

Section on Practical Pharmacy and Dispensing

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Responding to a request of the enterprising chairman of the Section on Practical Pharmacy and Dispensing, I offer, in discussion, a few remarks on Vallet's mass, suggesting a method for its improvement. There are many who complain that the present official formula yields a preparation which is too soft.

The sub-committee (No. 13) is now considering the advisability of revising this formula, and I have the consent of Mr. Raubenheimer to present his suggestions relating to proposed changes.

Besides the soft consistence of the mass, Mr. Raubenheimer points out other faults in the U. S. P. formula and process.

1. In order to completely dissolve the ferrous sulphate, and to prevent any loss by the formation of oxide or hydroxide, it is absolutely necessary to add a small quantity of diluted sulphuric acid.

3. The capacity of the flask, instead of 500 cc., could well be 1000 cc., which would greatly facilitate the washing of the precipitate. The codex now orders a 2000 cc. flask for the same quantity of chemicals.

4. Instead of washing by decantation it would be an improvement to use a syphon, which is also ordered in the U. S. P. process for Ferri Carbonas Sacharratus.

5. "Washing until the saline taste is gone." This in the presence of syrup used in the wash water is quite hard to determine. Much better and more correct pharmaceutically and chemically would be "until the washings show merely a slight cloudiness with barium chloride T. S.

6. "Drain the precipitate on a muslin strainer and express as much of the water as possible." This is a very wasteful method, so wasteful that the text-books state that instead of actual yield of 42 gm. (41.7) only 35-36 gm. of ferrous carbonate are obtained. The codex orders the strainer to be previously moistened with syrup, a method which is well worth adopting by the U. S. P. Revision Committee.

7. The magma is ordered to be mixed with 38 gm. of clarified honey and 25 gm. of sugar and evaporated to 100 gm. This evaporation to a definite weight is a decided advantage over the codex method which evaporates to the somewhat indefinite consistence of an extract.

To overcome the objection above referred to, in the beginning, namely the softness of the mass, it is recommended that lactose be substituted for sucrose.

It has the decided advantage of being less soluble than sugar, thereby acting as an absorbent and producing a better pilular mass. It acts as a reducing agent, the same as honey. The codex formula prescribes lactose. We have experimented with the above formula and find that the resulting mass, in the dry climate of Kansas, becomes too dry and hard, but by a proper addition of glycerin (also a reducing agent) a proper permanent consistency may be secured.

Vallet's mass is seldom kept in stock in the middle west but we find it is more frequently found on the prescription counter shelves in the east. In the west the saccharated ferrous carbonate is popular.

This latter preparation is standardized. There is no reason why the other should not be, as the process for analysis is very simple.

Mr. Raubenheimer suggests that the addition of a small amount of magnesium oxide to the magma before evaporation prevents oxidation and has a very decided advantage of imparting a greenish color to the mass, a very desirable feature.

If any of the pharmacists, interested in this Section, would care to experiment in making this preparation acting upon the above suggestions, their experience, if sent to me or to any member of Sub-committee 13, would be highly appreciated. Change present formula as follows:

1. Increase sugar from 25 to 35 and decrease honey from 38 to 25 gm.
2. Use lactose in place of sugar and honey (add 30 gm. lactose to drained magma).
3. Also add 5 gm. magnesium oxide.

And report results, with any suggestions.

DISCUSSION.

Prof. H. V. Arny, of New York, said this recipe of Mr. Raubenheimer's had been brought to his attention by that gentleman, and knowing how thoroughly Mr. Raubenheimer did everything he undertook, he himself, while a colleague of Mr. Raubenheimer's on Sub-Committee Thirteen, did not try out his recipe. On the road to Denver, however, he had stopped at Cleveland and had talked with Louis C. Hopp, also a member of the committee, and the latter agreed with Prof. Sayre that, by Mr. Raubenheimer's recipe, the mass, on standing, became too hard. Prof. Arny said he had had considerable experience with the U. S. P. recipe, and had not, as a rule, found the lack of stiffness described. It all depended on whether the manipulator got the magma off the strainer and thoroughly mixed. In his own work in Cleveland, he had been accustomed to take the samples made by the students and compare the iron content. There was nothing simpler than to find the iron content of the mass by the simple process of ashing. He had found in that way that the soft masses would run sometimes as low as 15 percent, and some ran up to 35 percent. Of course, he said, the operator could never get 42 percent. By this means, a fairly uniform product was obtained. In closing his remarks, Prof. Arny said he stood ready to confess ignorance upon one point: Although in making this mass practically the exact molecular proportions of crystallized ferrous sulphate and crystallized sodium carbonate were taken, yet, when these were mixed and put in a suitable bottle and corked, there was a large amount of carbon dioxide given off. He expressed the hope that someone could enlighten him on that subject.

Prof. Sayre asked Prof. Arny if he could tell the cause of the green color by adding magnesium oxide, and the latter replied that he could not. He said that Mr. Hopp had called attention to that point when he had seen him at Cleveland recently. He regarded it as an interesting thing. Mr. Hopp had taken some of this mass and made it into pills, cut-

ting one of them—a five-grain pill—and moistening by putting a drop of water on it and sprinkling a little magnesium oxide on top, when this green color appeared.

F. T. Gordon, of Philadelphia, asked Prof. Army if he had ever tried glucose instead of sugar. Mr. Raubenheimer, he said, spoke of washing the precipitate with sugar-water, and he had wondered if he had ever washed it with a solution of glucose, which was a very powerful reducing agent, the tendency being, if there should be any ferric iron present, to return it to the ferrous state.

Prof. Army replied that, of course, it was supposed to be made in the present recipe by using sugar or honey. He thought this would be a capital scheme, and that glucose would be better than glycerin.

Mr. Gordon went on to say that he had made an experiment with glucose in this way, especially with regard to iron salts, where it was necessary to keep the salt in a ferrous state, and had found glucose to have a positive action in preventing oxidation; or, if the substance was oxidized in the course of time, to reduce it. Sugar in that case was very apt to be converted into invert sugar. The only precaution was to test the glucose and see if it was free from sulphurous acid. Glucose, he said, did not get hard or brittle, did not dry out like sugar, or crystallize.

In answer to a question by Prof. Puckner as to whether he used the fluid or dry solid glucose, Mr. Gordon said he used the ordinary syrupy glucose. There were two commercial forms, he said, and if the operator ordered from the wholesaler he would probably get the saturated syrupy solution. Though glucose could be obtained in the dry, solid form, that was a detail he had not particularly considered.

Prof. Puckner said his reason for asking this question was, that he had had occasion to handle a great deal of glucose and dextrose, and had found them increased in purity in the last four or five years very markedly, the present degree of purity of commercial glucose being about as good as the highest grade four or five years ago.

Prof. Army asked whether glucose would possess the desired adhesiveness. He thought it would necessitate establishing a standard for glucose, and making it official in the Pharmacopoeia. Mr. Gordon responded that it could be suggested that the glucose should be syrupy and free from sulphites. For practical working purposes, the syrupy glucose was much more convenient to handle than the dry.

Mr. Geo. H. P. Lichthardt said Prof. Sayre had remarked that he did not know about the use of this preparation in the West. In his state (California) it was practically obsolete—it was not used at all. The physicians there ordered Blaud's pills. The physicians were using that more and more in the last four or five years, since the introduction of albuminous compounds of iron, which had stimulated the use of iron; and the pharmacists had been trying to get them away from this by getting the doctors to prescribe the freshly-prepared Blaud's mass.

A member from Chicago, referring to this preparation of iron, said that he had no occasion to make Blaud's or Vallet's mass. In his section the formula was prescribed in the dry form absolutely, and nothing else. The ingredients were mixed dry, and this was insisted upon. He had found at a number of places in Chicago that this was growing to be the common habit.