

A study of the table will show that for the first six months the samples retained their strength very well, the maximum loss under these conditions being only 0.53% with an average for the whole of only 0.37%. The greatest loss during the entire time seems to be in the samples stored in the flint glass bottles, although with the exception of Sample No. 4, the remainder kept fairly well for the first nine months. During the latter part of the experiment, however, the samples in the flint glass bottles decreased considerably, while those in the amber and green-colored bottles decreased in strength only a small amount in the whole fifteen months and the decrease was quite regular, the maximum being but 0.54% with an average of 0.44%. It would therefore appear that spirit of nitrous ether, when manufactured properly so that it will contain 4% Ethyl Nitrite when freshly prepared and stored in small dark-colored bottles in a cool place will remain standard strength for a long period of time. The pharmacist should make up this preparation in such quantity that the whole can be disposed of in a period of six months. He then should have no fear that he is not dispensing a U. S. P. article all the time.

I am indebted to Mr. A. R. Todd of this Laboratory for assistance in this experiment.

LABORATORIES OF THE MICHIGAN DAIRY AND FOOD DEPT., 1912.

COMPOUND SYRUP OF HYPOPHOSPHITES.

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Our judgments are frequently governed by theory regardless of what experiment will teach, and we are in consequence frequently led into error, or are apt to be guided more by it, than in testing the matter under consideration by actual experiment.

I am led to the above reflection by a conversation which I had the pleasure of having with a member of the association, who is also an officer in the newly created section on "Pharmacopoeias and Formularies," during the meeting of the American Pharmaceutical Association at Denver, August 19 to 24, 1912.

The subject of our conversation was the Compound Syrup of Hypophosphites, and I had asked the question, Why it was that the sucrose content of that syrup was not up to the point of complete saturation?

The reply which I received was to the effect that if the sucrose content was increased, there would be a tendency to the "salting out" of the chemical salts entering into the composition of that syrup, and that theoretically, it was not expedient to go beyond what had been adopted by the Committee of Revision of the United States Pharmacopoeia VIII.

I am nevertheless constrained to call attention to the fact that in physico-chemical processes, it is possible to make a saturated solution of a salt, and still be able to add other concentrated solutions without danger of the precipitation of the saline content of either solution.

This is in complete harmony with my experience in the manufacture of the

syrup, and I would add that for many years I have been impressed with the importance of the complete saturation of all syrups and have adopted the method of cold percolation, as the most effective, and by far the most desirable from every point of view.

More recently, within the past two or three years, I determined to apply the process to the compound syrup of hypophosphites. This was done with the most surprising and gratifying results, and with but few exceptions, I have continued to make it in this manner upon all occasions.

My method of procedure is as follows:

First: The solution of the iron and manganese hypophosphites and the sodium citrate, is effected in a scrupulously clean porcelain capsule with the careful application of heat, filtered, and allowed to cool as directed in the U. S. P. VIII.

Second: The solution of calcium, potassium and sodium hypophosphites is made in the manner directed by the U. S. P. VIII.

Third: The alkaloids quinine and strychnine are dissolved in the diluted hypophosphorous acid as directed by the U. S. P. VIII.

The above three solutions are then mixed, and this mixture is used as a menstruum for the percolation of the sugar. In regard to the latter, we have found Confectioner's Crystal A sugar the best both with respect to purity and texture.

The sugar is simply placed in a cylindrical percolator in the proportion of two parts by weight of sugar to one part by weight of solution, after having previously placed absorbent cotton moistened with distilled water in the neck of the percolator.

The physical advantage of this method is that the mean temperature of the locality where the syrup is made will serve as a control, the menstruum at the normal temperature of the place taking up no more and no less sugar than its coefficient of solubility for that temperature, and since under these conditions, it cannot become a supersaturated solution, will remain an elegant, stable and unalterable product.

Obviously, syrup made in the southern states, will contain a trifle more sugar than syrup made in states in the north. In both cases, however, the product will contain no more sugar than is necessary for its complete preservation and stability.

A recent experience with this syrup convinces me that heat, except in the preparation of the initial solution, should be rigidly avoided. This statement is supported both by observation and experiment as the following will indicate.

A short time ago I had occasion to make 4000 cc. of this syrup, and as the exigencies of the case required an immediate production, I departed from my usual custom of percolation, and prepared the syrup in accordance with the U. S. P. VIII, by agitation. At the expiration of a few hours there remained about 200 grams of undissolved sugar, and in order to hasten its solution, the container was carefully placed under the hot water faucet and the whole mass of syrup raised to temperature of not more than 130° F.

In a short period thereafter, about two weeks, I noticed a change in the syrup, it becoming cloudy upon being poured into the shop bottle. This cloudiness dis-

appeared after standing an hour or so and I became convinced that it was due to a partial fermentation, the cloudiness being directly caused by the agitation produced by the act of pouring, thus expanding the occluded CO₂, producing a mass of minute bubbles.

During the gradual heating and subsequent slow cooling, there was a partial inversion of the sugar, this molecular change producing a form of sugar which immediately became subject to the bacterial influences which were at the same time rendered active by the increase in temperature, and the fermentation was proportionate to the sugar so inverted.

This hypothesis is seemingly supported by the following well-known fact.

If a given volume of a saturated solution of sucrose is placed in a test tube, and Fehling's test be applied, there will be no reaction.

If, however, the same volume of solution be heated to the boiling point and the copper and alkaline tartrate solutions of Fehling's test be alternately added, there will be an immediate characteristic reduction of the copper, showing that a molecular change has been effected in the solution by the application of heat.

This change is not only indicated by the above chemical test, but is also revealed by physical examination, which show that its optical activity has changed.

THE CRITICS OF THE PROPAGANDA.

In a recent issue of a well-known drug journal* is published a very instructive and helpful article by a professor in one of Chicago's medical colleges, entitled, "How Some Doctors View U. S. P. and N. F. Propaganda," with particular reference to the objections of some doctors to this movement.

While practically all of the statements made are true in a large measure, it is also true that all of them must be largely discounted in the light of the present status of the sister professions of medicine and pharmacy; this for the simple reason that insofar as medicine is not an exact science there will always be honest differences of opinion as to how the propaganda movement should be carried on, and for the further reason that any theory that will not work out practically is of absolutely no value whatever.

To begin with, the article opens up an old wound that had begun to show unmistakable signs of healing, as follows:

"Some doctors object to the therapeutic information that is gratuitously administered to them by the druggists. What, they say, do druggists know about therapeutics? And, I must confess, that some of the therapeutic ideas advanced by pharmacists in this connection, though taken from text-books, are antiquated and not in keeping with advanced conceptions. Would it not be better if pharmacists confined themselves in their literature intended for doctors to the discussion of things that druggists really know better than doctors, e. g., pleasant administration?"

This surely comes with poor grace when it is remembered that very few doctors out of the 150,000 in the United States objected to the "gratuitous information

*Journ. A. Ph. A., November, 1912, p. 1190.

administered" by the detail man and the pharmaceutical manufacturing houses, and because they did not object, we have today the lamentable fact to consider that the medical profession is prescribing hundreds of nostrums and specialties. But this is an old story.

Well may we ask: "Do these detail men and these houses know anything about therapeutics?" The deplorable condition of our materia medica as represented by the prescriptions of the average nostrum-prescribing physician would indicate that materia medica is a hodge-podge of nothingness; this is further illustrated by the chronically sick and diseased condition of thousands and thousands of our people who are being treated by nostrums and specialties.

This propaganda movement is not going to please everybody, and least of all will it please all the physicians. As the article under discussion truly says: "The better educated the doctor, the less will he be in need of U. S. P. and N. F. propaganda." This statement is the best testimonial the propaganda movement has ever had, for it says, in a nut-shell, that when the doctor is educated to know and to use U. S. P. and N. F. drugs and preparations, his materia medica education is complete.

But this propaganda movement is not intended to be of value to every doctor, as far as the pharmacists' part, as represented by the N. A. R. D., is concerned. The professors in the medical schools are privileged to teach their young charges the proper things in materia medica; a privilege that has been sadly and criminally neglected in the past.

It is not intended for the ethical and conscientious physician who already knows that prescribing official drugs and strictly open-formula prescriptions is the only way to get results and is the only way in which the public is interested, financially.

This propaganda movement is intended to reach, and does reach, that great class of physicians who are looking for help that no medical journal will give them and who cannot afford to take a post-graduate course in a medical college to learn their materia medica "all over again"; and these physicians do not object to "the therapeutic information that is gratuitously administered to them by the druggists" (that is, by the N. A. R. D.).

It is true that druggists have a commercial or financial interest in this movement, but let not critics forget that the most enlightened self-interest of these same druggists is the best kind of ethics and is what will finally win for this movement, and make medicine and pharmacy what they should be, professions. We only wish there was more of such "commercial" interest manifested, for this same "commercial" interest has, in the past four years, dealt the death blow to hundreds of nostrums, and has already seriously crippled the existence of many thousand other useless preparations.

Physicians, and ethical physicians especially, little realize how the medical profession, as a profession, has tied the druggists' hands. The competition that this profession is offering the pharmacists through free medical dispensaries and dispensing physicians is most lamentable and cannot be considered otherwise than a clear case of theft, and as long as this thing is permitted, medical ethics and pharmaceutical ethics are little more than monumental jokes.

If these things had been well considered, the following portion of the article in question would probably have been worded differently:

"Quite a number of doctors feel that the druggist is in this movement merely for the sake of dollars and cents, that the same commercialism lies behind it that leads him to 'counter-prescribing,' to indiscriminate refilling of prescriptions, and to substitution. To antagonize this objection, propaganda for ethical pharmacy should accompany the U. S. P. and N. F. propaganda. By the way, what is ethical pharmacy? Does anyone know of a code of pharmaceutical ethics? And if not, is it not time that such a code be devised?"

It is time (and the necessity for it has long existed) that pharmacists have a code of ethics, surely but of what value is such a code if the physician legally robs the pharmacist of two-thirds of his business?

Notes has certainly paved the way for an ethical pharmaceutical profession, and he who runs may read. But as the physician will not relinquish, voluntarily, that to which he has no moral right, namely, compounding and dispensing, it behooves the pharmacist to get what is his by right, through legislation, in order that his profession and art may be conserved and protected. This legislation is in a formative stage now and we shall watch and see if the physician will help the pharmacist, or hinder him.

For the guidance of any future criticism of the propaganda movement, it would seem, therefore, that critics study the situation carefully and direct their remarks where they will fall on productive soil.

Well directed criticism makes for intelligent progress and the N. A. R. D. propaganda movement certainly desires to make intelligent progress. But until it can be shown that the "therapeutic information administered" is no longer needed and is no longer welcomed by those physicians for whom it is intended, we will continue to administer our monthly doses of Monthly Therapeutic Topics and pay the postage, besides.—N. A. R. D. NOTES.

TIME TO STRIKE BACK.*

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Recently, I have been paying special attention to some of the slanderous and libelous statements about druggists published in the newspapers, in the form of patent medicine advertisements, and have come to the conclusion, that if the druggists of Kentucky have any gumption about them, it is time for them to strike back.

Almost every town in this state, large enough to have a newspaper and a drug store, can furnish an example of some of the lying statements commonly found in patent medicine advertisements.

A great many druggists for the sake of a little cheap advertising will allow any patent medicine "faker" to print their foul, and sometimes vulgar, indecent stuff above their names, for the mere sop of being called "special agent," etc.

*Paper presented to the Kentucky Pharmaceutical Association.