

On February 19 I sent out the first letter, as a result of which the following were named as the Examination Committee: J. W. Sturmer, H. C. Christensen, Geo. C. Diekman, R. A. Lyman. A date, June 25, was named for Examination Day, but as it was impossible to reach a decision, notice of postponement was made and all pharmaceutical journals kindly printed the notice. There has been considerable correspondence and the decision was reached that final action would be taken during the meeting of the American Pharmaceutical Association in Chicago.

Respectfully,

E. G. EBERLE, *Chairman.*

Further report of the Committee on Award of the Fairchild Scholarship is printed in September JOURNAL A. PH. A., p. 824. Since then Chairman H. C. Christensen has advised that the name of no candidate has been presented this year for the Fairchild Scholarship.

Chairman R. A. Lyman presented the report of the Committee on Higher Educational Standards. After some discussion it was voted to refer the report to the American Conference of Pharmaceutical Faculties.

The paper presented at the close of the Second Session of the Section on Education and Legislation by Frank H. Freericks was discussed and, after approving of the recommendations therein, referred to the Council.

(As heretofore stated, the recommendations are printed in November JOURNAL A. PH. A., p. 1004. The Council has taken action and the Committee is now at work.)

The Joint Session of the Section of Education and Legislation, American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy was then adjourned.

WHAT SHALL WE TEACH?*

BY H. H. RUSBY.

The teacher who is thoroughly interested in the subject matter of the Syllabus cannot fail to be impressed by the objections that are advanced against the inclusion of matter that does not pertain to the particular department of instruction in which the objector is interested. It is a regular occurrence for such teachers to depreciate the value of and disparage attention to the subjects taught by others. Within the last few months the writer has been favored with the following views, partly verbal and partly written, from teachers whose schools are represented in the American Conference of Pharmaceutical Faculties.

1. "You make the subject of pharmacy entirely too prominent in the Syllabus. Pharmacists no longer manufacture their own preparations and they are getting farther away from it all the time. The pharmacist is becoming more and more a tradesman. What we want in the Syllabus is more attention to the commercial side of the business."

2. "Only the fundamental principles and procedures of business should be taught in the pharmacy school. The way to learn business methods is by business experience, and the place for it is the store, the same as in any other department of commerce."

3. "The pharmacy course is no place for so much botanical instruction as is contained in the Syllabus." "Boards of pharmacy do not ask questions upon it and should not do so." "Botany is a delightful study and I find great recreation in pursuing it in my spare time, but the pharmacist has no use for it and it should be deleted from the pharmacy course."

4. "An extreme amount of attention is given to pharmacognosy in your Syllabus. The retail pharmacist no longer sees crude drugs to any extent and is seeing less and less of them in any condition. Only a very few drugs should be studied and those only in a superficial way."

* Read before Section on Education and Legislation, A. Ph. A., Chicago meeting, 1918.

5. "Not one drug store in a hundred possesses a compound microscope and the average pharmacist will never look into one after leaving the school."

6. "There is no sense whatever in going so extensively into the subject of physiology. The retail pharmacist has no use for this knowledge and it is a waste of good time for the teacher to devote more than a few hours to it." This number of hours has been variously stated at from twenty-five to ten, this allowing for both lectures and recitations.

7. The study of the actions and the uses of drugs is said to be a complete work of supererogation. "If it has any permanent effect it is that of tending to encourage counter prescribing, which offends the physician and tends to widen the breach between physician and pharmacist."

8. One would suppose that the subject of chemistry in pharmacy teaching would be safe from the hands of the vandal, but this is very far from being true. We have been subjected to severe criticism for what is called "an attempt to make analytical chemists out of pharmacy clerks." Even pharmaceutical testing for purity of product has been roundly criticized, and that by successful, prominent and highly educated pharmacists, on the ground that "pharmacists very rarely test their drugs, and could not begin to do so if they desired, without employing a chemist for that special purpose." It is declared that this time should be devoted to teaching pharmacy proper.

The one subject that has been practically free from criticism is toxicology. There appears to be a unanimous agreement that knowledge of toxicology is a prime requisite, as a means of safety for the pharmacist and his clerks and customers. I ask particular attention to this fact as it has a special bearing on what follows.

In quoting the above views, I must not be understood as disparaging any one of them. There is truth and sound reasoning in all. On the other hand, there are considerations of a directly opposite nature, which have been wholly ignored by these critics and it is to be remembered that for each and every one of the subjects mentioned, there are claimants demanding that they should receive far more attention than is now given them. Regarding a number of them, there are claims that they respectively constitute the backbone of the pharmacy course, this word "backbone" having actually been employed in a number of arguments. Two facts are quite obvious: First, that they cannot all be backbones; second, that it is the usual thing for a specialist to think that his special subject is the backbone of the structure.

I can readily imagine the reflections with which different members of the audience have listened to the views quoted, and I think that I can single out most of those who entertain the respective opinions concerning them. In the case of each claim there are some who would like to cry out "Amen" in good old Methodist fashion, while others are curling the lip of contempt. The Syllabus maker can do neither. He is a referee and he must act as a judge. We should all be Syllabus makers. Even our most ardent specialists should place a curb upon their enthusiasm and endeavor to get the viewpoint of the other. Is it not time that we should systematize our work and formulate our methods of Syllabus revision? The only way to do this is to study the relations of each subject to each of the others and so treat it that it shall contribute the most possible to the value of the complete work. We must indeed go farther, and give some attention to the functions of the Syllabus course as the foundation for additional work in graduate and special courses. It is with this in mind that I submit for consideration certain facts upon which should be based definite principles and rules of action in Syllabus revision:

1. The pharmacy course of the present Syllabus is a very short and necessarily very incomplete course and must therefore be directed toward the accomplishment of a specific purpose, namely that of preparing ordinary clerks for pharmacy, prescription work being the main subject to be considered.

2. This course is not intended to prepare specialists in any part of the pharmaceutical field, and Syllabus makers should firmly resist any attempt by the teachers of specialties to pervert the Syllabus into an organ for turning out their music.

3. The relation of each subject to each other, as to explaining it and rendering its teaching most efficient in the production of a useful whole, should be more carefully studied than it is and should constitute the main guide in determining the extent to which that subject should be admitted into the course.

4. The course of the Syllabus is so highly inadequate, even for the one purpose that it has in view, that it must be assumed that all who enter the profession of pharmacy will go far beyond the Syllabus field, either in an additional school course, or through information subsequently gained, in one way or another.

5. For the reason just stated, the Syllabus must be regarded, in addition to the above characterization, as a preparation for the subsequent pursuit of specialties. This office of the Syllabus course cannot be too seriously considered, and Syllabus makers should proceed as carefully in fitting it for this service as for that of preparing for the pharmacy board examination.

Considering carefully all the inconsistencies, exaggerations and absurdities which abound so profusely in Syllabus criticism, it is clear that almost without exception they proceed from a failure to appreciate one or another of the principles which I have enunciated. The first requisite for Syllabus harmony is their recognition and observance.

It is because of this fact that I have insisted, as I still do, that the only way to make a good Syllabus is to begin our investigation at the top and to determine what kind of a foundation will be necessary for the superstructure. This is a very different process from that of beginning to build at the top, and it is the method that is employed in all architectural work.

Pursuing such a study based on the above principles, I have reached the following conclusions:

Considering the subject of toxicology as less subject to adverse criticism than others, let us see what preparatory instruction is necessary for its intelligent study. It involves a knowledge of what substances are poisonous and of the nature of their poisonous properties; also the relations between their medicinal actions and uses and possible poisoning by them. This necessarily involves some knowledge of diseased functions, which in turn involves a comparison between that and healthy functions. A study of healthy functions is physiology and no mere question and answer course in it will meet the above necessity. We can limit the field considerably but we must study that field quite closely and, above all, rationally. Physiology is called for in an additional direction. Every one now regards pharmacodynamics, miscalled "pharmacology" by many, as one of the important subjects of the advanced course. How is it possible for one to experiment on animals, as to the action of drugs, without a good knowledge of physiology, and of anatomy as well? I conclude that no reduction in the physiology of the present Syllabus can be made, unless medicinal action and toxicology are to be deleted, and that much more of it is necessary as a preparation for pharmacodynamics.

It appears equally obvious that the poisonous and medicinal constituents of drugs must be known from the chemical point of view before anything can be

done in studying their action. The organic chemistry of the Syllabus is at the very most no more than sufficient for this purpose. As to the inorganics, no argument seems called for to show that no portion of the inorganic chemistry of the Syllabus can be spared.

If this is true of chemistry as a basis for *materia medica* and toxicology study, what is to be said of it as a basis for pharmacy? Who can claim that any part of the chemistry now in the Syllabus is not essential as foundation for other work, without considering the subject of chemical analysis at all? Who can deny that another year should be allowed to permit of increased chemical instruction as a basis for advanced courses?

If our Syllabus chemistry is indispensable in preparing for *materia medica*, toxicology and pharmacy, what shall be said of our fragmentary and elementary physics course as a preparation for chemistry and pharmacognosy? Certainly, no portion of it can be spared!

To how great an extent is a knowledge of pharmacognosy necessary in the study of *materia medica*? None can deny that some crude and powdered drugs are regularly sold in our pharmacies, nor that others are used by practically all pharmacists in their own operations. A practical knowledge of such articles, and the ability to examine and test them by the use of both the simple and compound microscope, is a necessity of the most practical character. It is claimed that because such drugs form but a small portion of the complete lists of the *Pharmacopoeia* and *Formulary*, we should omit the study of the others from the Syllabus course; but consider for a moment what would be the opinion of the medical profession of a pharmacy course that did not include the study of all the articles that are included in the two books which constitute our legal standard. Imagine a profession ignorant of the very identity of the articles that are legally standardized as to both identity and purity! I would admit that many of the minor drugs might be but little studied, but I would never admit that any of them should be dismissed with no attention whatever.

What does the necessary preparation for the study of pharmacognosy include? Supposing that we studied thoroughly only twenty-five or fifty drugs; do they not contain all the vegetable tissues, and would they not include every portion of the plant? How then could any part of the structural and descriptive botany of the Syllabus, as to both outer and inner structure, be omitted, without crippling the student of pharmacognosy at a later period? The question as to whether boards of pharmacy ask questions has no relation whatever to the study of subjects fundamental to others on which they do ask questions. We never knew a board to ask questions in spelling, grammar or common arithmetic, but they assume that the candidate must know these subjects, and I think that any candidate found seriously deficient in them should be thrown out. It is the necessary and useful status of physics, physiology and botany as fundamentals that should control the decisions of Syllabus makers regarding their admission. The present botany of the Syllabus cannot be curtailed!

As to our pharmacy, it, if anything, should be regarded as the "backbone" of the Syllabus. Whether pharmacists actually make a preparation in their practical business or not, no man who does know how it is made should be regarded or licensed as a pharmacist. This is the department toward which all the others

herein considered are contributory, and we should have more rather than less of it.

It is my conviction, after most careful consideration of the subject, and investigations of all other views that could be obtained, that so long as our course remains of its present proportions, we cannot do better than to retain as compulsory all the subject matter now made so, and that we should include, properly indicated by brackets or otherwise, considerably more than is to be recommended for those schools in whose courses it can be incorporated; also, that the matter for a third year should be recommended as desirable and an effort made to lead up to the definite inclusion of such a third year's work.

In conclusion, I wish to say a few words regarding the duty of the Conference of Faculties of bringing to the attention of the high schools and of state authorities who pass judgment upon the work of such schools, the necessity of insisting more rigidly on better scholarship on the part of those who are graduated and promoted from one class to another. The habit of depending solely upon marks, good-naturedly and loosely allowed, results in supplying us with matriculants who must subsequently be taught by us the things which they are supposed to know before coming to us. Who has not had one, two and three year high school students, and even graduates, who are incompetent to perform or understand ordinary arithmetical problems, whose spelling and grammar are disgraceful and whose knowledge of Latin is limited to *Sic Semper Tyrannis* or *E. Pluribus Unum*?

In my opinion, the Conference of Faculties should investigate this subject and take suitable action.

DISCUSSIONS.

C. A. DYE: Doctor Rusby has made plain something that is fundamentally sound, something that I fear at some day may, if I am a good judge, interfere with the working of our prerequisite law. The question came up in Ohio when we were attempting to pass a prerequisite law, what could we adopt for a commercial course? We adopted the Pharmaceutical Syllabus of 1913, which includes some commercial work. Can the law make it compulsory so that a school must teach a certain amount of bookkeeping, a certain amount of advertising, and a certain amount of other business subjects? I am very much in favor of teaching commercial subjects, but I believe we ought to have in the Syllabus, as Dr. Rusby has said, a skeleton to build upon. Is the Pharmaceutical Syllabus compulsory for members of our Conference or does the Conference recommend it as a basis for pharmacy courses?

CHAIRMAN C. B. JORDAN: I understand it is to be used as a basis, that a certain number of hours be given by colleges to the subjects but they can go beyond these requirements. Dr. Rusby is a better authority.

H. H. RUSBY: You are right, but when the State Board adopts the Syllabus, as many boards have done, then it becomes compulsory.

CHAIRMAN C. B. JORDAN: I doubt very much if your State Board will insist that you teach exactly what is in the Syllabus.

C. A. DYE: They will demand that we teach the number of hours required by the Syllabus. When it comes to insisting on the number of hours on commercial subjects, I don't know what they may do. The Conference should adopt a standard for a pharmacy course and make it mandatory for its membership. That will give us something to work upon.

CHAIRMAN C. B. JORDAN: I take it that is what our Syllabus is as far as the number of hours is concerned.

C. A. DYE: That is mandatory, is it?

CHAIRMAN C. B. JORDAN: It is understood you will adopt the number of hours, but not necessarily the methods employed for teaching. Am I not right, Dr. Rusby?

H. H. RUSBY: That is perfectly right.