

ADDRESS OF THE PRESIDENT OF THE AMERICAN ASSOCIATION
OF COLLEGES OF PHARMACY.

BY L. D. HAVENHILL.

Last August, in Madison, when you chose me as the recipient of the highest office that this Association has to bestow, I can assure you that no one could have been more surprised than myself.

To serve as your president has been not only a great personal honor, but also an honor to the school which I represent. I desire at this time to express my appreciation of the hearty support that the members and officers of this Association have given me during the past year.

In accordance with the provision of the constitution of this Association that the president shall present an annual address, I have chosen as my subject, "The Education and Training of the Modern Pharmacist."

Thirty-four years ago to-morrow, May 8, 1900, the founders of this Association, numbering twenty-one charter members, met in Richmond, Virginia, and organized the American Conference of Pharmaceutical Faculties. Ten years later, in May, the Conference again met in Richmond, five members stronger at the end of the decade than at its beginning. Ten years later, also in the month of May, we met for the first time in the city of Washington. At this time our membership had increased to forty-five. In 1930, May was again chosen as the month of meeting, but this time Baltimore was the favored city. Our membership had increased to fifty-seven.



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Now, after four additional years of rambling, we are, after an absence of fourteen years, assembled in the city of Washington for the second time. Our membership still numbers fifty-seven, which, considering the four trying years, I feel augurs well for the continued

development and stability of pharmaceutical education.

I am glad that it is our good fortune to be in the nation's Capital again in this glorious month of May. For somehow, whether cold or rainy, or radiant with the warmth and gladsome sunshine of Spring, May outstrips all of the other months of the year as an auspicious time for annual reunion.

We have come back to a new and more beautiful city of Washington and fortunate indeed are we who are privileged to attend this thirty-fifth annual meeting and witness the dedication of the now realized dream of American Pharmacy—the American Institute of Pharmacy.

As we look back through the vista of more than a third of a century, we are saddened to note the rift in our ranks caused by the passing of so many pioneers and early workers in the cause of pharmaceutical education. If my information is correct, Dr. Edward Kremers is the only member now with us who was present at

the memorable first meeting in Richmond, Virginia, thirty-four years ago, who has maintained an uninterrupted directorship of a member college. Time has whitened his hair but has made no impression on his indomitable will and purpose to carry forward the campaign for a finer and broader pharmaceutical education which he began so long ago.

After many years of aggressive planning this Association has finally reached a place in its educational program upon which truly to build a profession of pharmacy. The minimum four-year course is at last a reality and I believe has come to stay permanently in one form or another. While the development of the four-year course has been slow, its progress has been steady. In 1927, at the time of its adoption, few, if any, of our members anticipated the financial situation that we would be facing in 1932. Many readjustments have been necessary and one might be pardoned for believing that 1932 was an inopportune time for the inauguration of this important step in our program of educational expansion.

We are in the midst of a world depression and by way of depressing you still more you may recall that I sent you a questionnaire, not too lengthy a one I hoped, to answer. I should like to consider with you for a few minutes some of the answers to the questions which I here propounded. Let me first thank you and say that the responses I received were unusually prompt, frank and complete. Such a response is remarkable and can only mean that those in authority appreciate the meaning of coöperation and are willing to give their time in whatever way appears to be helpful to the Association.

The replies to the first part of Question 1, "Has your school been seriously handicapped by diminished financial support?" were as follows: eleven, yes; fifteen, to some extent; twenty-eight, not seriously. District No. 9, the Pacific Coast states, as a group were the least affected, all reporting that they were not seriously handicapped.

The replies to the second part of this question, "If so, how have you met this situation?" indicate that the condition has been met to a great extent by salary reductions ranging on the average from 8 to 20 per cent but in some cases reaching 50 per cent. Strict economy is being practiced and many items from the customary budget such as traveling expenses, advertising, special printing, library funds, research, new buildings, special apparatus, assistants, etc., have been either greatly reduced or eliminated. In a few instances the decreased salary budget has necessitated dropping some junior members from the faculties. Compensating factors have been funds and equipment in reserve, gifts, increased tuition and to some extent decreased enrollments.

Many of the schools reported that their resources were diminishing and that drastic retrenchment would be necessary if present conditions were to continue over a period of several years. With the decided upward trend in the cost of laboratory necessities now manifest, this concern may become real, indeed, to all the schools. It is perhaps timely for an older member, for whom this is not the first depression, to remind the younger ones that many wonderful achievements and many brilliant scientists in the past have issued from laboratories in which the equipment was meager indeed. Necessity, said to be the "mother of invention," may in the near future develop some talent in our student-body which otherwise would perhaps have lain dormant.

Inspiring and resourceful instructors will triumph over whatever befalls. A striking feature was brought out in these replies, that I believe illustrates in a vivid way the professional spirit of pharmacy, a spirit that one could wish was more in evidence elsewhere in the world to-day, was that the faculty members in general accepted deeper cuts in salary in order that funds might be available to secure essential equipment and instruction for their students.

One of the most serious situations that may arise in the larger institutions of learning will be an attempt at reorganization under the guise of economy in which the school of pharmacy will be merged with other larger schools or departments and thus be deprived of its autonomy and professional organization. Some six or more schools have already changed or are contemplating changes in their organization. It is to be hoped that none of these will result in conditions that will be inimical to the best interests of pharmaceutical education. A recommendation, therefore, is offered to the effect that this Association view with disfavor economies of this kind and that the chairman of the executive committee register vigorous protests to any and all instances of this character.

A classification of the replies to Question 2, "If you have suffered a decrease in enrollment, especially of freshmen, in the past two years, to what do you attribute it?" indicates that thirty-four schools had a decrease in enrollment amounting to 30% or more in some instances. Eight schools had maintained their freshman enrollment and twelve schools had an increase in freshman enrollment, especially in 1933. In some cases this increase was more than 100%.

The depression was generally blamed for the decreased enrollment, but local conditions, increased tuition, acceptance of only approved high school graduates and lack of full support by the respective boards, were also causative factors.

It was inevitable that the four-year course should be held responsible to some extent, especially when the increased length of the course is considered in the light of unfavorable business outlook, and the financial embarrassment of prospective matriculants. However, only six schools believed that it was more than indirectly responsible and sixteen schools reported specifically that as a causative factor it was negligible.

The answers to Question 3, "Is there active opposition to the minimum four-year course in your state and if so, from whence does it emanate?" should be received by this group with considerable satisfaction. Forty schools report no opposition. Several of the schools that adopted the minimum four-year course prior to 1932 report that they are now actively supported by the pharmacists and the boards. This should serve to encourage those schools that did not adopt the minimum four-year course until 1932 and that are at this time facing the expanding curriculum with decreased enrollment and a decreasing income. Fourteen schools report some active opposition from board members and individual pharmacists who seek pharmacy only as a trade, also from financial backers and alumni of some competing schools whose standards are below those of the A. A. C. P.

The replies to Question 4, "From what sources do you encounter the greatest inertia in the operation of the minimum four-year course?" indicate that the program is neither wholly nor graciously accepted by druggists who might be characterized as follows: Those who fear they will have to pay more to their clerks, those who have no appreciation of the value of an education, those who have failed

to note that the apprenticeship system began to lose its effectiveness one hundred or more years ago, and from the "has-beens" of the non-professional type.

The response to Question 5, "Kindly give me all the information possible concerning 'cram schools' and other schools having requirements for entrance and graduation below the A. A. C. P. requirements, that are functioning in your state or immediate territory," indicates that there are a number of the so-called "cram" schools still functioning. They necessarily derive most of their support from the states where only drug store experience and the ability to pass the board examination are required of registered pharmacists. There are now, according to report, only eight states without a college prerequisite (Arizona, Massachusetts, Missouri, Nevada, New Hampshire, New Mexico, Tennessee and Vermont).

Recent printed matter issued by one of these "schools" in the Middle West, states that it has enrolled more than five thousand students since 1910, one thousand of whom were enrolled between 1929 and 1932. The explanation for this sharp rise in the attendance curve is that most of the boards in the district have announced a college prerequisite to take effect in the near future. It is reported that this school is a one-man, one-room institution without equipment, term six weeks, tuition one hundred dollars payable in advance and non-returnable.

There are ten schools listed in Guidance Leaflet No. 14 which are not members of the A. A. C. P., and a private school and college directory lists a score or more additional ones. Apparently, there has been but little change in the total number of pharmacy schools since the list compiled by Prof. W. L. Scoville and published by the American Conference of Pharmaceutical Faculties, in 1905.

That there should still be schools that do not meet the A. A. C. P. standards, offering pharmaceutical instruction in any of the states is indeed unfortunate for professional pharmacy. Surely the supporters of such instruction have given but little serious attention to the mass of material collected at considerable expense in time and money and rendered available as *Basic Material for a Pharmaceutical Curriculum*. The material in this book ought not to be restricted to curriculum builders. It is valuable for every one who believes in professional pharmacy and wishes to encourage it. There should be a copy of this book in every drug store—at least 65,000 copies, readily available for study and reference—but the fact is that after seven years less than 1% of this number are in use.

When the question of adopting the minimum four-year course was before this Association in 1928, numerous advantages were argued for and against it. Those schools which had already adopted this course were unanimous in their endorsement. To ascertain, if possible at this early date, if opinions had changed, Question 6, "What are the advantages so far gained by the four-year course?" was submitted. Forty-six schools reported distinct advantages; two reported that it was too early to offer an opinion; one saw no advantage so far; one reported a distinct disadvantage, but without comment; four did not report.

A few of the more frequently mentioned advantages were: time for more thorough work in each course; better morale; the broadening outlook; better sequence of a study; students show more of a professional attitude; a standard instead of a substandard course; fewer transfers of students to other courses; pharmacy has been dignified in university circles; fits students for a wider service.

Several deans, who had previously questioned the advisability of the mini-

imum four-year course, freely admitted that they were completely won over to the new program. The combination of college education and professional training is meeting with general approval. One dean, who is regarded as a pioneer in the field of higher education, writes, "The principal advantage we have found growing out of our minimum four-year course is the increasing recognition—even among our conservative pharmacists—that pharmacy needs men of better training, caliber and character."

Questions 6a and 6b were submitted particularly because of their bearing on two important advantages that it was hoped would be gained through the adoption of the four-year course. To the first part of this question, "Have better qualified students matriculated?" thirty-eight deans answered yes, in positive terms; nine answered no, without comment; five qualified their answers in such a way as to indicate that their matriculants in former years had been well qualified and two expressed no opinion.

The answers to the second part of this question, "Has it established an assured feeling of equality with students in other departments?" were as follows: thirty-three, yes; nine, that the question did not apply because they were independent schools; seven, that this question had not been a problem with them; two, not completely; two, no, but one offers in explanation, "We are associated with five- and six-year professional colleges and still are the short term school." Certainly, no more sweeping vindication of the four-year course can be offered than the answers to these three questions.

The introduction of the four-year college course in pharmacy, I fully believe marks the greatest and most important forward step in pharmaceutical education that has taken place in the last quarter of a century. I say this in a very emphatic and positive way and see no reason for modifying this statement in any particular. There are numerous reasons for believing that this is so. In the first place, it definitely elevates pharmacy to the rank of a profession, taking it permanently out of the vocations and class of manual trades. Again, it tends to bind medicine and pharmacy into a closer union than has ever before been possible because, in addition to giving the pharmacist a good professional training it provides time for considerable non-professional and cultural study and thereby places the pharmacist virtually on a par with the physician so far as general education is concerned. The pharmacist can now meet the physician on a plane of intellectual equality and demand respect for his opinions not only on matters involving drugs and drug therapy but on any of the general problems affecting private, community and national health. The first real step in bringing pharmacy and medicine into professional union has now been taken and the consequences of this step, as well as its importance for pharmacy, is well nigh inestimable.

A number of deans responded to my general invitation for comments and observations on the four-year course. These responses should not remain buried in my files and I wish to present some of them to you as quotations. I am indeed sorry that time prevents mentioning more than a few of the excellent replies that I have received.

"I am glad we have the four-year course. If I had it to do over again I should do whatever I could to promote its cause."

"The four-year course and curriculum as per Syllabus will attract a higher grade of students

who will, on graduation, have a better cultural background, and be more professional-minded and, on the whole, a credit to the profession of pharmacy. Formerly, only an occasional one would rise to such a high standard, and this was usually due to superior educational background before entering pharmacy school or college."

"We are well satisfied with the four-year course in this state."

"I realize very thoroughly that a four-year course seems to be somewhat excessive considering the kind of stores that possibly the majority of our students will go into after graduation, but I believe and sincerely hope that this is one way of raising the standards of pharmacy throughout the state."

"We always regarded pharmacy as the chief medical specialty and have continuously maintained that pharmacists should be educated upon an academic qualification equal to that required by medicine. Other professions are now exacting the same previous academic training that medicine requires. Our schools of Dentistry, Education, Business and Law require the same preparation for their respective technical work that medicine requires of students before they are admitted to medical subjects. Why should pharmacy occupy in a university a position inferior to any other school or profession? We feel there is no valid reason and all our endeavors in our struggle for advancement have been based upon that conviction. Pharmacy is a division of public health equally important with dentistry and certainly nearly as responsible as medicine. That pharmacists should be less qualified than dentists or physicians seems out of the question with us."

"I have a very definite feeling that the establishment of the four-year course will result in a much more secure position for the profession of pharmacy, both by the laymen and our sister professions of medicine and dentistry."

"We knew of course that there would be a few lean years but so far as I am able to determine there is not a man among us who would consider going back to the old system."

"I believe that our school has a better standing to-day in the state than ever before. We are putting on a part of the program for the state convention this year and in fact I feel fairly well encouraged in both the Syllabus and the four-year course."

"I am very much in favor of the four-year course in pharmacy. I believe this will decrease the number of graduates in pharmacy, but increase the qualifications of the graduates. I also believe it will have a tendency to instil a greater appreciation in the graduate for his profession, increase the professional side of pharmacy and decrease the general merchandising, which in my opinion is retrograding our profession at the present time."

"Judging from our experience in the last four years I believe that the benefits that have been accrued by graduates of the four-year minimum course in pharmacy more than outweigh the difficulties encountered."

The fourth edition of the Syllabus, which is intended to indicate subject matter for use in building the four-year curriculum, has now been available for a little more than a year. Each of the preceding editions of this book has served in turn to lead the way for the adoption of longer and broader courses of study. This one is destined to bring about greater uniformity and stability. Eventually its provisions should be written into the by-laws of this Association to become a part of the qualifications for membership.

It must be borne in mind that changes come about gradually and that it takes years of tireless effort to develop suitable and acceptable standards. Take for illustration, the U. S. P. which, though revised with great labor every ten years, was accorded no official standing for more than eighty years. It will not require so long a time, let us hope, for the A. A. C. P. to officialize a Syllabus. However, it would seem to be a little premature for the Association to attempt this step until the provisions of the Syllabus have been critically observed during at least one complete four-year cycle.

Bearing on this general subject, the next and last question, "What is the re-

action of your faculty to the new Syllabus?" has brought forth many significant replies. On the whole, these show that the various faculties are giving the Syllabus careful study. Several of the deans have provided each member of the staff with an individual copy. The appearance of the Syllabus at the time when the new course of study is being inaugurated has proved helpful in many ways and its merits as a suggestive outline have not failed of recognition. This Syllabus, as one member expressed it, "is the best ever and furnishes an excellent preliminary working basis." Twenty-two replies indicated that the faculty reaction to the Syllabus was favorable, twenty were to the effect that some modification would be necessary, eleven reserved opinion.

From the comments received, it is evident that further discussion of the courses in the Syllabus is advisable. There is a desire to have the list of basic subjects extended to include at least psychology and sociology, political science and more in the English group. The advisability of making mathematics and economics required and biological assaying optional was questioned. Commercial pharmacy and physical chemistry were suggested as additions to the professional and applied subjects. Regret was expressed that outlines for basic subjects were not included. No one expressed a desire for the elimination of any of the courses.

A considerable number of faculties are experiencing difficulty in adhering closely to the prescribed outlines. They expressed the belief that rather liberal modification will be necessary in order to meet local conditions. This was particularly noticeable in the replies received from state-supported schools. A minimum of revision should make this Syllabus acceptable. I would recommend that this problem be assigned to the Committee on Curriculum and Teaching Methods and that this committee be increased from five to ten members.

Before I leave the subject of the Syllabus, I wish to express my surprise that the slow sale of this book, reported last summer, still continues. Dean Beard informs me that only a small number of the state board examiners have purchased copies. The material in the Syllabus ought to appeal to all the members of every state board of pharmacy. Here is an opportunity for our faculty members of the Committee on Relations of Boards and Colleges, if they have not already done so, to render service to pharmacy by starting discussions concerning the application in professional pharmacy of the different courses outlined in the book. The chapter pertaining to the use of the Syllabus by the state boards in preparing their questions is also worthy of an afternoon or evening's discussion.

As has been stated before, the introduction of the four-year college course in pharmacy marks the most important forward step in pharmaceutical education during the last quarter of a century. Some very pertinent questions arise which demand judgment and discussion. What distribution of time and study is best and wisest during this four-year period? How shall the professional and non-professional courses required be related to each other? Can the rapidly advancing junior college movement, which is literally sweeping certain sections of our country, be used to advantage in furthering pharmaceutical education?

Heretofore we have had little occasion to take cognizance of a new educational unit such as the junior college. This is a great educational experiment which had its practical beginnings in the first decade of this century. The *Junior College Journal* of January 1934 contains a directory showing a total of 514 colleges with

a total enrollment of 103,530 students. The Atlantic Coast states have only a small number of these colleges, but in the South and Middle West they are growing steadily in importance. There is distinct evidence, also, that this is a healthy growth.

About 90 per cent of these junior colleges are accredited in state universities through a committee chosen for that purpose, acting as the accrediting agency. The standards to be met are the same as those for the first two years in any high-grade four-year college.

The universities directly concerned with junior colleges in their own states have for the most part shown a commendable spirit of coöperation. Naturally some of the older universities have been indifferent or adopted the policy of suspended judgment to the whole junior college movement. This attitude can be only temporary, however, for the importance of this educational change will soon be felt throughout our entire educational system.

The curricula of most of the accredited junior colleges are modeled upon the first two years of university work. The junior college period may become an important unit for pre-professional training. E. D. Chadwick, in a survey of the junior colleges of Minnesota, gives a list of pre-professional curricular offerings which includes one for a year of credit in pharmacy schools. These junior college graduates are coming to the universities in increasing numbers. Many now feel that one year of pre-pharmaceutical work in a junior college is entirely feasible, but two years of this work has been suggested. Can such a plan be successfully carried out? There is reason to believe that it can.

A great amount of so-called pharmaceutical education is not professional in character, and institutions other than colleges of pharmacy can impart this information quite as well, perhaps better at times, than can the regular school of pharmacy. If the professions of medicine and law find it possible to take advantage of junior college training in fitting their students for later professional study, it would seem that schools of pharmacy were taking themselves all too seriously if they insist that this part of the education of the pharmacist can only be carried out successfully under their direct observation and guidance.

The very first requisite of a professional man has always been, and I am quite sure always will be, that he be a liberally educated individual and that in addition to possessing professional knowledge he should also be equipped with broad and extensive non-professional information. This is doubly true for the professional man of to-day for only on a broad and liberal foundation of non-professional information can the complex superstructure of modern professional study be built. The professions of law, medicine and the ministry, to mention only a few, have come to recognize this as an established fact and are to-day insisting on a long period of general, cultural or non-professional study as a very necessary prerequisite to real professional training in these fields.

No professional school can ever hope to teach all that its students need to know in later life. College training must seek rather to instruct the student how to read the permanent written record of man's achievement accurately and intelligently and how to proceed from the known to the unknown, once general principles have been laid down and mastered. For a well-prepared student there need be no special kind of inorganic or organic chemistry, no English, botany or biology

especially adapted to this or that professional student. Subjects such as these are all prerequisites to pharmacy as well as to the other professions and should be so considered. A well-equipped junior or university college should be able to teach these subjects quite as well as the very best professional school. We should not become too sentimental about prerequisite studies except to see to it that they are given by properly trained individuals. Let us make our schools of pharmacy real professional schools devoted strictly to the professional aspects of pharmacy and leave training in the prerequisites to others to carry out.

The modern intellectual development of any young man or woman falls quite naturally into two main divisions; *first*, a non-technical, non-professional, so-called cultural part, and *second*, a technical or purely professional part. We might very properly divide the four-year course in pharmacy into two equal biennial periods. The first period should be devoted to the acquisition of purely cultural subjects together with the necessary prerequisites for later pharmaceutical study. This may be taken in an accredited junior college or in the first two years of a college of pharmacy offering a complete four-year course. The second two years could then be devoted to an intensive and concentrated attention to the professional content of pharmacy, stressing not only the scientific side but also the economic or business side. A program of this sort is in line with practices in other professions, and the sooner we enter their company and adopt their point of view the sooner we shall enter into our professional birthright and take our proper place with the professions of medicine and dentistry in helping solve the great problems of health and disease which are so very fundamental and important to our age in civilization.

ABSTRACTS OF PAPERS PRESENTED BEFORE SCIENTIFIC SECTION, A. PH. A.
WASHINGTON MEETING, 1934.

"Penetration of Volatile Oils and of Fixed Oils and Fats through the Intact Skin," by David Macht.

A number of powerful pharmacological agents were incorporated into various fatty bases employed for making ointments; and their penetration through normal intact skin was studied by observing the effects produced by absorption, if any, of the drugs. In another series of experiments various volatile oils, as well as some of their active chemical isomers, were similarly used. Constituents were applied directly to the skin, and absorption phenomena were studied and compared. This research is of importance in connection with the use of various vehicles for the incorporation of active drugs to be applied to the skin.

"The Assay of Chloral," by Donald C. Grove, Edward M. Hoshall and Glenn L. Jenkins.

The present official method for the assay of Chloral is shown to be inaccurate. A method is proposed which is based on the conversion of the chlorine to chloride in a simple pressure bottle and a determination of the resulting chloride by argentimetric methods.

"Some Observations on the Stability of Quinine Sulphate during Storage," by L. E. Warren.

Seven packages of freshly prepared quinine sulphate were stored under conditions simulating those obtaining in prescription dispensing. The packages were opened at varying intervals and small portions removed from the surface of the material without disturbing the remainder. The intervals from opening to the time when the product became stable (ceased to lose weight) were recorded. In a climate comparable to Washington, D. C., the salt progressively loses water of crystallization until after 4 to 12 months it contains about two molecules (4.6%) after which it remains practically stable.