, etc. It forms an elegant ant-acid and stomachic cordial for infants—used to prevent their food from turning sour upon their stomachs, and as a gentle carminative in place of solutions of opium—when prepared by adding to it a small proportion of the essential oil of anise, caraway and fennel dissolved in alcohol, water and sugar.

The French administer sulphur internally in the form of a pastill, each of which contains 10 grains of sublimed sulphur.

As phosphorus readily dissolves in glycerin, this solvent is recommended as a fit substance in which to exhibit it.

The principle objection to the valerianates—their odor—may be overcome by using with them almost any highly flavored essential oil. Oil of gaultheria succeeds well among others.

Numerous other ideas suggest themselves to me illustrative of the subject matter of this article, but the amount written warns me to close; and, in conclusion, I would remark, that every pharmaceutist possesses within himself the ability to add a mite or more to the general knowledge of our profession, and that it is his duty to impart that knowledge for the benefit of the whole; and while it seems evident that but a small portion of the inherent skill and taste of the *American* is exhibited in perfecting the agreeability of our pharmaceutical preparations, yet, as progress in this department of our art is daily being made, we may reasonably hope, at no distant day, to successfully rival the productions of other arts and professions in beauty and attractiveness.