

Pharmaceutical Education.

How It May be Made Practical and Adapted to the Practice as well as the Theory of Pharmacy.

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At the meeting of the A. P. A. Sept., 1890, in attempting to throw some little light upon the very important question of which my paper treats, I expressed the hope that it will elicit a free discussion by the teachers among us. The profession of the teacher is a liberal and a generous one. We, at least, have no secrets; but we must all have ideas concerning our work which can be promulgated with mutual advantage, and such occasions as the present we should make the most of.

As a rule, advanced students are the most neglected class of students, and that which we call higher education is high only in the sense of treating of advanced subjects, its strictly educational features being most incomplete and unsystematic. As a preparation for instruction in the humblest primary school, a thorough course of training in the theory and art of teaching is considered indispensable, but in much of our professional instruction it seems to be entirely lost sight of that there exists a science of education just the same as a science of chemistry, of physiology or of botany, the mastery of which is an important, not to say necessary, preparation for a successful teaching career. The teachers in our public schools organize district and city, county, state and national associations, where they periodically discuss, not the subjects which they are called upon to teach, but the teaching of those subjects; and where effort is directed not so much towards the discovery of new truths in general science, as of improved methods of presentation and new apparatus or device for illustration. But professors in colleges and this is more particularly true of those in medical colleges - content themselves too much with the pursuit of their own investigations, and proceed to the work of teaching merely because they are proficient in the particular branch of science represented, and frequently totally devoid of experience in teaching, of knowledge of the fundamental principles on which the art depends, and, in short, with the most meager qualifications for successfully imparting to those dependent upon them the rich stores of knowledge which they themselves possess. Under such conditions a large part of their effort is wasted, and a considerable proportion of the money annually expended in professional education is practically thrown away. The student must have some definite object in attending upon courses of lectures in preference to studying his text books at home and this object must be the gaining of some special advantage by that method. Such advantage he can gain only by virtue of some special effort put forth, or some special device resorted to by his teacher to the end of enabling him to acquire the utmost possible at the least ex-

penditure of time and effort, and in such a manner as is best calculated to prove of future utility. But these particular accomplishments the teacher is not at all likely to stumble upon. The laws under which he is to act are as old as the human intellect, and their study is the most profitable means toward the accomplishment of the end sought. It is upon these same fundamental principles that all successful teaching must be based, although we have various systems to choose between, and the methods are as varied as the nature of the student and his surroundings.

In the absence of any extended experience as a teacher of students of pharmacy I should hesitate about offering my small contribution to this subject, but for the fact that the methods to which I solicit your attention are the results of extended study of the theory and art of teaching and a long experience in the work in other fields.

We find the following conditions confronting us in our work in the College of Pharmacy:

First, we are preparing men for a business not sufficiently remunerative to warrant them in devoting the long years of preparation customary for the professions of theology, medicine and law. For this reason, chiefly, we can never hope to secure classes composed largely of college graduates, or of men - and of women, for we are to see more of the girl student in the future than we have done in the past - skilled and disciplined in the art of study. A most unsafe class, therefore, to be left to their own devices in this matter. If we would make the most of them we must do much of their thinking for them, so far as relates to methods of study, and we must walk with them at every step and be ever watchful to guard them against the errors and oversights that more experienced students would of themselves avoid. And not only against errors and oversights, but against deliberate omissions as well, for our young man has not only not yet acquired the best habits of studying, but in very many cases he has not yet learned that study is not a hateful drudgery, and has not reached the point where he can be trusted to apply himself with faithfulness.

To meet this condition a faithful application of quiz methods is the most efficient artifice we can employ. It is here that the student is to receive not only a constant review of the subjects which he has passed over, but where we are to indicate to him, by the nature of our questions, those portions of his subject which are of the greatest importance, and to train him in the art of utilizing the results of his instruction gained in the lecture room. The professor should work closely with the quiz master; should accompany him at times into the quiz room and express a lively interest in all that he does. He should at times institute extemporaneous quizzes of his own, and should be always prepared to discuss with his students the practical application of his teaching, not only to the work of his own department, but its relations to the teaching of the associated chairs. Too close a relation can

not grow up between the professor and his students, and the quiz class cannot be too assiduously cultivated.

Of eminent advantage in the same direction also is the arrangement of the different courses of instruction, so that they shall fit properly into one another, and so that the entire course of the college shall constitute one regularly graded and harmonious system of instruction, the same as is done in other schools, and with us even more important than elsewhere.

The necessity of making the lectures attractive requires no comment. Only the most attentive and eager of students can sit with profit under a dry and unattractive lecture, droned forth without illustration or attempt at ornamentation.

A second element of difficulty with us is the shortness of the ordinary pharmacy course. There is scarcely time for thoroughly working the half of the ground that must be gone over, and there is the utmost necessity for unflagging application and a perfect atmosphere of earnestness and thoughtfulness.

We have to consider, moreover, in selecting our subject matter and adapting our methods, the precise object which the student of pharmacy holds in view. Surrounding himself as best he may with the conditions for culture and refinement, his course of study is nevertheless not designed for culture nor general discipline. His objects are purely technical. His design is to fit himself for a business, partly professional, it is true, but largely commercial, where he is to engage in a fierce conflict for a livelihood, and where he cannot afford to sacrifice too much of the actual technical details of his business for the pursuit of the associated enjoyments of pure study. Bearing this thought, in connection with that of the short time at our disposal, steadily in mind, we must do two things, and do them relentlessly:

First, we must eliminate from our course of instruction everything of a purely elevating nature, the presence of which would necessarily displace any instruction on which the business success of the young man shall in any measure depend. Instruction of a higher order must of necessity be withheld until the time shall have arrived when our colleges generally shall provide post-graduate courses of instruction.

Secondly, we must, in presenting such subject matter, leave nothing to the imagination, but present it all in the most realistic manner that it is possible for us to devise under our respective circumstances. There is scarcely a field of labor where knowledge must be so definite, clear cut, accurate and unequivocal and where the element of personal familiarity counts for so much as in the practice of pharmacy. We must not tell our students about the things of which we are teaching; we must make him personally familiar with them. It is not enough that we should explain to him the processes for doing his work. We must allow him first to see us performing it, and not at the distance of 150 feet, but so that he can see and understand every detail; and