

leges and apparently they are willing to go "to the mat" on the proposition. It is also apparent that the New York colleges are not a unit in sharing the views of the Assistant Commissioner, and it is hoped that he and those who may agree with him by receiving "more light" and wider vision will arrive at the conclusions reached by the majority and help build up pharmacy as a profession by raising educational requirements.

WILBER J. TEETERS.

HIGHER PHARMACEUTICAL STANDARDS.*

BY F. J. WULLING.

The Next Partial Step will be to One Year of Academic College Training as a Prerequisite to the Study of Pharmacy.

To the thinking pharmacist certain facts stand out:

1. Educational standards determine the respective standards of the several professions. These standards are established by the majority of the members of the respective professions and are based primarily upon the nature of the service rendered. Professions, among them pharmacy, are occupations based upon a liberal education and involve, first, mental work and then manual.
2. Pharmacy is one of the major medical divisions or specialties rendering a service entitling it to parity with medical standards. Dentistry is already rightly claiming this parity.
3. Pharmacy, strangely enough, does not now represent or claim these standards.
4. This is because of its docility and under-education and the defenselessness going with these.
5. The remedy lies in greater assertiveness, in a greater love of quality and in a sense of proportion and self-appraisal.

The world has great need to-day of the recognition and love of quality—quality in things, men and institutions. All practitioners, but especially the educators including the educational administrators, need more urgently than ever a fuller understanding and realization of the need of a greater degree of excellence and efficiency in the conduct of their professions. (I am speaking of the practice of pharmacy, not of merchandising.) Especially do our educators as a whole need most urgently this realization because education is so primary and fundamental and because its degree and quality determine ultimately the standard of the service for which education and training prepare. The love of quality, the power of self-criticism, the sense of proportion and the recognition of man's spiritual nature, if sufficiently instilled into the hearts and minds of our youth, will insure the welfare and permanence of our country and our institutions. But these things must be made more dynamic, effective and affirmative than they now are. We must employ these to replace mediocrity, indifference, lack of vision and lack of wisdom. Pharmacists of to-day must think more of the future, must create more adequate ideals and intellectual (and spiritual also) forces and project them into the future for later effective and fitting results. This they cannot

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do unless they are constantly and conscientiously aware of the fact that they are the present trustees of a profession which has seen better days (in its immediate relationship to the public) and which has a right to rehabilitation and still greater development in a more rapid degree than it is now experiencing. Those most concerned with the welfare of pharmacy are almost despairing not because pharmacy is not growing but because it is growing so slowly and because it is letting the other professions out-distance it. More rapid, much more rapid development should be the aim of pharmacy. How can that be brought about without financial detriment? In our age most questions resolve themselves into financial ones, a fact which is to be regretted but to be faced. (Personally, I would much rather ask: How can we diminish the misery of the world and increase its health and happiness? than: How can we make more money?) My reply is: Increase the intellectual efficiency of those entering the ranks, to a point commensurate with that of other professions and advance this point from time to time. I have said this before but I have also proved practically through a period of nearly thirty years that advancement of requirements for entrance upon the study of pharmacy has not diminished but actually increased the number of new entrants and has unquestionably resulted in an influx of quality into the calling. If promises and agreements are kept and there is no reason whatever to believe that they will not be kept, in a very few years a full high-school preparation will be the minimum for entrance upon pharmacy exacted by all members of the American Conference of Pharmaceutical Faculties. Then no institution, college or board accepting entrance upon a lesser qualification, ought to be tolerated by pharmacy. Self-interest and personal and financial considerations in questions of preparation for and the practice of a responsible and important public service, fraught with danger if practiced by the under-educated, have been long enough brakes upon the development of an honorable calling and ought to be made to cease by professional and public opinion and condemnation.

A group of responsible and conscientious educators and practitioners long ago regarded a mere high-school training as a very inadequate prerequisite to the study and practice of pharmacy. All practitioners, manufacturers and others engaged in any department of pharmacy ought to have that broader outlook, keener perception and culture growing out of a much wider academic training than a high school affords. The best investment any young man or woman can possibly make is the completion of a four-year academic college course, including as much as possible of the classics with the sciences and mathematics, languages and history, leading to the bachelor's degree. Pharmacy built upon such a foundation need have no fear of the future or of standards of other professions. The number of young men and women who are recognizing this advantage is continually though slowly growing. If pharmacy had established such a standard twenty-five years ago, it would not have its present difficulties.

A full academic college course preceding the study of pharmacy is probably out of the question at this time because of the slow speed of functioning of the collective pharmaceutical mind. I do not say it is impossible that this collective mind cannot gear up to a speed that will establish that standard at one quick swoop; I merely say it is improbable in the light of the past, but I do see a growing

fitness in pharmacy for that harmonious and effective action which will make this requirement a possibility in four installments of one year each. This fitness and willingness, though in their first and feeble stage, are arising out of a growing conviction on the part of many pharmacists that unless pharmacy itself takes this step, other agencies will do it instead. Certain universities are discussing this very thing in their study of the question of a common university year to precede entrance upon any professional course. Certain states have already taken the matter of educational prerequisites out of the hands of the colleges and boards and have established higher standards which they no doubt will increase from time to time. Pharmacy is thus definitely confronted with the alternatives of itself establishing such educational standards as will be recognized as adequate or of having others do it instead.

Since the war there has become apparent a distinct renaissance of learning as witnessed by the present overcrowding of all educational institutions. This will result in selection of those admitted and this selection will be made by advancing entrance requirements. Those professions which increase their requirements will get the quality, the others the residue of the less fit. Pharmacy has a distinct and definite opportunity here to get quality. Will it embrace this golden opportunity or will it sit supinely by and take what other professions refuse? Already many colleges of dentistry, engineering, chemistry, education, law, mines, music, business, not to speak of medical, have substantially raised their entrance and graduation requirements since the war, or recently. How many colleges of pharmacy have done so?

Because of the greatly increased number of applicants for entrance to academic colleges, the administrative problems of these colleges have greatly increased and have necessitated in quite a number of cases the division of the regular four-year course into the Junior College course of the first two years and the Senior College course of the last two years. Only a few medical and law schools now require a bachelor's degree for entrance upon professional study, but nearly all other medical and many colleges of law, engineering, education and others now require completion of the Junior College course for entrance. Why should not pharmacy make a beginning at once and require the completion of the first year of the Junior College and, say by 1926, the completion of the second year as a preparation for entrance upon pharmacy?

Pharmacy is just past a critical period, but is heading for another and a more serious one if it does not seize its present opportunity. Pharmacy needs an educational charter. So far we have been merely shuffling around advertising our docility and mediocrity instead of proceeding along lines of coöperation and collective intelligence and firm and wise decision. Initiative, common sense, energy, selection, perseverance, will prevent the ultimate disinheritance of pharmacy with which we are threatened. Instead of losing our birthright, we should and can if we only will do so collectively, become heirs to an ever-increasing fortune. The great American Pharmaceutical Association more than any other agency is the trustee of our calling, especially in its professional aspect. It has done great things for pharmacy in the past but it cannot be content with its past glories. Because of its achievements, traditions and influence, it must adapt itself to the

growing requirements of to-day. It must not only administer upon matters as they arise; it must foresee, initiate, direct; yes, command where that is necessary. It should embody and represent and carry out the aggressively upward spirit of American Pharmacy. It should recognize its own power and exercise it affirmatively; should definitely establish and enforce higher standards of professional conduct and of education; should ever be alert and discriminative in national legislative matters affecting professional practice and, in short, should be the watch dog, the conservator and the stimulator of professional pharmacy in a greater measure than it is of late. To do and be all these things requires a large group of earnest workers, but an insufficient number of members seem to be interested in the common work to a degree to make it possible for the Association to do its work most fully. What is to be done and how? How is emancipation from pharmacy's present condition to come? First, I think, by regarding education as the hub of the pharmaceutical wheel and establishing sufficiently high educational standards and manning our educational institutions, public and private, with men and women of mature administrative and pedagogical ability and vision, empowered and able to wisely select our students and to create in them the evolution and practice of professional ideals and ethics, good taste, common sense and adherence to duty according to the rules of dignity, clear perception and wisdom. This should be an immediate and forceful endeavor. With such a foundation the rest will be taken care of and administered wisely. "The best men, the best governed" is a truism which cannot be refuted and can with profit be applied to pharmacy. There should be created an aristocracy in pharmacy; an aristocracy not best born but best in spirit; one recruited from the rank and file and returned to them periodically. Pharmaceutical success, collectively, to be real and effective must secure for its positions of administrative power the most enthusiastic, able and willing members of the profession; that is, it must incorporate and utilize the principle of aristocracy—government, representation and administration by the best. Aristocracy should be the means and the machinery by which pharmaceutical democracy works itself out. This can be done alone by education. It is impossible to overestimate the need of vision, idealism, energy, breadth, aggressiveness, assertiveness, good taste, administrative ability, honesty and enlightenment and wisdom in those entrusted with teaching. The teacher carries a burden that is not mean. He represents the ideals and the future of a profession and should draw his power and support from organized pharmacy. He must be unselfish and self-sacrificing and must be satisfied with the knowledge of work well done and service unsparingly given. The person who sees every issue only in the light in which it affects him personally or his pocketbook is not the sort of teacher or administrator who can help lead on to success. We have many splendid teachers but not enough of them. That is our fault because we have not attracted them or demanded them. We must create the demand and the supply will follow. There are many pharmacists now who are standing up for the faith that is in them but we need more.

Neither the educators nor the practitioners have collectively stood in the past for sufficiently high and firm standards. Will they do so in the future? I think they will if they study the present situation and endeavor to find a solution and remedy. We must all pause in our haste and think and think deeply. After

thought and reflection our tongues must be sober and we must tell the truth.

In conclusion, let me say that I feel this Section ought to *create a standing committee on educational policy which committee should annually or oftener make constructive recommendations to the Association looking to a rapid increase in educational requirements*. Even before establishing this proposed committee, it would be proper for this Section to recommend to the Association the adoption of a resolution advising all colleges of pharmacy to require for entrance in 1924 the completion of the first year of a standard academic college course (the first year of a Junior College) and in 1926 the completion of the second year of such a course (completion of the Junior College course). Some colleges are contemplating this step now.

It would also be consistent and proper, indeed I think called for, for this Section to advocate a professional course in pharmacy of a respectable character, quantitatively and qualitatively, covering a minimum of three years of lecture and laboratory work. I suggest that this Section go on record as advising this step forthwith. With the completion of one year of academic college work and three years of professional study the student should be entitled to the bachelor's degree in pharmacy and this degree should be required as a prerequisite to examination for license to practice. A few years hence, say a decade, the consideration of a bachelor's degree in science or art for entrance upon pharmacy should be taken up.

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ABSTRACT OF DISCUSSION.

LYMAN F. KEBLER: This subject has been discussed for many years; this Association should get back of the proposition for higher educational requirements of pharmacists.

E. L. Newcomb moved the appointment of a Committee in accord with the recommendation, that a standing Committee on educational policy be created, composed of five members.—Carried.

THE POLARISCOPE AS AN AID IN THE IDENTIFICATION OF ALKALOIDS.*

BY A. G. MURRAY.

In the qualitative analysis of a medicine of unknown composition it is usually comparatively simple to ascertain whether or not an alkaloid is present, but the identification of the alkaloid, particularly if only a small amount is available, is not always easy. There are no "group" reagents such as are used for the separation of the metals. The use of various "immiscible" solvents (*i. e.*, immiscible with water), petroleum ether, ethyl ether, benzene, chloroform, ethyl acetate, amyl alcohol, etc., does indeed permit the separation of alkaloids more or less definitely into groups. These separations are usually not sharp, however, portions of alkaloids classified with one group often being found in another. Thus it is not possible to separate quinine and strychnine quantitatively by extracting the quinine with ether.

* Contribution from Bureau of Chemistry, U. S. Department of Agriculture. Presented to Scientific Section, A. Ph. A., New Orleans meeting, 1921.