THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

C. B. JORDAN—CHAIRMAN OF EXECUTIVE COMMITTEE, A. A. C. P., EDITOR OF THIS DEPARTMENT.

"The teaching of experimental pharmacology in the college of pharmacy is difficult because it requires considerable equipment and because the laboratory material requires care to handle and expense in providing it. If the college of pharmacy is connected with a larger educational institution giving a course in experimental pharmacology, the college is indeed fortunate. The University of Maryland School of Pharmacy has splendid equipment for the teaching of this subject, and the following paper on 'The Importance of Experimental Pharmacology and Its Possibilities in the Pharmaceutical Curriculum' by Professor Marvin R. Thompson will be an inspiration for those colleges that have difficulty in developing such a course."—C. B. JORDAN, *Editor*.

THE IMPORTANCE OF EXPERIMENTAL PHARMACOLOGY AND ITS POSSIBILITIES IN THE PHARMACEUTICAL CURRICULUM.*

BY MARVIN R. THOMPSON.[1]

Although a course in Experimental Pharmacology forms a part of the curriculum in only a very few Schools of Pharmacy, the possibilities of such a course have been recognized sufficiently to at least become a matter great enough in importance to merit discussion among the educators of the profession. It is probably true, however, that the proponents of such a course at present are greatly outnumbered by the opponents. Having had some experience in both the practice and teaching of Experimental Pharmacology, it is my purpose to briefly set forth certain views which will arouse interest and further discussion as to whether or not such a course properly deserves a place in the pharmaceutical curriculum.

All pharmaceutical educators are bound and invariably willing to adopt such measures as are necessary in equipping their students as professional pharmacists of the highest possible type. We recognize as a professional pharmacist one who is thoroughly capable and conscientious in providing the medical profession with standardized therapeutic agents of current recognition. It logically follows, therefore, that to increase the standing and recognition of pharmacy as a profession, the efforts of our schools must be bent in such a direction as to graduate only those who have demonstrated such qualifications in full.

Are pharmaceutical graduates of the present time fully qualified to assume wholly such responsibilities and duties of their profession?

It is an irrefutable fact that there is a considerable number of therapeutic agents which requires biological assay and standardization, and that the number is ever increasing. Training in Experimental Pharmacology is the only way by which a student can qualify himself for this work. By our accepted definition of a Pharmacist, this responsibility is his, and his alone. Therefore, it cannot be said that pharmaceutical educators have accepted responsibilities which are traditionally theirs, until courses in Experimental Pharmacology and attendant facilities are made available in our Schools of Pharmacy.

---

* Delivered before the Teachers' Conference on Materia Medica, Toronto meeting, 1932.

[1] Emerson Professor of Pharmacology, School of Pharmacy, University of Maryland.

It has been argued that retail pharmacists would have no use for such training, because of the impossibility of carrying on such work, in a drug store. It is at once admitted that such work cannot be pursued successfully in the practice of retail pharmacy. But is it not true that pharmaceutical manufacture, chemical synthesis and analysis, etc., are at present practiced to practically no extent at all in the drug store? Yet we do not accept this as an argument against courses pertaining to these phases in our curriculum. And, indeed, rightly so. Experimental Pharmacology should be considered in a similar light.

It may be observed that every recognized profession is made up essentially of three types of workers; those who engage in actual practice, those who teach and those who pursue research. It may at the same time be observed that the amount of recognition any profession enjoys is in a measure proportional to the qualifications of the teachers, but even more directly to the advance through research achievements of the profession. Increased efforts in the field of research, therefore, forms a logical way to increase the recognition of our profession.

Would the teaching of Experimental Pharmacology actually serve such a desirable purpose? For an answer to this question, one has but to look to the accomplishments of our pharmaceutical chemists, who long have been, and are now, constantly preparing new compounds and isolating new chemical principles. But is Pharmacy capitalizing to fullest extent on these achievements? Obviously not, simply because of the fact that new substances must be investigated pharmacologically, which Pharmacy is at present unable to accomplish, and they are either investigated by those of other professions, or they are never studied at all.

In a recent issue of "Science News Letter," August 6, 1932, the following paragraph appeared:

> "The pharmacist has much less call for his skill and knowledge nowadays, a survey shows, for physicians increasingly prescribe medicines in terms of trade names instead of ingredients to be compounded."

If this is true, and it is undeniably so, it becomes necessary for pharmacy to supply properly qualified workers to assume their just responsibilities in the pharmaceutical manufacturing houses, both from the standpoint of manufacturing, and also the chemical and biological standardization of products, thereby making it absolutely essential that Schools of Pharmacy make training in Experimental Pharmacology available to students desiring to pursue biological testing and assaying, a field whose importance is already recognized, and which is a function of pharmacy just as surely as is chemical assaying and testing of therapeutic agents.

Opponents of such a course in pharmacy may argue that students desiring to study biological assaying and testing may obtain such training in a Medical School. A knowledge of the facts brings forth my flat contradiction to such a view. In explanation, it must be pointed out that, as in chemistry, Experimental Pharmacology is sharply divided into two branches, *i. e.*, qualitative and quantitative. Medical Schools are concerned almost exclusively with the qualitative branch, or with the *nature* or *kind* of *all* drug actions. Pharmacy should be concerned primarily with the quantitative branch which includes biological assaying and particularly with respect to just those drugs which, by their nature, require this type of control. The difference between the two branches requires different

qualifications in instructors, and different equipment and facilities. It is, therefore, impossible for a student to receive a course which would adequately qualify him as a bio-assayist in the average School of Medicine.

Those who have not accepted biological assays frequently raise the question: "Do biological assays reflect the true therapeutic action of the drug?" then, illustrating their point by taking, as an example, digitalis, whose potency is determined by its ability to stop the heart of the frog, whereas in therapeutics it is used as a heart stimulant. Such arguments merely result from a lack of knowledge of facts. It would be just as logical to question the accuracy of the chemical estimation of alkaloids because they are not used therapeutically to neutralize acids in the body. Once the active principle of the drug has been determined, or the desirable type of activity has been ascertained, the method of quantitative estimation of that principle or type of activity, need have no relationship to the therapeutic use, whether it be a biological or chemical method.

I believe that providing training in experimental pharmacology, with particular respect to its branch of quantitative pharmaco-dynamics, in Schools of Pharmacy, will serve to better the standing of the profession, *first*, because, in biological assaying, we will assume a responsibility which is justly ours, and *second*, because we will increase our facilities toward achievement in research.

For obvious reasons, there would be no necessity for making such training a requirement in our curriculum, but it is believed that the provision of such training as elective, would yield results distinctly to the advantage of professional pharmacy.

As a closing thought, I would bring forth an important matter, intimately bearing upon the above, for the consideration and support of workers in pharmacy. Biological assay and standardization requires the preparation and distribution of proper standards. This, as bioassaying itself, should be strictly a function of pharmacy, and would properly be carried out by experienced and qualified pharmacists located in the new American Institute of Pharmacy, at Washington.

SOME FACTS AS BROUGHT OUT BY THE STUDY OF THE ACTUAL PRICES CHARGED FOR PRESCRIPTIONS.*

BY LEON MONELL.[1]

"The following paper by Professor Leon Monell again emphasizes the importance of some concerted effort to bring about a uniform method of pricing prescriptions. Teachers of pharmacy should continue to agitate this question until they arrive at a method that is applicable to all parts of the United States, or nearly so, and then proceed to teach this method in the colleges. A bad condition will not be righted until it has been well exposed, and the following paper by Professor Monell materially assists in exposing the unsatisfactory prescription-pricing conditions that now exist."—C. B. JORDAN, *Editor*.

Your secretary, Dr. R. W. Rising, has requested me to present the data resulting from my study of the actual prices charged for prescriptions.

Continuing last year's study of the actual prices charged for new prescriptions,

*Read before Conference of Teachers of Pharmacy, American Association of Colleges of Pharmacy, Toronto, August 22, 1932.

[1] Associate Professor of Commercial Pharmacy, University of Buffalo.