

## STANDARDIZATION NEEDED.

The revision of the "United States Pharmacopeia," which is to be done next year is a matter of sufficient importance to receive the serious consideration of the profession. The physician is the one who has the greatest interest in the reliability and availability of the products of the pharmacist. They are part of the tools of his trade and on their efficiency his success to a greater or less extent depends. It is a well-known fact that many of the crude drugs that form the basis of the pharmacopeial preparations are far from being as reliable as their proper medical usage demands. When such physiologically powerful drugs, for example, as colchicum, conium, hydrastis, hyoscyamus and others may vary in their content of active principle 200 to 300 per cent. in different samples, as has been amply demonstrated by competent authorities, it would seem that something ought to be done to eliminate these fluctuations of the crude drug from the official preparations. If the latter are not uniform in medical potency, what confidence can be placed in them or in the pharmacopeia, which certainly ought to be a reliable guide for accurate dosage and medication?

It is true, the last edition of the pharmacopeia did provide standards for cinchona, opium and nux vomica and the recently published "British Pharmacopeia" goes a step further and "standardizes" ipecac and belladonna, but the principle has not yet been made to cover calabar, coca, colchicum, conium, gelsemium, hydrastis, podophyllum, stramonium or veratrum, to say nothing of important drugs such as aconite, cannabis indica, digitalis, ergot and strophanthus, which defy any and every chemical test thus far elaborated, and which, to be assayed at all, must be tested pharmacologically on the living animal.

It is, perhaps, demanding too much to ask the revisers of the Pharmacopeia who are soon to enter on their decennial task, to provide standards for all powerful drugs, but it seems to be well within the bounds of the reasonable and moderate to urge the expediency of extending the principle of chemical standardization to all drugs susceptible of accurate chemical assay and also of adjustment, by chemical means, to uniform standards based on a fixed percentage of active principle or principles in the finished preparation. Surely, the physician has enough to perplex and baffle him in the idiosyncrasies of individual patients, and in the irremediable difficulties of diagnosis—may he not justly demand protection from the disaster which follows in the train of a weak, inert, unreliable drug product, or of a prepara-

tion possessing an unusual and dangerous potency? The golden mean between the worthless and the toxic ought to characterize every fluid extract, solid extract or tincture administered in the treatment of disease.

The very general use of diphtheria antitoxin and the growing employment of an antitetanic serum for prophylactic purposes have acquainted the profession with the fact that the curative serums can be tested and standardized only by the physiologic method—by observing how much of the serum will preserve from sickness a test-animal into which is injected simultaneously ten times the fatal dose of the respective toxin. This is indeed a tedious, laborious, expensive and not absolutely uniform means of pronouncing on the exact strength of a given serum, but it is the only means available; there is no other, as no chemist pretends that he can test a parcel of antitoxin with his reagents. Every word of this applies with almost equal force to the testing of a limited number of powerful and important drugs like ergot, digitalis, squill, convallaria majalis, cannabis indica and strophanthus. The chemical test for these drugs and their pharmaceutic preparations is very unreliable, and unless they are tested by the pharmacologist, on the living animal, their administration is a lottery affording no guarantee of prompt reaction or final cure. This fact is notoriously the cause of that unfortunate desuetude into which ergot and cannabis indica have largely fallen. Lacking uniformity of action and failing often to yield the expected results, the pharmaceutic preparations of the markets are discarded wholly by the disappointed practitioner. Professor Hare, in his "Therapeutics," ascribes the frequent failure of cannabis indica to the inferiority of the preparations encountered, and the worthlessness of much of the ergot on the market is beyond dispute. Witness also the report of Houghton<sup>1</sup>, who pharmacologically tested six samples "supposed to be pure strophanthin:" one sample was *ninety* times as strong as another, and the remaining four varied between these limits of one and ninety.

If drug preparations can be made uniform in strength by the comparatively simple and inexpensive means of chemical assay, well and good, otherwise the physician has a right to ask the wealthy and prosperous manufacturer to apply the physiologic test to preparations whose activity can be gauged in no other manner.

1. Journal, Oct. 22, 1898