

the Swedish apothecary, Sertürner, the apothecary of Eimbeck, Pelletier, the great *pharmacien* of Paris, to say nothing of our present day, John Uri Lloyd—such a calling I think has the right to call itself a science.

The National Conference of Pharmaceutical Research of which I have the honor of being chairman has now enrolled 200 individuals—pharmaceutical chemists, pharmaceutical botanists, pharmacognosists and dispensing pharmacists—who are interested in research. That their interest is not purely academic is shown in the fact that at each annual meeting of the scientific section of the American Pharmaceutical Association, anywhere from 50 to 100 papers embodying research are presented and discussed. A remarkable evidence of the research activity of American pharmacy is shown in the operations of the Revision Committee of the United States Pharmacopœia. This organization entrusted with the preparation of the national legal standard for medicines is, as far as I can learn, the oldest coöperative research group in existence in this country, having celebrated its centennial in 1920. Of the 50 pharmacopœial revisers, 33 are pharmacists. Surely a calling that can produce such a record of research is worthy to be classed among the sciences.

But my brother and sister initiates of 1924 may think I am forgetting them. So, Mr. Toastmaster, in my last minute, permit me in their behalf to say in the words of that great and strenuous man, the immortal "T. R.," that we have had "a bully time" this evening; that we are proud to be members of the Sigma Xi and that we hope by our future work to show ourselves worthy to carry forward the traditions of the Sigma Xi.

WHAT SHOULD A PHARMACIST KNOW?

THE COMMONWEALTH STUDY OF PHARMACY.

BY JULIUS A. KOCH.

To-day the trend in the education of youth is characterized chiefly by its practical application to the requirements for the actual service expected in the individual's chosen field. It is based upon the idea that while it may be desirable for the individual to know more than is necessary for adequate service, he should at least know that much.

The men concerned with the study of pharmaceutical education from the functional point of view were early confronted with the problem of how best to determine the specific body of knowledge the pharmacist should have in order to insure proper service.

They felt that, if they were to make a list of the duties of the pharmacist as a public servant, study thousands of prescriptions in detail, chart the economic facts necessary for the successful conduct of business, and in short to consider carefully all the services that are and should rightfully be expected of a pharmacist, they would have a body of material from which they might with some degree of accuracy determine specifically the background of knowledge necessary for its proper fulfilment.

As an example a consideration of the study of Latin would serve to give an idea of the application of the functional method.

Several thousands of prescriptions were studied for their Latin content, and each Latin word, phrase or abbreviation was charted as a separate entity. This was continued until a further examination of prescriptions brought forth no new material.

In view of the fact that these prescriptions were obtained from diverse localities throughout the length and breadth of the United States, and, since the study of prescriptions was continued until all the possibilities for new material were practically exhausted, it was felt that the data obtained were representative of the Latin ordinarily used in prescription practice.

Using this material as a basis, the Latin actually necessary for a pharmaceutical student could be determined somewhat positively. Briefly, if a student were taught a body of Latin knowledge that would include all the possible words he might encounter in ordinary prescription practice, his knowledge of Latin would be adequate for all practical purposes.

Such a study is now in progress in the hands of competent workers, and when this portion of the study of pharmaceutical education is completed, the results will be submitted for the earnest consideration of the pharmaceutical public.

MICRO-CHEMICAL METHODS.

The interesting account of micro-chemistry and its applications given by Professor van Itallie, of Leyden, before the Pharmaceutical Society, in London, draws attention to a branch of modern chemical technique that has been developed to a high degree of perfection in Holland and elsewhere, but that has not yet received an adequate amount of recognition in this country. The identification of chemical substances by means of the microscope is, of course, a well-known procedure, and one that has proved its high value not only in the examination of foods, drugs and pharmaceutical products, but also in mineralogy and in general chemical work. The carrying out of qualitative reactions under the microscope as an aid in the identification of the substances under examination was an early application of micro-chemical methods, but it is still in the further extension of these methods to quantitative work that the greatest modern progress has been made. The name of Professor Pregl, who received the Nobel Chemistry Prize for 1923 for his work, is especially prominent in connection with the development of these quantitative methods. * * * Professor van Itallie now tells us that micro-chemical methods have been in daily use in his laboratories for several years, and that his students frequently prefer micro-chemical to the customary macro-chemi-

cal methods. Some idea of the accuracy of the new procedure in the ultimate analysis of organic compounds can be gained from Dr. van Itallie's statement that in a test experiment, using less than 10 milligrams of the organic substance, the amount of carbon found differed by no more than 0.3 per cent. from the figure obtained in the ordinary combustion method. Professor H. G. Greenish, who visited Leyden in September last specially to study micro-chemical methods, stated in the discussion to the paper that he was convinced the method was both workable and accurate. The exact weighing of very small quantities of material presents no difficulties, for there are a number of suitable micro-balances now available. We cannot quite see eye to eye with those who advocate the introduction of micro-chemical methods into a practical chemistry curriculum of secondary schools of first year university courses, on the ground of the saving to be effected in the quantities of reagents used. These savings are likely to be counter-balanced by the cost of the necessary instruments. But it is more than likely that quantitative micro-chemical methods are destined to form, in the future, an essential feature of most courses in advanced chemical training.—*Chemical Trade Journal*, January 18, 1924; through *Pharm. Jour. & Pharmacist*, January 26.