

Both this system of narcotic records and of general stock control have been found to be most satisfactory and are sufficiently flexible to suit the situation in an institution of any size. In fact, neither of these systems was in use at Hurley Hospital two years ago. They were put into use as modifications of the systems in use by the University of Michigan Hospital, which is an institution having three times the number of beds as Hurley Hospital, and whose whole system of management is very different from that of Hurley Hospital. In the long run, the time it takes to keep these records is time saved, since it takes less time to check stock, write orders and see salesmen. It also means that many an embarrassing situation because of stock shortage is avoided.

ADVANCEMENT OF PHARMACEUTICAL EDUCATION.*

BY FREDERICK J. WULLING.¹

Through the many years I have devoted to the advancement of education I have learned that the source of the initiative of such activity is principally the educators themselves. They have had not only very little help from other sources, but were constantly confronted with opposition from many directions. Some of this opposition was formidable; some was deplorable, because it was based upon self-interest; and in still other cases it was to be considered, discussed, debated, and out of it often came helpful conviction and support. Every worthwhile forward step should be, and usually is, a collective one. The initiative usually comes from one or more individuals, who work upon the minds of many in executive and resourceful ways, and if they can convince the many, collective and binding action follows. The wisdom or the contrary, of the collective mind depends upon the preponderance or the lack of wisdom of the individual minds composing the composite mind. It is the well-rooted belief that a majority of individual minds, if they are agreed and unanimous upon the same subject matter, are wiser collectively than a minority and so the action of the majority prevails and becomes binding upon all. For an individual mind to sway or convince a majority is not, as a rule, an easy task, but that is the way nearly all forward steps are begun. To do this requires time, often very much time, even of many individual minds. It took about forty years to overcome the opposition to the Pure Food and Drug Law because of the self-interest of the minority. In education there is less self-interest than in the economic or industrial world and hence educational progress should be more rapid than it is. Why is that so? Because, it seems to me, not a sufficient number of educators put their minds upon the executive or administrative aspects of education. Every faculty member, not only the dean, should definitely train himself to become a very efficient administrator within the scope of his own work. Education, indeed every profession, needs a minimum of good business management in every division and as a whole. This minimum is constantly increasing; the alert and wide-awake are realizing this fact and are guided by it.

The pharmaceutical education of to-day is the product of the work of a comparatively few minds. The education of the future should be the result of the af-

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firmative working of many constructive minds, and should accordingly reach much more highly placed standards. The paramount objective is or should be the utmost advancement of the public welfare; that utmost contribution must be based upon a much higher and more altruistic, intelligent professional service, attainable only or primarily through higher education and more exacting training, than is standard now.

This body of men whom I am addressing, with a conviction gained and strengthened through a long life time, represents the collective mind, and each separate member the individual mind. I see a great potential power in you individually and collectively for the advancement of our profession; a power and influence far beyond those you are exercising now in a composite way. Upon you and others in related divisions of our professional activities, depends in a major degree what is to become of Pharmacy. I do not mean to accuse anyone of indifference; rather do I want to do you a service, such as I would have been grateful to have received when I was as young as some of you are. I want only to remind those to whom my remarks apply, or those who are willing to accept them, that every one of us is in a strategic position to exert influences and set examples leading definitely to a better general welfare through higher pharmaceutical standards. Many of us are doing that very thing in a well-thought-out way or method. Others just do an honest day's work and let it go at that. That isn't enough. Everyone of us should be an executive and have the interest and industry of an intelligent executive. Most of our minds are working at much less than full capacity. A good mind working at half capacity but with discrimination and wisdom, will far exceed in effective results the busy mind that works indiscriminately and without well-defined objective or plan. Not all of us can make detailed plans for the rest of our lives, but we can make plans in a general way. It is a good plan to make plans—worthwhile plans, of course. By doing so we can actualize things that we wish to come to pass. We plan with our minds. Our minds will work for us if we bid them do so, and direct and energize them.

I would like to put a thought into your individual minds for your own further individual development. It is already in the minds of a few of us. It has been in my mind for many years. I have spoken and written upon it many times. At first I had no adherents at all. During the past several years the number of supporters has grown measurably. *The thought is to develop pharmaceutical educational standards to a parity with those of other professions, especially with those of Medicine.* I would like to strengthen this objective by quoting what I said as the guest speaker at the Winnipeg meeting of the Canadian Pharmaceutical Association not long ago. "Advancements have ever had to fight their way against too conservative or uninformed or prejudiced minds and that is well, because development won against such opposition must have merit. The four-year course is not the end of the development begun with the abolition of the old-time two-year course. It is only a milepost; and beyond it is another milepost and then another in accordance with the law of civilization and human progress. There is nothing in history to prove that lower standards are in the long run better than higher, and civilization itself is proof that higher and ever higher standards are the plan for the increase and maintenance of the welfare and safety of mankind. The great mass

of the people does not think in large enough terms to realize this fact, and must be pushed forward by the comparatively few who do.

Progress is mental first of all. Let us follow out this thought somewhat: There is the individual mind and the collective. Great thoughts and projects arise in the individual minds who think in the larger terms. It is pioneering work on the part of the few to get new thoughts, ideals, projects, into the consciousness and acceptance of the group or collective minds. The higher the average of the common sense of the mass mind and of the smaller collective or group minds, the easier is the work. The average is not nearly high enough, but it is advancing perceptibly and is gaining momentum in an intellectual sense, and I believe in a moral one as well, as evidenced by recent development in practically all walks of life. The one great collective human mind concerns itself, or should, with matters common to all humanity. For matters not common to all humanity, there are divisions or group minds, collective or inclusive in their own spheres. Every social group has its own collective mind in this respect, including in its composition individual minds who are leading or educating the mass minds in matters common to the group. The various professions are examples of such groups or divisions of the collective mind. There are the group minds of Medicine, Pharmacy, Dentistry, Law, Education, Business, Mines, Engineering, Architecture, Art, etc. Each of these group minds thinks in its own terms principally. The medical group mind is different from the legal because it has medical and not legal things to think about and vice versa. Each of these social or professional groups has its own further subdivisions, and so, for example, medicine has smaller groups of specialists, each subgroup thinking in the terms of its subdivision, but in relation to the larger group. The pharmaceutical group mind has its subdivisions, some of which are: the educational (teachers and the colleges), the practical (practicing pharmacists), the regulative (the State Boards), the industrial (manufacturers), the distributive (wholesalers), etc. Each of these subgroups, like all such divisions, thinks in terms peculiar to itself and usually refuses to think, even remotely, or occasionally or partially, in the terms of the other divisions. And here I put my finger on a weak spot to which I will revert at another time.

For purposes then of what I am attempting to convey, let me classify: (1) the one great collective human mind; (2) the group minds or divisions of the collective mind; and (3) the individual minds. The individual minds are basic in their several aggregates to and constitute the group minds and through these the entire collective mind. All initiative is taken by the advanced individual minds, and in matters relating to or affecting the groups is or is not advanced by the group minds. The individual minds cannot, of course, do certain things, nor can the group minds. For example: all the proposals for higher pharmaceutical educational standards were made by individuals, but they could not actualize them. However, through the agency of the pharmaceutical group mind, which functioned at first through the A. P. H. A. and now operates also through other subgroups such as the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, the State associations, the various conferences, seminars, the Research Council, Council on Education, etc., most of the worthwhile and timely proposals made by individual minds have slowly become actualized. The individual minds propose; the group minds enact; that is, if they are convinced affirmatively. To

bring about this conviction is the difficult work. Even the most worthy proposals meet at once such obstacles as self-interest, prejudice, jealousy, indifference, ignorance, inability to think a matter out to its logical conclusion and other infirmities of individual minds. The struggle is first among the individual minds. When these minds agree, or a majority of them, enactment by the group mind follows and the agreement becomes a guiding principle for the group. The initial, basic, preparatory work is therefore with the individual minds. Work with the group mind follows. The enactments of the group minds relate to matters affecting only the respective groups. Group mind matters may be said to be of two kinds: (1) those relating exclusively to the group and (2) those relating to other groups. Similarly, individual mind affairs are (1) those pertaining to the self exclusively, and (2) those having to do with other individual minds. Group mind matters relating to other group minds bring the group minds into contact and agreement and sometimes into conflict. In all such matters the group minds, or a majority of them, must agree before they can produce any advancement, just as the individual minds have to agree in matters relating them to other individual minds before group mind action can be expected. Group minds must meet other group minds for agreement upon matters common to them all. The sum total of these matters in common constitutes the affairs of the one great collective human mind.

For a clearer understanding of what I am trying to convey we can exemplify: (1) The individual minds with the minds of individual citizens and with the minds of individual pharmacists; (2) The group minds with the minds of the state legislatures and with the minds of organizations; (3) The collective mind with the mind of Congress (as yet unorganized pharmaceutically).

There is therefore a universal mind relationship. From the closest to the remotest degree, every individual mind is related to every other individual mind and its life and affairs; to every group mind and its life and affairs, and to the great collective or mass mind. The collective pharmaceutical mind is as yet unorganized. Its organization into a federation representing all subgroup minds is Pharmacy's next important self-defensive measure. (I have frequently written about the need of a federation of all organized divisions of Pharmacy. Reiteration is not needed here, but all interested are referred to my papers and addresses published on the subject.)

Applying what has been said above, emphasis should be placed upon the need of directing and educating the individual pharmaceutical minds into channels of better thinking. Most individual minds are open to conviction and willing to be guided rightly by, shall I say, advanced individual minds? But the advanced minds are not sufficiently marshalled to do the needed work. As already stated, the individual minds must associate themselves into group and subgroup minds for purposes of enactment of agreement binding upon all thus associated. The various pharmaceutical organizations already represent in a respectable degree such association of individual minds, but the respective subgroup minds have not together sufficiently planned procedures for the further education of the individual minds for needed still higher enactments. The associations I named above are the organizations nearest to this needed planning and work, because they are so intimately related to education and education is most fundamental and basic as generally agreed. The work they have already accomplished bears out what I am advocat-

ing, only they should go further and accelerate their paces. It would be proper for these group minds to launch a well-planned and definitely directed movement toward generally higher educational and practical standards and ideals of the individual minds. They would not be alone in so doing, because the group minds of other professions have already preceded them as shown by their respective higher standards of education and personnel. What the plans and procedures should be I have not now the time to indicate fully, even if I could; indeed the plans should be formulated by many minds, but they should include: (1) a study of the procedures already largely completed by other professions; (2) wiser selection of recruits for Pharmacy; (3) the education and correlation of the individual minds, especially of students and other recruits, specifically toward the realization and appreciation of the value, ethically and materially, of higher standards; and (4) the placing of a watchful keeper at the door to Pharmacy. My proposal to require the completion of the Junior College for entrance upon technical pharmaceutical study, though an important one, is only part of what a concerted plan should be. It is only another of the periodical suggestions made by an individual mind realizing the need of additional enactments, instead of the command of the organized pharmaceutical group mind presenting its mature conclusion after careful thought and investigation; but that is the way all advancements have been started in the past and probably must continue to be the way for a while longer.

Education is a development, a growth, an evolution; so are civilization, culture, human welfare. The latter depend upon the former and upon research. Education is fundamental and concerns itself first with the individual mind. Under adequate development of education, other things follow. Education is the cost of welfare. The more of the one, the more of the other. One is the cause, the other the result. These facts are quite generally accepted, and need no elaboration here, but it may be helpful to review some of the recent steps in pharmaceutical educational development, and I will devote a few minutes to that end:

In a paper read before the Section on Education and Legislation, A. PH. A., at the New Orleans meeting in 1921, entitled, "Higher Pharmaceutical Standards," and published in the October, 1921, issue of the *JOURNAL OF THE A. PH. A.*, I predicted: "the next partial step in pharmaceutical education will be one year of academic college training above the High School as a prerequisite to the study of Pharmacy." That was seventeen years ago, and followed a paper read before the Conference of Pharmaceutical Faculties, and also before the joint session of the Section on Education and Legislation, A. PH. A., and the National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties in 1918, entitled, "More Consistent Pharmaceutical Standards," and published in the September 1918, number of the *JOURNAL OF THE A. PH. A.* in which I urged the completion of a four-year High School training as the minimum preparation for the study of Pharmacy. I had made these and similar recommendations earlier but cannot at this moment give bibliographical references. These two recommendations have now been carried out, because the minimum four-year course, in effect in most colleges by action of the American Association of Colleges of Pharmacy, includes the equivalent of one year of academic work of college standard. These two recommendations were made as only part of a program I had planned for the College of Pharmacy of the University of Minnesota as long ago

as 1892, and which I always hoped would become the objective of Pharmacy in general. This developmental plan of pharmaceutical educational objectives included among other things the following steps successively in the order given:

1. Completion of four years of High School preparatory to pharmaceutical study.
2. Ditto, with subject requirements within the High School curriculum.
3. The abandonment of the two-year course, and the establishment of the minimum three-year course.
4. A minimum credit and clock hour content, a selection of proper didactic and laboratory subjects and their correlation and coördination, in the three-year course.
5. The completion of the first year of an Arts or Junior College either before or concurrently with pharmaceutical study, as part of a four-year course. (The now existing minimum four-year course.)
6. Ditto, with subject designation in the academic work. (For example: the required 45 academic quarter credits to include 10 credits of each—English, a foreign language and college Physics, and 15 credits of electives.) (The present minimum four-year course in the College of Pharmacy of the University of Minnesota.)
7. The completion of the first two years of an Arts or Junior College as a prerequisite to the study of technical Pharmacy, to constitute a five-year course.
8. Ditto, with designation of subjects to be completed within the Junior College curriculum.
9. The completion of three years of academic study preliminary to three years of technical pharmaceutical study. (Six-year course.)
10. The possession of a B.A. or B.S. degree from an accredited Arts College before technical study. (Seven-year course.)

The above program relates to undergraduate work. Graduate matters are on another program and need not be taken up here.

After nearly forty-seven years, the first six objectives of the program have been reached. The seventh objective is therefore next in order and should receive active attention and support by at least those colleges who are in position to look forward with some degree of certainty to its realization. Indeed, all colleges could support the objective, in principle at least. It will be the accepted standard sooner than many believe possible, because two very important factors are entering the situation: (1) Educational standards are rising acceleratingly everywhere and in all divisions of education. The professions represented in the leading universities have practically all achieved this objective or gone beyond it, either upon their own initiative or upon the initiatives of the university administrations. Anyway, Pharmacy is behind them in that respect and for no reason that would have any weight in the discussion of the responsibilities and relations to public welfare of the various professions. Some university administrations believe the completion of the Junior College is the lowest present educational standard that provides an adequate basis for professional study of any kind and they may soon act on that belief and enforce the requirement with or without the support of Pharmacy itself. Educational institutions, especially the higher ones, can no longer fail to realize that their full

and responsible relations, individually and collectively, are to public welfare, and many are including in that relationship a sense of duty to the general welfare not felt before in any compelling degree. It is indisputable that some calling themselves pharmacists are not sufficiently trained culturally and professionally to meet the demands and decrees of a professional standard in the sense accepted by other professions and demanded by public as well as individual welfare. Reasonable laws are not retroactive and no one now in practice should be made to suffer by retroactive laws, but it is clearly a duty to accept new recruits only on terms that are certain to improve present standards. The hope lies in the coming and future generations of pharmacists, but the present generation because it is in power is responsible in a large measure for the standards of the future. Its present standards are inadequate for the future. It can atone somewhat for its past mistakes and omissions by studying the past and applying its lessons to the future by aiding the modern trend and objectives of the higher institutions of learning. (2) Another element, also practically external to Pharmacy, is the demand for higher standards by students. This is well illustrated by the fact that practically fifty per cent of the students in the College of Pharmacy of the University of Minnesota have voluntarily completed the two years of the Junior College. A few have completed three years of academic work and several have the academic bachelor degree in arts or science. (These latter are in the vanguard and give promise of achievement in due time of objectives 9 and 10 in the above program.) These students have or will have completed five or more years for their bachelor's degree in science in Pharmacy and several years ago they petitioned the College for a degree indicating five years of work above the High School, or for the advancement of the degree requirement to five years. It is encouraging and heartening to be able to report such a demand on the part of students. There is an increasing number of students who are wise enough to look into the future and to plan their lives to meet more successfully the increasing competition in life which they can foresee. More and more students are seriously planning far into their futures. They are realizing that life is a great adventure and that adequate training is the best insurance against failure and for success. They plan in a high-minded way. In a measure they write their own specifications of what they want or think they should have. No faculty should discourage this tendency, but should be helpful with wise suggestions. Many modern students educate themselves. They choose to go to school only because the school affords them a means of expediting the attainment of their goals, just as a fast train brings one to a destination in a better way and in quicker time than the old gray mare could. However, it would never do to let the train decide the matter of our going any more than it would be wise to let the students alone decide what the educational policies and procedure should be, but their interests and helpfulness should be welcomed and encouraged. I cannot think of a more helpful sign for Pharmacy than a student demand for a five-year course, a "two and three" course; two years academic and three professional. Such a demand would point to the coming of a wiser and more loyal generation of pharmacists.

In conclusion, let me say that these two factors in pharmaceutical educational development should make us pause and study anew what our objectives should be in the light of the ever-increasing general development and to state these objectives in new or advancing terms. It is clearly within the scope, indeed within

the functions and duties of the group minds represented by pharmaceutical organizations to think on these matters and to formulate objectives and procedures. Not all of the group minds have as yet discovered themselves. In fact, some have no consciousness of their own existence. Some have and are working, though not according to a definite well-formulated plan. Others should be helped to discover themselves and to realize how much time they have lost. Who will help hasten the awakenings?"

. At the University of Minnesota and at other comparable institutions, Pharmacy is behind Medicine, Dentistry, Education, Law, Agriculture, etc., in educational standards. The relation of these to the general welfare is no more responsible than Pharmacy. Pharmacy has lower standards because its members appear not sufficiently conscious of their rightful place in public health service in which Pharmacy's participation is on a par with Dentistry and most of the divisions of Medicine, if based on the responsibility these professions bear to public health. Another reason is the unaggressive and unadministrative attitude of the rank and file of the pharmacists.

The next step Pharmacy should take is to rise to the five-year minimum standard. The faculty of the College of Pharmacy of the University of Minnesota recommended this step to the President of the University three or four years ago. The matter is still under advisement. It is one of the objectives Dean Rogers is expected to advance. He needs encouragement and support. The Minnesota College had the encouragement of several other colleges when it was the first to go on the minimum four-year course in 1926. If other colleges look with expectant eyes on Minnesota again, the five-year course will eventuate all the sooner. The many arguments against every higher step advocated for Pharmacy in the past all proved unavailing in the end, because they were without inherent merit. The few arguments against the five-year course I have heard will prove similarly unavailing as will all those succeeding ones opposed to an educational parity of Pharmacy with Medicine. Some laggards should become workers forthwith. The records show that every recommendation I made during the past half century was at first declared visionary and impractical, but every one of them without exception has been enacted, and so will the five-year course and the still higher standards listed in my plan above.

The five-year course is not a new idea. I have been advocating it for a long time and others have supported it for years. As long ago as 1928 I received an unsolicited letter and to which I gave some publicity, in which the writer said among other things: "You are perfectly right in insisting Pharmacy has every right, indeed is obliged, to place its standards upon a basis already established by other and "no more responsible" professions. Proper education, including the cultural and ethical qualities that go with it, point the only way out of our present situation, and the only means for our rehabilitation and the return of our professional self-respect. You establish the five-year course and others who are hoping for it will be better able to increase their requirements."

Another correspondent wrote at about the same time: "As you say, Pharmacy is in all respects a division of Medicine, in fact the most important one, and should therefore be characterized by the same standards upon which our medical brethren insist."

Now if I wanted to quote you, my listener or reader, what would you say? I hope you wouldn't speak until you had given the matter a thorough study.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. PHARMACY
SUB-SECTION PROGRAM.

A symposium on the vitamins with particular reference to their standardization will be held on Tuesday, June 20th, when the Association meets in Milwaukee, Wis. Two sessions of the pharmacy sub-section are planned. A number of outstanding workers in the field of vitamin research have already accepted a place on the program. Others who desire to present papers should notify the chairman of the program committee at an early date.

GLENN L. JENKINS, *Chairman Program Committee.*

NATIONAL CANCER INSTITUTE BUYS RADIUM.

The National Cancer Institute purchased radium valued at \$200,000 the latter part of 1938. This supply will be loaned to hospitals and clinics for treatment of cancer. An institution that borrows the radium must take the responsibility of transporting it from the Bureau of Standards and back again for periodic testing, must store it properly while using it and must insure it against loss and damage. According to the Health Officer, personnel and equipment of the borrowing institution must meet standards equal to those established by the American Board of Radiology for the safe use of radium. Preference in use of the radium will be given to persons unable to pay for the treatment.

MEETING OF DISTRICT NO. 4 OF THE N. A. B. P. AND THE A. A. C. P.

The 13th annual joint meeting of District No. 4 met at the University of Michigan Union, Ann Arbor, Mich., April 13th and 14th. There were Round Table discussions by State Board Members and Faculty Members, during the first hours. These were followed by a Joint Meeting at which time addresses were made by J. L. Powers and S. H. Dretzka.

The following papers were presented: "The Relationship of State Board Examinations to Professional Education," Edward Spease; "The Relationship of State Board Examinations to Dispensing Ability," R. L. McCabe; "The Relationship of State Board Examinations and the Pharmacy Laws," M. N. Ford; "The Relationship of State Board Examinations and the Evaluation of Character," H. George DeKay; "The Desirability of State Board Control of Apprentice Experience and Restricting it to Experienced Pharmacists," C. C. Glover.

Mr. G. A. Moulton spoke on "Significance of National Health Program to Pharmacy," on Thursday, after which a tour of the University of Michigan Hospital Pharmacy, led by H. A. K. Whitney, was enjoyed.

On Friday the following papers were read: "A New Examination System in Colleges," C. J. Klemme; "Modifications of Written Examinations Suggested by Prerequisite Legislation," Edward Kremers; "State Board Examinations," J. D. Russell; "Controlling the Education and Licensure of Pharmacists in the Public Interest," R. P. Fischelis; "Drug Store Inspection, of What Should It consist," R. E. Terry.

At noon Jacob Sacks spoke on, "The Scope of Undergraduate Training in Pharmacology for Pharmacy Students." Later on the following were read: "Intra-, Inter- and Extraprofessional Activities of District No. 4 Members," L. H. Baldinger; "The Philosophy Underlying Continuation Study in Wisconsin," Edwin Boberg; "Materia Medica in the Colleges and for State Board Examinations," L. F. Jones; "Classification of Students," A. F. Markendorff.

AMERICAN COUNCIL ON EDUCATION.

The Twenty-second Annual Meeting of the American Council on Education will be held at the Mayflower Hotel, Washington, D. C., May 5th and 6th. The sessions are open to the public and a cordial invitation to attend is extended to any person interested in education. Throughout the meeting the Council will maintain in the lobby of the hotel an exhibit of publications and other materials related to its activities.