

Section on Pharmacopœias and Formularies

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THE CAUSE OF ADULTERATED PREPARATIONS.

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In treating this subject it is my purpose merely to speak of some of the reasons for the lack of conformity to the standards of the Pharmacopœia in the preparations made by retail pharmacists, which condition unfortunately exists not because, I believe, that the majority of the druggists wilfully or maliciously adulterate their preparations, but because of other reasons of which I shall speak. The reason why I believe this, is because, First, I think most druggists are honest; Second, there are as many preparations found to be in excess of the standard strength as under, and Third, that the amount of manufacturing which the ordinary store undertakes would hardly make it worth while for the practice of dishonesty in lessening the strength of its preparations. To ascertain the reason for the lack of uniformity my first step was to inform myself as to the methods of manufacture in a number of stores, and in twenty-five stores of one of our largest cities I found the following to be the methods used to procure some of the U. S. P. preparations which they dispensed.

By dilution from fluidextracts.....	20
By following the Pharmacopœia.....	3
By purchase from wholesalers.....	2

Whether this same proportion would hold good all over the country it is of course impossible to say, but as these stores represent the conditions existing in one city, it may be assumed as a fair statement of general conditions, and when one stops to think that 80 percent of the druggists of the country do not make their pharmaceuticals by the U. S. P. processes, is it any wonder that there is need for Pure Food Inspectors?

Consider the ease with which unintentional mistakes can be made in the measurement of fluidextracts and the effect of such mistakes on the finished products, where a shortage of a few minims of the concentrated liquid means an appreciable difference in the product. This shortage may proceed from inaccurate measurement or from failure to rinse the graduate with the diluting fluid. For instance if 30 cc. are to be used in the manufacture of a preparation and 3 cc. are adherent to the graduate then there is a loss of ten percent in the strength of the finished product. It may be said that a person who is so careless as to allow these cc. of the fluidextract to fail of inclusion in the tincture would be careless in manufacturing by the U. S. P. processes, but if so a mistake of a few grains in his weighing will make no appreciable difference in the strength of the finished

product, and then too the mental training he will acquire by following out the specific directions of the U. S. P. will tend to make him careful in his work.

The catalogs and price-lists of glass manufacturers advertise graduates guaranteed to deliver certain specified quantities. I hope that no one here present is guilty of using these graduates and feels safe in so doing, for there is no graduate made that is capable of delivering an equal amount of all liquids that are measured in drug stores. The only way to secure accurate results would be to have a separate graduate for each liquid from chloroform down to balsams and heavy oils. But suppose that Mr. Druggist has a special graduate for the particular fluidextract that he is measuring—does that mean that it will deliver that quantity as he pours from it or must he let it drain carefully to get his required quantity? And, too, if he then rinses his graduate with his liquid is he going to get more of his concentrate and thus have a stronger preparation in his completed product? Such things tend to lack of uniformity in attaining the proper standards; furnish employment to pure food inspectors and encourage a lack of confidence in the druggist by physicians and laity. If I were going to use fluidextracts in the manufacture of preparations I would buy a pipette to use in measuring them, for only by using accurate measurements can one be sure of getting accurate results. The principle of using graduates guaranteed to deliver certain quantities is all right in theory but it is absolutely impossible to get a graduate which will deliver the goods. If there are any skeptical persons here that doubt this statement let him go home and test its truth by measuring from a guaranteed graduate 30 cc. each of chloroform and Balsam of Peru. Of two preparations, one made by the process of the Pharmacopœia and the other by diluting the fluidextract, there is but one that you can consistently mark as U. S. P.—the former. The other is made by an unofficial method and from a concentrate whose strength is vouched for by a manufacturer, but of which you have no other evidence. One you know to be true to standard, the other you hope will turn out so. Compare the appearances of preparations made by these two methods. They will be found to differ greatly and most of the tinctures made from fluidextracts will form a precipitate from the variances of the alcoholic strength of the diluting fluid from that used to prepare the fluidextract. Not long ago I was forced to prepare some Syrup of Wild Cherry from the fluidextract, the patient being in a hurry for the prescription which my stock of that syrup was insufficient to prepare. After I had prepared it I was ashamed to dispense the preparation, even in a prescription where the color would be somewhat disguised, for instead of the clear red syrup of the official process the product was a cloudy, dark brown syrup. There is much complaint by physicians on account of lack of uniformity in the appearance of standard pharmaceutical preparations, and if they should be supplied with a dark brown syrup of Wild Cherry instead of a clear red one, can you blame them for their just complaint? This was the first time I had ever used this method and it will be long before I do so again. The men who make the United States Pharmacopœia are as learned a group of men, both in the theory and practice of pharmacy, as can be found in the country, and they certainly would not require a busy pharmacist to waste his time in making preparations in the way directed by them, if the shorter way was "just as good."

In this day and age *speed* is the pass-word, but do not fool yourselves into believing that you are saving time and money when you are not getting the best results. The large manufacturers use the U. S. P. methods because they must conform to its standards; their goods must be able to stand government inspection and they must be sure that they are up to standard. As to the cost of manufacturing one's own preparations I have made two calculations, one including the time-cost, and the other excluding it. The first computation was made in order to fairly compare the cost with that of the manufacturing firms. The second was made for the reason that as the work was incidental to the other work of the store, it was thought best not to add the time-cost in figuring the net cost of the preparation. By the first method I find the actual saving to be from 10 percent to 25 percent, and by the second method the saving is from 25 percent to 50 percent. After making a preparation the next step is to test it to see that it is up to the standard required by the Pharmacopœia. I am afraid that the number of pharmacists who see the fine print underneath the directions for manufacture are very few indeed. I doubt if any druggist in the United States who makes his preparations from fluidextracts ever tests them after making. I am also doubtful as to whether there are many of those who make their preparations by U. S. P. methods who submit them to official tests. The fine print which follows the directions for making the preparations is just as important as the rest, if not more so. Nearly every druggist who uses the short method of manufacture has the same excuse to offer, viz., "This way is just as good and it saves a lot of time. I haven't the time to do it the other way." This may be so, but what does he keep registered men for, if not to do this work? If he has enough confidence in them to stand responsible for the prescriptions they prepare, he should have confidence in their ability to manufacture official preparations. This brings us to another question of importance, but which I will not discuss in this paper on account of lack of time. That is the graduation qualification for registration. While I believe it possible for a person to make a success in the drug business without a college training, yet in such a school he is trained in the pharmaceutical art, is made familiar with its literature, its implements and processes, and is taught to use his Pharmacopœia rightfully and usefully. There is of course a class of druggists in our profession which class is found in all lines of work—the incompetent. While this class do not maintain themselves in the drug business as long as in some other lines of work, many of them are in it long enough to bring discredit upon the profession. This class needs nothing more than a mere mention, as to waste time upon discussion of them would be useless and unprofitable.

We have therefore three classes of druggists that are responsible for the lack of uniformity in pharmaceutical preparations: First, the careless druggists who are the most numerous, and who can improve their methods if they will but try to do so; second, the "busy" (?) druggists who plead "lack of time," but who can be converted by being "shown"; third, the incompetent druggist, who will be out of business before he can be "shown" or taught. I hope that there is no one here that belongs to any of these classes, but should there be, it is time for him to change his ways and then if possible to be his "brother's keeper" and try to help him upward into the right path.