

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

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SOME PROBLEMS OF MEDICAL EDUCATION *

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I desire to express my appreciation of the honor which this Association has conferred on me.

Few realize what this body has done for medical education in this country. Formed at a time when the literary colleges and universities would have nothing to do with medical education and the preparatory medical schools were a necessity on account of this attitude, it was the only body that was trying to coordinate medical educators in different portions of the country. Its influence was recognized by many states which accepted its standards as their own.

The changes that have taken place in both general and professional education; in state control of licensing, and the closer relation of medical schools to universities have had their effect on this Association, causing at times withdrawal of some colleges from the membership on account of state regulations, lack of sympathy with its policies, or inability to meet its standards.

During all the years of its existence the policy of the Association has been a fairly consistent one, that is, to consider the question of medical education from the point of view of those who were actually engaged in medical education and who had knowledge of all its phases—technical and pedagogic and geographic.

At no time has there been greater need of such a body as at present, when the problems of medical education are becoming more and more complex.

The education of medical students has been a subject of perennial interest to both teachers and practitioners for a long time, and although great advances have been made, there is still general dissatisfaction with the results as shown by examination tests and the ability of recent graduates to meet the emergencies or even ordinary duties of professional work.

At the meetings of the Council on Medical Education of the American Medical Association, the Confederation of Examining Boards of the United States and our own Association, the faults in preliminary education and in professional training, and the needs of still greater clinical opportunities have been pointed out and are familiar to you all. Out of all these discussions, two general educational remedies have been advocated.

*President's Address.

1. That one or two years of college work, which shall include one year of chemistry, physics and biology, be added to the preliminary training.

2. That a hospital or clinical year be added, making the medical course, as measured by the standards of England and Germany, six years.

In these two propositions certain questions arise which concern this Association especially. For us the questions are not merely academic, but questions of administration, standards and pedagogics.

The House of Delegates of the American Medical Association at its recent meeting decreed that for a medical college to be put in the highest rank, the requirement of one year of college work, including instruction in chemistry, physics and biology, is necessary. This has focused attention on this proposition, and many colleges will feel compelled to require it.

In discussing this proposition, the first question that arises is, How is the student to obtain this year's work in the designated sciences?

In states with state colleges or universities, the question has been answered. The high-school and university courses are so correlated that with a minimum amount of disturbance the student passes from one to the other. The financial aspect is not a burdensome one, as the fees in the state-supported institutions are relatively small; but in the greater part of the country no such coordination exists; the colleges and universities are disassociated from the high-schools, so that there is a greater or less impediment to students passing from the high-school to the colleges, as they are not accepted on their high-school credentials. In some, the students are admitted only on examination in addition to their credentials, and others demand special preparation in subjects not included in the high-school course. Universities and colleges should feel it their duty to correlate their entrance requirements with the high-school courses of their locality.

In this connection another obstacle is encountered in localities in which the universities and colleges are not part of the general educational system, that is, the attitude of these institutions toward one- or two-year students who are taking the course to meet the medical school requirements. It does not, however, apply to universities with medical schools. The universities frankly admit that they do not want these students, and when we discuss the requirements as related to sciences and languages with them, they say, "Why should we modify our curriculum to meet the needs of these one- or two-year students? We are not conducting this college as a preparatory school for technical or professional education." The head of one of the largest universities in the East

with no professional school attached, said, "If I find men coming here to meet this requirement, I will change the course so that they cannot get the science branches demanded in less than three years."

To meet this requirement, must the course be taken only in an institution having the right to grant the B.A. or B.S. degree? Should the requirement read "One year's work of college standard, which year must include instruction in chemistry, physics and biology. This year must be in addition to the high-school course"?

This raises at once the most important question of equivalents and all the dangers of evasion. It has been suggested that these courses might be given in technical high-schools which admit students only after the completion of a high-school course; and in support of the suggestion it has been asserted that such a course would be more definite than that given in many literary colleges, as it would be under the supervision of the educational department of the state. Many deny the right of high schools to do the work of the colleges, and, in addition, urge that it is not meeting the spirit of the requirement.

This raises the next question. What is the object of this added year of preparation?

In general terms, the answer is, "Power to grasp professional subjects."

Is this power gained best by increase in general education in the so-called "humanistic" or "culture" courses, or by technical training in the sciences? The point of view of the institution in which the instruction is taken will determine the character of the course. In institutions with medical schools, the course will be correlated to the future needs of the student. In colleges without such affiliation, these courses will be part of the general college regimen which deals with education so as to insure a wide and general character to the subjects it embraces; whereas it is imperative for the future use of such studies, whether in engineering or medicine, under the pressure of modern life, that the student should be equipped with the necessary knowledge in the shortest possible time that is compatible with thoroughness. From a practical point of view, generalities must be abandoned and definite limits set. Are the undergraduate college teachers willing to do this, or will they insist on generalities?

This raises the question of the cultural value of the liberal subjects as opposed to the so-called science or technical subjects. All agree that "the preparatory training for life should be liberal and humanizing; that the course of study in the college, in addition to having a broadening influence, should also inculcate in the student some specific kind of mental training which will fit him better to take a high rank in whatever career he may happen to select."

As students enter the college to select medicine, later the studies should by scope, content and method give him the specific kind of mental training that will better fit him for his life work.

While valid objection might be raised against introducing into the college course professional instruction, as defined by Karl Pearson, "training in the art of a specific profession," this does not hold against technical education in the underlying subjects of a profession, and for the medical profession these subjects are the natural sciences, chemistry, physics and biology being specific, as those most helpful.

It has been said that these subjects are lacking in educational value from the point of view of "general training"; that they do not provide mental training for the man who has no intention of entering a profession. The answer to this objection is that the fault is not in the subjects, but in the manner in which they are taught, and also in the content of the course. President Hill of the University of Missouri has emphasized the value of motive in acquiring knowledge and gaining insight into a subject. "Insight normally brings culture, especially in human life, and vocational motive not only does not interfere with but tends to foster the development of a deeper and truer insight into the significance of scientific knowledge."

Can a knowledge of chemistry, physics and biology be acquired in one year of college work with sufficient fulness to be of value to the student in his medical course? There are two opinions on this subject; one, that a single year is inadequate; that these subjects should be taught as pure sciences and on general lines with no regard to future use; that in one year the student will have only a verbal acquaintance with things that he does not understand. Those who hold this opinion are urging the two-year course, not so much as a preparation for medicine as for the general cultural value. They would have not more than a single year's work in each of the science branches, and more of the general college subjects added.

The other opinion is that one year is a sufficient time in which to gain a familiarity with the *principles* of those subjects which have a bearing on medical sciences. This is a very different thing than teaching them as medical subjects. It would set definite limits on the course and not try to cover the entire science in a single year. In chemistry the general basic principles underlying the science rather than isolated facts should be taught, and these principles can be learned just as well by studying substances and processes in the laboratory which have a distinct bearing on medicine, rather than on metallurgy or mineralogy. Probably the college course in chemistry is the best standardized of all.

In physics the student needs a fairly wide knowledge so far as it can be gained without higher *mathematical processes*. Laboratory instruction should form a large part of it. The important topics are specific gravity or relative density (there should be real understanding of what these terms mean); osmotic pressure and diffusion; hydrostatics; acoustics and its common application to sound, pitch and resonance; optics: laws of refraction and reflection, as applied to mirrors and lenses; heat: the thermometer, laws of specific heat, cryoscopy, calorimetry and the relation of heat to work; electricity: the elements of static electricity and of galvanic and faradic currents, and in mechanics, the static aspects only. Much of the dynamics usually taught should be omitted; also the study of absolute temperatures and absolute units. The object of the course in physics is that "the student may gain a comprehensive and connected view of the most important facts and laws of elementary physics. There is need of limiting the course in physics, because the courses in universities and colleges are more adapted to train professional physicists than future practitioners of medicine. The two need a different training. A study of the curricula at many colleges shows that in one single year an elementary course requiring very little mathematics is followed by a highly specialized mathematical course, having practically no reference to the experiences of life."

In the biologic course, it is important that the student should become conscious of the characteristics of living things. Without some general biologic training, it would be impossible for him to give to his medical physics and chemistry a biologic application. By dissection of a few of the lower types, by witnessing a few simple physiologic experiments on plants or animals, by examination of simple tissues under the microscope, he should obtain an idea of the correlation between structure and function, the general build of the elementary tissues and the processes of digestion, respiration, assimilation and reproduction, which together make up our conception of a living organism. A comprehensive view of the subject, but well within the power of the student to understand, is rarely given. On the other hand, a great deal of useless information is given and much precious time and energy is wasted on botany, zoology and highly specialized courses.

By such courses, beyond the accumulation of facts in the different sciences which the student may obtain, he should have become an accurate observer, been interested in the art of inquiry, have acquired a fair degree of manual dexterity and use of laboratory instruments, have cultivated proper habits of study and work—in fact, trained for efficient professional study. To give this training demands that the subjects be taught in an intensive manner, that interest be aroused, that the student feel that the subjects are

important, not only as sciences, but also for their future professional application. His mental horizon should be extended, a new attitude of mind toward his work fostered, his reasoning faculties developed so that the insistent "why?" compels him to seek the answer. Unfortunately, the generalities of the college courses do not often give this direction.

It must be borne in mind that it is possible to educate a student away from scientific thought, as well as toward it. It has been disappointing to note the effect of a general college education on medical students. They come to the medical school often unwilling to adjust themselves to the regimen. They have lost much of their receptiveness, they are to a degree mentally arrogant, they have a pseudophilosophic and not a scientific frame of mind. It is for this reason that often the high-school graduate gets more out of the course than the man with an A.B. degree.

In demanding one year of college work as a requirement, the medical schools have not only a right, but also a duty, to demand of the colleges that the course be standardized; that it be made worth the student's time, both in content and in methods. Otherwise it is useless from both the cultural and the technical points of view. It will be not a specific, but a quack remedy prescribed for the cure of our educational illness. I firmly believe in better preliminary education of the medical student, and am raising these questions only that they may be discussed.

What influence will the added year of preliminary training have on the medical course? Will it allow of changes in our present curriculum? For it is conceded that at present it is overcrowded; that the difficulties of medical education are increasing; that the burden is heavy on both teachers and student; that there is a waste of effort that is almost tragic.

The problems of medical education are bound up with the progress in medicine and therefore cannot be solved once and for all, but must constantly be under consideration and adjustment. In all consideration of them, certain facts must be kept constantly in mind. The period of study cannot be extended indefinitely. There must be a proper proportion between the period of preparation for and practicing of a profession. As Starling has so well put it, "The brain of man does not increase in capacity or in power of assimilation with the growth of science." "How is the necessary limited time of medical education to be most profitably employed in imparting to the student such knowledge as is most useful to him in his future career?" The effect of the overloaded curriculum on the student is most harmful. He receives a smattering of many things, instead of a thorough grounding in principles. He forms faulty mental habits, early becomes surfeited and loses interest in the work; everything is gaged by examination value; he has no

sense of proportion ; small details and facts loom large ; basic principles are unimportant. At what point should the unloading begin ? What ballast should be thrown overboard ?

Notwithstanding the work of the Committee on Curriculum of this Association and that of the Council of Medical Education of the American Medical Association, the usual medical course still contains much useless ballast, some of it traditional, some of it due to demands of state board examinations, and some gradual "accretion" due to a desire to meet the advances in medical sciences.

Welch, in opening the discussion on "The Medical Curriculum" at the meeting of this Association at Baltimore, said :

One of the fundamental things is to inquire, what is the object of medical education ? To make good doctors ; there is no question that that should be the underlying conception in our schemes for medical education, and unless you can define a given course as bearing on it, it has no place in the medical curriculum. If the training in physiology cannot be shown to be to make good doctors, it is not defensible. The same can be said of pathology or any other subject in the curriculum. The ultimate aim of medical education is to make good practitioners of medicine. Another thing that confronts us at the start of any consideration of the medical curriculum is, What kind and what amount of knowledge can the student acquire during the four years of his medical education ? The most you expect is to give to the student a fair knowledge of the principles of the fundamental subjects in medicine, and the power to use the instruments and methods of his profession ; the right attitude toward his patients and toward his fellow members in the profession ; above all, to put him in the position to carry on his education, because his education is only begun in the medical school. The student does not go out a trained practitioner, a trained pathologist or a trained anatomist or a surgeon.

President Pritchett in the introduction to the "Bulletin on Medical Education in Europe" says :

Even if one may assume that students enter the study of medicine properly trained in the fundamental sciences ; the problem of the curriculum is a serious one. The report shows a general tendency toward overburdening. The question naturally arises, What ought the course of study of a technical or professional school to accomplish ? The medical school cannot turn out finished doctors. It cannot teach all that it is important for the practitioner to know. Under these circumstances it does best to accept frankly certain limitations, and so to train its students that they will be disposed subsequently to remedy their own deficiencies. Inclination of this kind appears most likely to result from a training that prescribes only the indispensable minimum, requiring in addition more thorough performance in a few directions and leaving opportunity for still further effort to those of greater energy, interest or ability.

Is not some of the overload due to our having ignored the foregoing facts, because we have tried to teach all the sciences and all the art and science of medicine, and to turn out specialists in medical sciences, in research work and in medicine and surgery ?

The past decade has seen a most marvelous improvement in the teaching of medical sciences and opportunities for laboratory work. Gone, never to return, are the purely professional courses in anatomy, chemistry and physiology, given by busy practitioners or recent graduates, whose knowledge of the subject was but little in advance of the students, and who were able to repeat a few simple experiments. To-day the laboratory courses in the medical sciences are far more expensive than even the German schools. In this country the laboratory courses are paramount and the lecture courses subordinate; in Germany it is the reverse. The development of these courses has been so rapid that the necessity for setting limitation on them has not been observed. President Pritchett says:

The medical curriculum, extended as it is in Europe over five years, has reached the limits of its capacity; it can contain no more. Exactly the same process has occurred in medicine as has taken place in the training of engineers. In fact, experience in these two kinds of technical education during the last fifty years has been strikingly similar. Most naturally the medical school and the engineering school have endeavored to include in their teaching some knowledge of the new sciences developed in the last half century and of their application. As a result, the burden devolved on students of medicine and of engineering has grown enormously. The respective curricula have been formed almost altogether by accretion, something being put in, little or nothing taken out. As a result, both the medical student and the engineering student are called on to carry, not only a heavier load, but a load made up of more parts.

As students come to the medical schools with better preparation in the sciences, there is a tendency to add more and more detail; to extend the laboratory courses and insist on all the precision, the rigor and the abstraction of the research laboratory; to teach the subjects as pure science and not as applied; to lose sight of the ability of the student, and to go beyond the need of the future practitioners of medicine, and plan the course as if all were to be chemists, physiologists, pathologists or research workers. Not the whole body of students should be compelled to spend a disproportionate amount of time and energy on topics which will be of use to a few only. Opportunity should be given to those who wish to pursue any subject beyond that given as part of the general instruction, but unfortunately our rigid curriculum prevents it. The student's time is too fully occupied to allow of electives or to take extra work in subjects in which he is interested, without neglecting obligatory courses. It has been well said that our system is a "lock-step" one.

The student should be so instructed in the fundamental principles of the science subjects that after graduation he may keep pace intelligently and be able to utilize further discoveries of these sciences as applied to scientific medicine. Beyond this we cannot go.

In our attempt to make our student scientific we are defeating our object by insisting on too great detail, before he can understand the principles. The teaching of a subject as a pure science, without application to clinical subjects, causes him to have no motive or interest in it and to throw it overboard as soon as examinations are past.

While all agree that the inductive method is the proper one, when pushed to the extreme the method breaks down. There is a woful waste of the student's time in the "work it for themselves" method of some teachers.

The statement is frequently made that students do not carry with them beyond the examination period that general knowledge of anatomy, chemistry, physiology and pathology which should be a life-long possession.

The reason that the students do not have a better grasp on the science subjects is because medical education has become less homogeneous. Under the old system, the primary or science subjects were taken at the same time that the clinical ones were. The student thus gained an inkling of the relation of his science subjects to his clinical work. At present this relation is not apparent to the student unless it is pointed out to him. The science years are becoming more and more divorced from the clinical, and the fact should be recognized and the tendency corrected.

From my study of the methods of instruction given in many of the medical schools, I believe that teachers of the science branches are largely to blame for this. That the science subjects should be taught by specialists is conceded by all, and they are rightly in charge of the years devoted to their subjects. They have had a hard fight to gain recognition and are hostile toward any movement to introduce into these years any clinical work, and many have gone so far as to insist that it is not their function to give any definite application to the subject. This has made necessary the introduction of applied courses in the different subjects to bridge the gap between the science and clinical years. Too often these courses when given have to be taught by teachers not connected with the science subjects. The science teachers, especially if engrossed in research work, are too apt to teach only the more scientifically interesting features and consider that they have done their duty when they have given the lecture courses of their subject, and leave to their assistants the more important detail instruction. The majority of those giving the laboratory courses are young and inexperienced teachers who have not had the advantage of a medical training and whose only knowledge of the subject is that obtained in the pure science courses. If any question of application arises, they are unable to answer it, and therefore discourage all such inquiries or resent them as "catch questions."

Teachers in the science branches should be in thorough sympathy with the future professional work of the students, and I am of the opinion that teachers in medical schools should have taken a medical course as part of their training. There are many eminent teachers in medical schools who have not had this training, but they have been long in contact with medical institutions and have a saving sympathy with the clinical side. In the large university schools and when the school is divided, there is danger in this lack of sympathy with clinical work, which attitude the science teachers are only too ready to criticize harshly in the clinical man if he does not show sufficient interest in their particular science.

Medical progress is being retarded by lack of coordination of science and clinical departments. The lack of training in clinical medicine too often prevents the science teachers from being of assistance to the clinician. Medical and surgical methods do not always fit in with laboratory technic. The complexity of the problem causes him to give little scientific value to the investigations not made in a laboratory. It is this attitude of the science teachers toward the introduction of clinical work or clinical methods in the first two years of the course that is not only causing the student to fail to appreciate the value of and becoming interested in the subjects, but also to make him less able to apply the knowledge that he has gained of laboratory technic to his work in the clinic and wards. His work in the laboratory has been on frogs and the lower animals only. When he comes to his clinical years he finds that he cannot apply to man the apparatus with which he has become familiar. He finds that new factors enter into the experiment which confuse his previously forced conceptions, and he cannot interpret his findings. The science teacher asserts that this applied instruction should be given by the clinical teachers and also says that they should be competent to do it; the latter contention we grant, but what are the two years of instruction in the laboratories for but to prepare the student for his clinical work? Whenever possible, methods and apparatus should be employed that can be used in clinical investigations. The burden of this instruction should not be thrown on the clinical years, already so overcrowded as to make a hospital year a necessity.

To insure a better correlation between science branches and clinical years and allow of unloading, the hard and fast lines that are tending to separate the second and third year of the course should be obliterated. As students come better prepared in the underlying sciences and able to accomplish more in the same time, instead of extending the courses in pure science, correlated clinical laboratory courses should be introduced in the second year.

If the teaching staff of the science branches cannot give these courses, then clinical teachers, most likely young men who have been trained in laboratory method, should give them. This would be the best introduction possible for the clinical subjects, and students so prepared could advance more rapidly in the third year. It would permit of omitting much of the lecture course in this year and allow an early contact with clinical material. To obtain such readjustment hearty cooperation is needed from science and clinical teachers.

The establishment of state board examinations has been of great aid to medical education. It has raised the general standards of the profession, and induced a more uniform curriculum over the entire country. It has had a decided influence on the overloading of the curriculum, however, as they have yoked the old methods with the new. The necessity for arranging the examinations to meet the training of graduates of years ago, as well as the recent graduate, has been detrimental to progress and has encouraged cram-quiz book methods and put a premium on ability to answer questions calling for mere detail information of the subjects. The time has come when state boards of examiners should recognize the changes that have occurred in methods of medical education; that the student who is best educated has not the best knowledge of small and non-essential details, and that to meet the requirements of the state boards he has to have recourse to quiz compends for much that is of no practical use to him. The new methods have been in force long enough to establish a class by itself, and for licensing there should be one type for the graduate of former days and one for the more recent graduate. As at present conducted, both in content and in method, it is satisfactory to neither class. This Association, by the cooperation of the Federation of State Medical Boards, could be of great value in correcting this defect. The state boards, as well as medical educators, are appreciating this defect, and would welcome any plan which would allow of a practical examination, both laboratory and clinical.

The difficulty in arranging such an examination is the lack of money and laboratory and clinical facilities. States with centers of medical education could easily get the facilities by holding the examinations in those places and using the college laboratories and clinics and hospitals. Different dates could be arranged for various sections. The states should consider that it is their duty to provide the necessary funds. That such a plan is feasible is shown examination.

by the ease with which large numbers of candidates for the positions of intern are examined, both by written and by practical

Examinations have been, and probably will be, the means of testing the character of instruction given by the medical schools and the knowledge of the students, but they should be adapted to give a true index. They must coordinate with the methods of instruction. At present they do not. Rating colleges according to the ability of students to pass these examinations is putting a premium on only such instruction as will enable the student to meet the test successfully. It is exalting narrow training over broad education. Evaluating bodies should not place too much value on the percentage of failures and passing as an index of instruction in the colleges.

From members of the general profession one constantly hears the harsh criticism that recent graduates are deficient in detailed knowledge of this or that specialty; that while skilled in laboratory methods of diagnosis, they have acquired little of the art of medicine. They insist that many new topics ought to be added to the course of study.

Much of the overburdening of the clinical years has been due to adding topics or extending courses in the special branches to meet these criticisms. The profession as a whole should appreciate that the student, in his college course, must gain his training in scientific methods if he is ever to have it; that only the essentials can be taught thoroughly. Faulty training in the essentials is caused by trying to do too much. Only so much of the special branches can be given as to make them safe practitioners, not immature specialists.

It is desirable that every practitioner should know many things about his relation to society at large, to allied professions and their problems, to organized charities and their activities, and the business methods of his own profession. These topics, however, should not be introduced into the medical curriculum; they are part of the postgraduate education which every physician should feel it his duty to acquire.

The need of unloading and correlation is a most pressing one, and it is our duty as an association of medical colleges to point that way.

The complex question of the hospital or clinical year has been under discussion for some time by this and other associations.

That the student needs more extended clinical experience before beginning the practice of his profession is conceded by all. There is not the same unanimity of opinion as to the advisability of making a clinical year obligatory or whether it should be demanded by the colleges for the degree of M.D. or by the states as a requirement for the right to practice.

Before decision can be reached many administrative and pedagogic questions must be answered. As the necessary data have not

been gathered, this Association should cooperate with other bodies in making a collective investigation of the subject. As a large percentage of medical graduates now voluntarily take one or more years of hospital internship, I believe the first step should be to give both academic and legal recognition to this postgraduate training.

THE FIFTH OR HOSPITAL YEAR

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With us in the state of Pennsylvania the mere discussion of the advisability of a fifth or hospital year as a prerequisite for the state board examination is now insufficient. Our Bureau of Education and Licensure has taken the bull by the horns and declared that after Jan. 1, 1914, candidates for licensure to practice in the state must have had one year's experience as an intern or resident in an approved hospital, or in lieu thereof a year of approved post-graduate study. We must, therefore, now consider how this requirement can best be carried out.

Before going further, let me state that at the University of Pennsylvania we have long been thinking of this plan, and seven years ago our faculty formally considered the question, and decided that at that time it was unwise for us as an individual school to demand of our graduates that each and every one of them should spend a year in a hospital or in postgraduate study, although nearly 90 per cent. actually did take such hospital internships. Let me also assure you that although favoring for all these years such a requirement, we have not been urging the board in our state to take this step; this they have done on their own initiative, so far as I know.

Our first intimation of the proposed requirement was last November, and at a meeting of the deans of the medical schools in the state of Pennsylvania held at that time, all seven schools placed themselves on record as favoring such a requirement. This fact will undoubtedly be of great help to the board in having passed a bill covering this point by the Pennsylvania state legislature. Let us take it for granted that this requirement will be enforced in Pennsylvania after Jan. 1, 1914. How will it affect the medical schools and how will it affect their graduates?

✓ All of the medical schools of Pennsylvania believe that this requirement will be a good thing, as I have already stated. Outside of Pennsylvania a number of schools also approve of this plan. For example, Harvard believes that it is a desirable requirement and trusts that many states will adopt it. Washington University Medical School of Missouri feels that it is a desirable requirement. The University of Virginia heartily approves it. Johns Hopkins is delighted with it. Other schools approve of it under certain conditions; some believe the requirement at present rather pre-

mature, though, hoping later to see it come about. A few schools believe that this fifth or hospital year should be part of the medical curriculum, and that the degree of M.D. should be withheld until after the year has been completed; but nearly all of those with whom I have corresponded, ten in all, are of the opinion that this would be wrong. The University of Pittsburgh, Harvard, Washington University, Cornell, Johns Hopkins, Virginia and the University of Pennsylvania all feel that the degree should be given at the end of the fourth year and should not depend on the possible ruling of some state board or the board of managers of some hospital. These schools feel that should disputes arise between residents and hospitals, which has been known to happen, thus threatening the termination of the resident's stay in the hospital and the non-completion of his necessary year of service, such matters should best be settled by the state board and that the school should not become involved in any way.

The state board with the law behind it is the proper body to deal with such cases, and with many others of similar nature. Hospitals often complain of residents who leave without permission and before they have completed their term of service. This state of affairs will largely be obviated by the coming requirement because during a resident's first year, at any rate, in a hospital, he will not dare without the consent of the state board to leave or change hospitals for fear of not being allowed to take the examinations.

We feel at the University of Pennsylvania that the state board ✓ should decide on the merits of individual hospitals, should classify them, as it were, as the medical schools have been classified, and make a list of hospitals at which candidates can acceptably spend their intern year. Fortunately the Council on Medical Education of the American Medical Association is considering such a classification, and when they do so, their classification might well serve as a basis for the state boards' list. In classifying hospitals in far distant states the Council's list would prove very useful to the board.

If therefore the school confers, as I believe it should, the M.D. degree at the end of the fourth year, and does not have to decide on merits of individual hospitals and exerts no control over the residents and continues as is now done to sever all relations at graduation time with the student, how can this requirement affect the school at all? With the increase in size and number of good hospitals in late years there has been no corresponding increase in the number of graduates of medical schools. It is becoming yearly easier to place graduates in satisfactory hospitals. I fail to see the necessity for the control of hospitals by medical schools for the success of this requirement, as has been suggested by some. In Philadelphia, where all the medical schools own and control their ✓

own hospitals, some of which are quite large, what is the case? Six or eight of the best men of the graduating class are appointed each year to the schools' hospital, men that could easily go elsewhere, and these six or eight men make up but a fraction of the entire class. I believe it hopeless as well as useless to wait until each school owns or controls enough hospitals in which to place all of their graduates. In fact, I believe it not to be to the best advantage of a hospital to obtain all of its residents year after year from the same school. Too much inbreeding is a bad thing. In regard to the few men who will not wish or will not be able to take a year's service as a resident, will they then by possibly demanding a postgraduate year impose a hardship on the school? I think not. They may on the contrary form the nucleus of a body of postgraduate students and thus stimulate the school to give postgraduate instruction, a much neglected side of medical education in this country.

The number of graduates, however, electing to take postgraduate work in lieu of the hospital year will, I feel sure, be small for three reasons. In the first place, the extra expense of a year of postgraduate study, even if the tuition were placed at a minimum figure, as contrasted with the almost complete freedom from expense of a hospital internship, will act strongly in favor of the hospital year. Secondly, it is fairly well recognized, even by laboratory workers, investigators and others, men who do not practice medicine, that a year spent in a hospital is a valuable asset to all of them; and thus even if the graduate has decided not to practice medicine, most of them will be persuaded and should be persuaded to take a hospital year. Thirdly, most graduates even now take a hospital year. Schools rather glory in quoting statistics about the large percentage of graduates placed in hospitals. With this requirement in force more men than ever will undoubtedly become residents in hospitals and in better hospitals. Thus we shall have but very few men taking the alternative post-graduate year, unless the schools make such a year more attractive and useful than a hospital year by giving an extraordinarily well-balanced, thorough and comprehensive postgraduate course; and even should they do this and thus tempt men to take the postgraduate work instead of a hospital year, my advice then would be to take both.

Now how about the student? How will this requirement affect him? Undoubtedly, in a small minority, of course, it will add to his difficulties, just as increasing entrance requirements do; but it will affect those most needing better training, the poorly prepared men; and it is just for these men that this requirement is intended. The best men practically all take hospitals now and will not be affected at all by this new plan. Take the University of Pennsylvania Medical School, for example. About 90 per cent. of our

graduates now take hospitals, and 10 per cent. do not. It is for the training of this "submerged tenth" that this requirement is needed. There is another side to this important question, and that is the effect on the hospitals of this requirement; and herein lies the greatest of the whole plan. I firmly believe that this will prove the entering wedge whereby we may expect to obtain better facilities for our graduates serving as residents in various hospitals. The state boards with the law behind them can by classifying hospitals as acceptable and non-acceptable, command the attention of managers of hospitals to various inadequacies in the service afforded residents, to lack of laboratories, lack of proper records and to innumerable other deficiencies that may exist; and I feel that we can expect more than the mere command of attention; we can look forward to the gradual enforcement of such suggestions as the board feels called on to make to the hospital authorities.

Another phase, and again an important one, is to be seen in the possibilities of the state boards demanding of the acceptable hospitals the right to hold practical examinations in their wards and laboratories. If the boards are to examine candidates for licensure after the men have been out of the medical schools a year, the nature of the examination must be changed. Here is a chance in my opinion to institute real practical examinations, so long needed in this country. This alone would make the whole plan worth all the trouble. The Bureau of Education and Licensure in Pennsylvania has done much to improve the character of the examinations it conducts, but until these examinations actually become practical there is still room for improvement.

A more apt example of what can be expected from this requirement of a hospital year cannot be found than in the marvelous transformation now undergoing in the standards of medical education, largely due to the study, classification and moral suasion, to put it mildly, brought to bear on the medical schools of this country by the Council on Medical Education.

Most of the difference of opinion existing on this subject is based on the local conditions existing in various states at present. Pennsylvania is undoubtedly one of the best states in which to try out this experiment. It will be intensely interesting to watch. For the past few years the Association of American Medical Colleges has been discussing the plan. Now it is to be put to the test. Although I admit that the entire country is probably not ripe for such a requirement, I hope to see other states with favorable local conditions follow suit, and I trust that no severe criticism of the requirement will come from those in states at present unable to undertake such a plan.

DIVIDED SCHOOLS

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The topic of "divided" schools has been given me for discussion to-day. I suppose that by a "divided" school is meant a school in which the basal medical sciences are taught in part or wholly in one locality, and the clinical instruction is given in another locality. The topic is one which I find it difficult to discuss without going in a general way into the whole question of medical-school organization.

Four things are necessary for a medical school of the highest type:

1. A university, endowed or supported by taxation.
2. Public hospitals, dispensaries and health departments, endowed or supported by taxation.
3. Facilities for teaching and research in the fundamental medical sciences.
4. Facilities for teaching and research in the clinical branches and in preventive medicine.

Of these the first two are the most fundamental. The university stands for science. It is an organization for the promotion of knowledge. Public hospitals, dispensaries and health departments stand for service, for the application of knowledge to the needs of society. Modern medicine shares with engineering and agriculture the honor of being, on the one hand, in closest touch with scientific advancement, and, on the other, of being in closest touch with the concrete application of science to human needs. A medical training which does not bring the student into intimate contact both with scientific research and with social service is not what it should be, and will not receive much public support. Through gifts, legacies and public taxation vast sums have been and will continue to be freely given to universities and to public hospitals, because these institutions stand for the ideals of truth and of service to mankind. The gifts made for observatories show to what an extent the research in so abstract a science as astronomy appeals to some. The readiness with which, as a rule, funds may be raised for public hospitals by popular subscription shows to how many this form of social service appeals. The large number of medical schools in this country which scrape along without help from the public treasury, or without the aid of endowments, shows to what

little extent institutions appeal to the public when they stand for neither a scientific nor a social ideal.

Until of recent years our medical schools have had singularly little financial support from outside. The members of the faculties at the best have been inspired by love of teaching, and at the worst by greed, by the hope of financial return from advertising. The students at best have done what they could to acquire knowledge of how to be good physicians, supplementing the school with hospital service and trips abroad; at worst they have tried to procure a degree with the least time and expense so as to get out and make money as soon as possible. Nothing in this appeals much to the public, and the public has given little to such schools.

The advantage of university connections may readily be seen by studying the classification of medical schools recently published by the Council on Medical Education of the American Medical Association. The twenty-four schools in Class A+ are in that class because of their, at least apparent, superiority of equipment and salaried staff; and this, in turn, is due mainly to financial support far in excess of the fees derived from the students. All the schools except one in Class A+ are integral parts of the better endowed and organized universities, the statistics of which are compiled each year for science by Mr. Tombo of Columbia University; and this one institution, the University of Cincinnati, really belongs with these institutions. All but seven of the universities tabulated by Mr. Tombo are members of the Association of American Universities, an association for the promotion of the brightest university standards. On the other hand, but two of the universities belonging to the Association of American Universities and but one other in Mr. Tombo's list have medical schools in Class A, and none have schools of lower rank.

Of the thirty-five other schools of Class A, twenty-three are more or less integral parts of universities or colleges of fair standing, but without large income, and only twelve are independent schools. These twelve schools, in so far as they deserve their classification, and some of them should rank high in Class A, owe their success to affiliation with hospitals offering convenient clinical facilities so that they can appeal to the public from the point of view of social service of the hospital, if not from that of scientific achievement.

Of the twenty-three schools in Class B, but seven have university or college affiliation, and these of a nominal character. Of the twenty-nine schools in Class C, nine have merely nominal relations with colleges or universities, and the rest have not even nominal relations.

From these data it is obvious that unless a medical school is an integral part of a university which is in position to give financial support to the school, the equipment and facilities of the school

are, with few exceptions, inadequate. There is an additional advantage in having university ideals of scholarship prevalent in the medical school and in having in the organization of medical teaching the aid of the masters of organization who are called on to guide our universities. Furthermore, it is now generally recognized that as a fit preparation for the four-year medical course as now organized in this country, a year or two of college work in chemistry, physics, biology and modern languages is necessary. These subjects, at least, are best taught in the general science departments of the university. Since, however, they really form an integral part of the medical course, the general outlines of their teaching to premedical students should be formulated by the medical faculty, and this is best done when the medical school forms an integral part of the university. In combination six and seven-year courses for degrees of B.S. or B.A. and M.D., the literary and scientific faculty at present grants the bachelor's degree, and the medical faculty the doctor's degree. In the organization of the combined course, a compromise is usually arrived at between the literature and science faculty, which prescribes certain requirements for the bachelor's degree, and the medical faculty, which prescribes certain preliminary requirements, as well as the medical course. While as a rule harmony prevails in these arrangements, it may ultimately prove best for the medical faculty, in a university in which such combined courses are offered, to take full responsibility for the course and to grant two degrees, a B.S. degree, medical science course, and the M.D. degree to which may be added, when facilities exist, a D.P.H. (doctor of public health) degree.

The importance of having the medical school an integral part of a real university is thus obvious from various points of view: scientific ideals, organization, financial support and correlation of the study of the fundamental sciences with the basal medical sciences. The fundamental need of affiliation with large public hospitals, dispensaries and public-health work is likewise clear. It would be interesting if we had a list of the more important public hospitals of this country similar to the list of members of the Association of American Universities, or to Mr. Tombo's list of universities, to see how the different classes of medical schools correspond in rank with the hospitals with which they are affiliated. We have, however, no such list. It is certain that the list would show far less influence on medical education on the part of the more liberally supported hospitals than should be the case. We should find schools in Class A+ getting along with somewhat meagre clinical facilities, while large hospitals that should be splendid centers of medical study and research would be found caring for patients in a perfunctory way and giving little help to medical education when such help might be given with benefit to all. In England,

especially in London, medical schools have developed largely about the hospitals. In this country the next great step in medical education will be for the better-organized and supported medical schools to form such affiliation with public hospitals as will insure the best grade of clinical teaching. None will profit more from this affiliation than the patients in these hospitals. Some of our medical schools, as we have seen, have attained good rank because of such affiliations, although lacking university support. In general, however, university support will be one of the best means of bringing about these important affiliations between medical schools and public hospitals.

The medical course falls more or less naturally into two subdivisions: that of the basal medical sciences, intimately related to the clinical teaching, which must be organized to take advantage of clinical material when patients are treated. The teaching of the basal sciences may usually be most readily organized at the university center in affiliation with physics, chemistry and biology. The clinical teaching can be well established there only when large hospitals and dispensaries adjoin or are built on or near the university campus, as at Michigan, Minnesota or Pennsylvania. When the clinical teaching cannot thus be given, but can nevertheless be offered in the same city or within a few miles of the university center, as a rule the basal sciences are taught in conjunction with the clinical teaching and the medical school, although an integral part of the university is physically quite separate, as at Northwestern, Harvard, Columbia or Western Reserve. This separation does not, however, destroy university ideals, control and support. In three Class A+ schools, Indiana, Cornell and Texas, the site of the medical school is at a considerable distance from the university center; but in the first two some work in the basal medical sciences is also given at the site of the university. It is obvious that some duplication should take place in all such cases, since the basal medical sciences are of fundamental importance at any university which attempts to develop the study of biology.

The need of developing these sciences at the university center, especially at state universities in connection with public health work, has led to the organization of half schools and of "divided schools." In a university in which comparative vertebrate anatomy, histology, neurology, physiology, physiologic chemistry, bacteriology and hygiene are cultivated as important aspects of biologic science, the addition of human anatomy, pathology and pharmacology so as to cover the first two years of the medical course is a simple and natural step. If, however, these subjects are to be taught students as a part of a regular medical course, it is important that they should, in the main at least, be intrusted to men who have had a medical training and who are interested in medical problems.

It is also of great value to have at hand at least a small hospital in which interest in clinical medicine may be maintained, and to have available some clinical material to demonstrate to students in the second year of the medical course. Of the half schools, two are in Class A+, six in Class A and one in Class B.

In a "divided school," so called, while the fundamental medical sciences are taught at the main seat of the university, the clinical part of the course is given at a considerable distance away. At Chicago, Rush and Tulane, the fundamental branches are taught at the university center and the clinical branches in another part of the town in connection with good hospital facilities. In the divided school in the usual sense, the clinical branches are taught in a city miles away from the seat of the university. Of the seven divided schools (counting California), two are in Class A+, four are in Class A, and one is in Class B. As a rule, the division in work takes place between the second and third years of the course, but it may take place in the middle of the second year, as at Leland Stanford, or at the end of the first year, as the aim is at present at Indiana. The Universities of California and Nebraska have found the separation of the first and last parts of the medical course unsatisfactory, and plan to establish the work in the basal sciences at the site of the clinical teaching. Kansas, after dividing the school and establishing the clinical work at Rosedale, is still studying the ultimate solution of the problem of teaching clinical medicine in that state.

There seems to be no fundamental reason why the work of a medical school should not be done in two or more places, provided the organization of the school is effectively centralized in a strong university. We have seen that the fundamental thing is university support and control, and that many of our best university medical schools are not located at the seat of the university, but several, or even many miles away. If the remote medical school gives the complete work of the four years, some of the work of the first two years will have to be repeated at the university center in order to give full facilities for biologic study there, if for no other reason. On the other hand, some non-medical science work may have to be given at the medical school in order to help out students who have some slight defects in elementary training. If a line of cleavage is established at the end of the first year of the medical course, as is now the aim at Indiana, some of the first-year work will have to be repeated at the medical school, and some of the second-year work at the main seat of the university. If the separation takes place between the second and third years, some clinical work should be given at the university center and the clinical division should cultivate some of the basal sciences, especially physiology and pathology.

The line of separation need not, however, be between the second and the third years. The first two and a half, three, or even three and a half years might be given at the university center, and the student then sent to affiliated institutions to complete those aspects of clinical medicine in which the university town is weak. In all such instances, however, the teaching should be done by men appointed by the university and along lines designated by the medical faculty; and only such institutions should be affiliated as have, in addition to abundant clinical material, abundant means of studying diseases scientifically, clinical laboratories and laboratories for pathologic anatomy and physiology. The main thing is to have university ideals, control and support.

The question is not really so much one of division of the medical school as of extension of the medical school. We could have a thoroughly divided medical school situated on a university campus with the hospital next door, provided the members of the faculty were actuated by selfish ambitions and pulling at cross purposes, while it is quite possible to conceive of a thoroughly united school in which various parts of the work were given in widely separated places, the students being sent in groups to sojourn for a definite period where exceptional facilities were offered. At the University of Wisconsin we have an extension division which is doing work all over the state; but there is not at the university a department in which greater unity prevails or more effective harmony.

The university medical school has more than one function to perform. There is, first, the training of medical students to be practitioners of medicine. To such students the medical school must offer thorough training in the fundamental branches and thorough clinical training. If the one can be done best in one place, the one in another, or even in several other places, I see no reason why this should not be done. The problem is in each case largely a local one, and must be worked out according to local conditions. The university must control and support all of the teaching, and the work must be so organized as to save the student's time to the utmost for study and not have it used up in long daily trips from one part of his work to another.

A second duty of many medical schools will be the training of health officers. Probably by another generation, at least, there will be a big demand for men properly qualified for such work. Here, again, it will in many cases prove best to give a part of the training, at least, at some place other than the university center, or the site of the main buildings of the medical school. The aim must be to give the student the greatest facilities for becoming efficient in the shortest time.

A third duty of the medical school is investigation and research, the advancement of medical knowledge. This depends, first, on

men especially qualified, and second, on equipment and material facilities. Both the basal, scientific work and the clinical work should be so organized as to attract such men and to offer such facilities. This, in some places, will be much more readily done by organizing part of the work in one place and part in another, than by endeavoring to put the whole medical school on the university campus.

A fourth function of the medical school is that of public education, including not only the education of the laity in preventive medicine, but also the acquainting of medical practitioners with the advances of medical science. The last-named function can probably be more effectively performed by a well-organized school whose affiliated parts are somewhat scattered than by a wholly centralized institution.

Extreme centralization of a medical school, hospitals and the like, on the university campus makes for certain kinds of economy, especially books, laboratories and administration; but if this economy is attained by giving up the use of clinical material which might be made available in public hospitals, it may be, after all, a false economy, and the university may fail to do its duty in promoting the highest efficiency in public work.

MEDICAL COLLEGE ORGANIZATION

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An institution for the teaching of modern medicine is highly complex, and for efficiency requires that its different parts be so bound together and correlated that they may harmoniously and authoritatively carry on the important work demanded of them.

A properly constituted medical school consists of two main groups of teachers and students, the laboratory groups and the clinical groups. The laboratory groups are engaged during the first years in laying the foundation on which the work of the clinical groups of the last years of a medical education are placed. The work of the laboratory groups requires a thoroughly equipped building or buildings wherein the teaching in anatomy, physiology, chemistry, pathology and bacteriology, materia medica and pharmacology with their various subdivisions may be carried on effectively.

The work of the clinical groups requires one or more hospitals with sufficient ward facilities and one or more outpatient services, in all of which authoritative control of patients and teaching is held by the teachers in these divisions.

In other words, an effective modern institution for teaching medicine must have an adequate medical building or buildings, with lecture halls, recitation rooms and laboratories, together with a hospital and a dispensary under its own control. This institution is best a department of a university so that it may have the benefit of educational environment and supervision. If a part of a university, it is subject to the authority of the board of trustees and their executive, the president of the university, but this authority should not extend beyond the necessary final control of educational and other matters. The determination of appointments to the medical faculty and financial responsibility.

The powers and duties of the medical faculty and all officers of the department of medicine should be clearly laid down in an ordinance governing the faculty, which ordinance should be the "constitution" by which the conduct of the school, the hospital and the dispensary is determined.

Such an ordinance will have to do with two main subjects, (*a*) the administration of the department, and (*b*) its educational conduct. In my opinion the administration of a medical school is best placed in the hands of a small group of men. This group

should form an executive committee, with the dean as chairman, and should include with others the professor of medicine and the professor of surgery as representing the two most important clinical groups, and hence most capable of determining matters pertaining to the hospital and the dispensary.

The sections of the ordinance governing the George Washington University, Department of Medicine, which relate to its administration, read as follows:

The Executive Committee shall be a subcommittee of the Advisory Committee. It shall consist of the dean who shall be chairman, the professor of surgery, the professor of medicine and not more than three other members appointed by the president from the Advisory Committee. It shall meet at the call of the president or dean. Three members shall constitute a quorum. It shall, subject to the approval of the president, be the executive for the college, the hospital, the dispensary and the training school for nurses, and shall formulate the rules for the government of the medical college, the hospital and the dispensary so that the work of these may be properly correlated and arranged for the instruction of students. It shall determine questions of administrative authority relating to the divisions of the faculty. It shall maintain discipline in the student body and shall, on approval of the president, suspend, dismiss or expel students. . . .

The general care of the buildings occupied by the department of medicine, including the medical college building, the hospital and the dispensary, shall be in charge of the Executive Committee of the faculty, subject to the control of the president and the board of trustees.

It will be noted that this committee has large powers. It is, in fact, the active governing body of the department.

In my experience, now covering four years of work as dean, I have found this means of central administration to be of the highest efficiency. It gives the dean as executive officer a small and quickly gathered group of men who by mutual counsel and support can work most effectively for the good of the department and without the delays, confusion and ineffectiveness which arise from submitting matters to a larger group or to the entire faculty.

Compared with army organization, the dean and executive committee correspond to a corps commander and his staff, while the president and board of trustees of the university correspond to the general in command of the army and his staff; and in actual practice the administrative and executive action of the executive committee is equally effective.

While the executive committee is effective in its sphere, it is evident, however, that its composition will not make it as effective as the educational executive body. Such a body must be able to have authoritative information from the different *teaching* forces of the school and control over them. To this end the faculty is best separated into divisions, each division comprising all the teach-

ers engaged in one branch, such, for instance, as anatomy, and with each division organized as a committee having for chairman the senior professor as chief of the division and chairmen.

The chairmen or chiefs of the divisions, combined, form an advisory committee, with the dean as chairman, which committee is the executive for all *educational* affairs.

In the George Washington University ordinances the formation of the divisions and the advisory committee is as follows:

SECTION 1. THE FACULTY: The Faculty of Medicine shall have charge of the educational work in the Department of Medicine. The members of the faculty shall be denominated professors, associate professors, clinical professors, associates, clinical associates, instructors, clinical instructors and assistants, and shall be graded in the following divisions:

1. The Division of Anatomy, including histology and embryology.
2. Of Physiology.
3. Of Chemistry, including general, organic, physiologic and clinical chemistry.
4. Of Pathology, including bacteriology, morbid anatomy and clinical microscopy.
5. Of *Materia Medica* and Therapeutics, including pharmacology, toxicology and electrotherapeutics.
6. Of Medicine, including tropical medicine, pediatrics, physiology, neurology, dermatology, physical diagnosis, hygiene, preventive medicine and forensic medicine.
7. Of Surgery, including orthopedic and genito-urinary surgery, ophthalmology, laryngology, otology, rhinology and actinography.
8. Of Obstetrics.
9. Of Gynecology.

In each division the professor holding the chair designating the division shall be chief of that division.

The number and denominations of the teachers in each division shall be determined by the Board of Trustees on the recommendation of the Advisory Committee of the Medical Faculty, and approval of the President of the University.

It shall be the duty of each division to organize as a committee to meet at the call of the Advisory Committee or the chief of the division to discuss the work of the division and render such report on its work and the work of the teachers therein as may be required, and to make such recommendations for changes in the work as may be deemed necessary to the educational work of the Division.

ORGANIZATION AND POWERS OF THE FACULTY: The Faculty shall recommend to the Board of Trustees for their action, the educational requirements for admission, and shall determine the course of study to be pursued, the examinations to be held and the standing of students. It shall recommend to the Board of Trustees the students on whom degrees are to be conferred. It shall, through the Advisory Committee, recommend the number and titles of all teacherships that in its judgment may be necessary for the proper conduct of the educational work, and shall report to the Board of Trustees on all matters affecting the educational equipment and facilities of the department. It shall be responsible for statements of the catalogue so far

as they relate to the teaching in medicine. It shall, through its Executive Committee, have power to dismiss or expel students. All its reports to the Board of Trustees shall be made through the President of the University.

There shall be two stated annual meetings of the Faculty to receive the reports of committees and transact any necessary business. These meetings shall be held at such times as the President may fix, one at the beginning and one at the end of the school year. Such other meetings of the Faculty shall be held as may be determined by the President.

FACULTY COMMITTEES: To facilitate the discharge of the functions of the Faculty, the following committees will be formed, having the designated duties:

1. The Advisory Committee.

2. The Executive Committee.

3. Such committees as the Faculty, the Executive Committee or the President may from time to time appoint for such special work as may be required.

The Advisory Committee shall consist of the Dean of the Medical Faculty and the chairman of the different divisions of the Faculty. The Dean, or in his absence, the senior professor present, shall be Chairman. It shall be the duty of this committee to meet at the call of the President of the University or the Dean, to consider such matters and reports as may be laid before it by the President, the Dean, the divisions of the Faculty, and the Faculty. It shall make such recommendations to the President, the Board of Trustees, and the Faculty, as may be necessary for the proper conduct of the Department of Medicine. It shall, subject to the President and the Board of Trustees, have executive control of all educational matters pertaining to the Department of Medicine, and shall carefully consider and report to the Faculty on the methods and the scope of the instruction given. It shall meet annually after the final examinations, to consider the results of the examinations, and shall submit to the Faculty a report giving the standing of each student examined and a recommendation as to advancement or graduation in each case.

Consideration of the foregoing ordinances will show that the Advisory Committee as regards teaching has the same relation to the president, the Board of Trustees and educational matters as the Executive committee has to matters pertaining to administration. To repeat the simile of military organization, the Advisory Committee with the dean as chairman is the headquarters' staff and the commander of the teaching corps, while each division with its teachers and students is an educational regiment, of which the senior professor is commander, with his assistants as staff. By such organization a definite line of authority and responsibility is established, and all questions of teaching as well as of student accomplishment can be quickly, effectively and authoritatively determined.

As each division is responsible for the teaching assigned it, inadequacies are quickly observed, located and corrected.

Of special importance is the correlation of instruction and the elimination of unnecessary duplication of work which is arrived at

TABLE 1.—RESPONSIBILITIES AND AUTHORITIES, UNIVERSITY HOSPITAL AND DISPENSARY

Board of trustees President of the university	Teaching section	Advisory committee Dean	Dispensary { Hospital	1. Assistant director	1. Assistant director 2. Chief of the clinical division; assistant clinician 3. Chief of the dispensary laboratory; assistants 4. Stenographer; assistants 5. Record clerk 6. Nurses on dispensary service 7. Orderlies, etc. 8. Chiefs of clinical division; assistant clinicians 9. Stenographer; assistants		
	Administrative section			Executive committee Dean		Superintendent of the hospital	2. Chief of the clinical division; assistant clinician
		1. Resident physician; Interns	1. Head of nurses; ward supervisors; pupil nurses				
						2. Anesthetists	2. Operating-room nurse
						3. Pharmacists	3. Special nurses (graduates)
						4. Superintendent of nurses	4. Orderlies
				5. Stewardess		5. Ward laborers	
				6. Assistant superintendent	6. Ward maids		
					1. Cooks		
				6. Assistant super-intendent	2. Kitchen maids		
					3. Dining-room maids		
				6. Assistant super-intendent	4. Kitchen and dining-room laborers		
					1. Bookkeeper		
				6. Assistant super-intendent	2. Purveyor		
					3. Record clerk		
				6. Assistant super-intendent	4. Telephone and office attendants		
					Fireman		
				6. Assistant super-intendent	5. Engineer		
					Electrician, etc.		

by conferences between the different chiefs of divisions, at the meetings of the Advisory Committee.

Added to this fact that through the work of each division its chief is well informed of the individual progress and attainment of students and in the meetings of the Advisory Committee held after examinations, an adequate finding can be had and proper recommendations made as to each student's advancement or graduation.

The general plan of organization and the distribution of responsibilities, authorities and student assignments can well be seen in Table 1:

THE DEAN'S OFFICE: As the dean's office is the administrative center of the Department of Medicine, its organization and conduct is of importance. Its outline of organization is shown in Table 2:

All correspondence should be filed by a card-index system in suitable file cases.

TABLE 2.—OUTLINE OF ORGANIZATION OF THE DEAN'S OFFICE

Dean.....	{ <ol style="list-style-type: none"> 1. Secretary 2. Superintendent of of medical building. 3. Superintendent of the hospital. 4. Director of the dispensary. 	{ <ol style="list-style-type: none"> 1. Correspondence 2. Students' record. 	{ <ol style="list-style-type: none"> 1. Book-keeper. 2. Purveyor. 3. Engineer. 	{ <ol style="list-style-type: none"> Foreman. Carpenter. Other workers. 	{ <ol style="list-style-type: none"> Janitors.
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The student records similarly filed comprise the following:

1. Each student's application for admission, to which are permanently attached:

(a) Certificates of character.

(b) Credentials of preliminary education.

(c) All papers relating to admission, continuance, transfer or withdrawal.

2. A card catalogue with a card for each student. This card shows the student's name, address and his educational record, that is, the grades obtained in each subject, failures being recorded in red and successes in black ink. This card shows at a glance exactly what the student has accomplished while in the school.

3. A file of reports of the student's attendance and completion of all assignments, that is:

(a) Reports of obstetric cases attended.

(b) Reports of necropsies witnessed and assisted.

(c) Reports of assignments to ward cases.

(d) Reports of assignments as anesthetist.

(e) Reports of assignments as assistants at operations.

Blanks for all these reports are given to students, filled out by them, countersigned by the teacher under whom the work is done and returned to the secretary for file. These files show accurately the number of cases, necropsies, operative assistantships, etc., which the student has had.

4. A file of the record books of attendance of students at the lectures, recitations, laboratory instructions and clinics.

5. A file of reports of all examinations and gradings, each report signed by the teacher giving the instruction, the examination and the grading.

The duties of the superintendent of the building are the general supervision of the building and of the working force therein, the keeping of the accounts and the purchasing, the latter being done only on approval of the dean, usually on approved requisitions received from the chiefs of divisions.

THE HOSPITAL AND DISPENSARY: The administration of the hospital and dispensary and proper utilization of their clinical material for teaching is of paramount importance. The following ordinances in use at the George Washington University are intended to give general direction for this end:

HOSPITAL AND DISPENSARY: The hospital and dispensary of the university shall be under the executive control of the Executive Committee, according to the provisions of these ordinances and the rules and regulations adopted for the government of these Institutions.

The hospital and dispensary are maintained to afford opportunities for clinical instruction of the students in the Department of Medicine.

All clinical teaching in the hospital and the dispensary shall be in charge of the clinical divisions of the Faculty. In order to correlate the work in the hospital and dispensary with the teaching in the medical college, the chief of each clinical division shall be Chief of Clinics in the hospital and dispensary, and their assistants shall be appointed from members of the clinical divisions.

Each free case under treatment in the hospital will be in charge of the chief of that service in the hospital to which the case pertains. On the admission of a free case to the hospital, the case will be promptly reported to the chief of the service for treatment, or assignment by him to his assistants, according to the schedule of instruction in the college.

There shall be a director and an associate director of the university dispensary appointed from the Faculty. The director or his associate shall see that the dispensary patients are promptly and properly assigned to the different clinics in the dispensary and that the records of the dispensary are properly kept. They shall see that the students assigned to the dispensary for clinical instruction are distributed to the different services and that record of their attendance is properly kept. They will maintain order in the dispensary, and the director of the dispensary will report to the Executive Committee any requirement of the dispensary service, looking toward its clinical and educational improvement.

The treatment of cases and the instruction in the dispensary shall be as directed or assigned by the chiefs of clinics who are there on duty; but no treatment of cases in the dispensary or teaching will be done except by clinicians regularly appointed to that service.

SECTION 9. HOSPITAL AND DISPENSARY STAFFS: The hospital and dispensary staffs shall consist of the chiefs of the clinical divisions and such other members of these division as may be duly appointed to hospital and dispensary service. The chief of the clinical laboratory, the clinical microscopist, the clinical chemist and the actinographer to the hospital and dispensary with suitable assistants shall be appointed from the Faculty.

The members of the Faculty assigned to duty in the hospital and dispensary and the laboratories of the hospital shall organize as a committee and meet at least twice annually at the call of the Dean, to review their work and submit such suggestions to the Advisory Committee as they may deem will improve the facilities of the hospital, its correlation to the school and its use in the education of the students.

The resident physician of the hospital, the interns and the externs shall be appointed by the Board of Trustees on recommendation of the Executive Committee. They shall be under the immediate direction of the Executive Committee of the Faculty. They shall assist the members of the clinical divisions, the director of the dispensary and the chiefs of the laboratories, and render such service to patients as may be required by physicians having patients in the hospital.

SECTION 10. TRAINING SCHOOL FOR NURSES: There shall be maintained in the hospital a training school for nurses, in which pupil nurses shall be taught nursing according to a curriculum approved by the Executive Committee. The Executive Committee of the Faculty of Medicine shall have administrative control of this school. It shall appoint the teachers in the school and shall see that the teaching and the training in nursing in the hospital and dispensary are properly done.

There shall be a Superintendent of Nurses who shall be appointed by the Board of Trustees, on the recommendation of the Executive Committee. The Superintendent of Nurses shall, under the direction of the Executive Committee of the Faculty, have control of the school for nurses. She shall superintend the nursing in the hospital and give such instruction as may be assigned her by the Executive Committee. She shall visit all patients in the hospital daily and render such reports to the office of the hospital as may be required by the Executive Committee. She shall see that the diet for the patients in the hospital is properly prepared and given according to the directions of the attending physicians. She shall have authority to exercise such disciplinary measures for the nurses as may be authorized by the Executive Committee and shall report to the Executive Committee such pupil nurses as she may consider unfitted for further education in the school.

SECTION 11. BOARD OF LADY MANAGERS: There shall be a Board of Lady Managers of the hospital with authority to raise money for the maintenance of the hospital and with such powers and duties in connection with the purchase of supplies and equipment as may be assigned them by the Executive Committee of the Faculty. They shall make weekly examinations and reports on the general management of the hospital to the Execu-

tive Committee and shall perform such other duties in connection with the hospital as may be especially assigned them by that committee.

SECTION 12. Supplies and equipment for the medical department, including the medical school, the hospital and the dispensary, shall be purchased by the Dean or superintendents on written requisitions, approved by the President, and no supplies, except table supplies and medical supplies for the hospital shall be so purchased except on duly approved requisitions.

The general distribution of responsibilities in the hospital and dispensary are as shown in Table 3.

TABLE 3.—DISTRIBUTION OF RESPONSIBILITIES, AUTHORITIES AND STUDENTS

		Divisions	Subdivision	Students Year	
Board of trustees, President of the university	Executive section Executive committee Dean Chairman	1. Med. school	Anatomy	Gross anatomy	{ 1st
				Mic. anatomy	{ 2d
				Embryology	{ 1st
		2. Hospital	Physiology	Normal	{ 1st
				Pathologic	{ 2d
				Hygiene	{ 2d
		3. Dispens'y	Chemistry	Inorganic	{ 1st
				Organic	{ 2d
				Physiologic	{ 2d
		Materia medica	Pathology	Pathology	{ 2d
	Bacteriology				
	Clinical microscopy				
	Educational section Advisory committee Dean Chairman	Divisions of the faculty and distribution of students	Medicine	Materia medica	{ 2d
				Pharmacology	{ 2d
				Therapeutics	{ 3d
				Physical diagnosis	{ 2d
				General medicine	{ 3d
				Dietetics	{ 3d
				Pediatrics	{ 4th
				Tropical medicine	{ 3d
Psychiatry				{ 4th	
Neurology				{ 4th	
Dermatology	{ 4th				
Veneral diseases	{ 4th				
Preventive medicine	{ 4th				
Forensic medicine	{ 4th				
		Surgery	Minor	{ 2d	
			General	{ 3d	
			Surgical pathology	{ 4th	
			Orthopedic	{ 4th	
			Genito-urinary surgery	{ 4th	
			Radiography	{ 4th	
			Ophthalmology	{ 4th	
			Otology	{ 4th	
			Rhinology	{ 4th	
			Laryngology	{ 4th	
Operative laboratory	{ 4th				
		Obstetrics	{ 4th		
		Gynecology	{ 3d		
			{ 4th		

SUMMARY

The organization of a medical school as herein outlined is intended to give definite assignment of responsibility and authority to every teacher and administrative officer, proper supervision by responsible heads of teaching groups and adequate conference and council, so that proper administration may be had and adequate instruction may be given, all in such a way that friction may be avoided and combination of effort accomplished, with the additional essential of accurate and authoritative record of all matters pertaining to the educational attainments and progress of every student.

REPORTS OF OFFICERS AND COMMITTEES AND MINUTES OF PROCEEDINGS

MINUTES OF THE TWENTY-THIRD ANNUAL MEETING, HELD AT
CHICAGO, FEB. 26, 1913, UNDER THE PRESIDENCY OF DR.
EGBERT LE FEVRE (UNIVERSITY AND BELLEVUE
HOSPITAL MEDICAL COLLEGE)

MORNING SESSION

The delegates and accredited representatives to the meeting assembled in the Congress Hotel, and were called to order by the president at 10 o'clock.

ROLL CALL

The roll call showed that thirty-seven colleges in membership were represented by delegates as follows:

University of Southern California, Medical Department—
Charles W. Bryson.

University of Colorado, School of Medicine—William P. Harlow.

George Washington University—William C. Borden.

Howard University, Medical Department—Paul Bartsch.

Northwestern University Medical School—S. Walter Ranson.

Indiana University School of Medicine—Burton D. Myers.

State University of Iowa College of Medicine—James R. Guthrie.

University of Kansas School of Medicine—Mervin T. Sudler.

University of Louisville, Medical Department—W. Ed. Grant.

Medical Department, Tulane University—Isador Dyer.

Baltimore Medical College—Randolph Winslow.

College of Physicians and Surgeons, Baltimore—William F.
Lockwood.

University of Maryland School of Medicine—R. Dorsey Coale.

Medical School of Harvard University—Edward H. Bradford.

Tufts College Medical School—Charles P. Painter.

Detroit College of Medicine—Frank B. Walker.

University of Michigan, Department of Medicine and Surgery—
Reuben Peterson.

University of Minnesota, College of Medicine and Surgery—
F. F. Wesbrook.

University of Mississippi, Medical Department—W. S. Leathers.

St. Louis University School of Medicine—E. P. Lyon.

University of Missouri, School of Medicine—C. M. Jackson.

Washington University Medical Department—Eugene L. Opie.

John A. Creighton Medical College—A. L. Muirhead.

University of Nebraska, College of Medicine—Robert H. Wolcott.

University and Bellevue Hospital Medical College—Egbert
LeFevre.

College of Medicine, Syracuse University—A. B. Miller.
University of Buffalo, Medical Department—Herbert U. Williams.

College of Physicians and Surgeons, New York—H. von W. Schulte.

University of North Dakota, College of Medicine—H. E. French.

University of Cincinnati, Department of Medicine—Paul G. Woolley.

Starling-Ohio Medical College—W. J. Means.

Western Reserve University, Medical Department—F. C. Waite.

University of Pennsylvania, Medical Department—William Pepper.

Vanderbilt University, Medical Department—J. A. Witherspoon.

Medical College of Virginia—Charles W. Hazen.

University of Wisconsin, College of Medicine—C. R. Bardeen.

Meharry Medical College—George W. Hubbard.

The following colleges not in membership at this time were also represented:

Graduate School of Medicine, Harvard University—Horace D. Arnold.

New York Homeopathic Medical College—Royal S. Copeland.

University of South Dakota, College of Medicine—C. P. Lommen.

Leonard Medical College—Charles F. Meserve.

University of Georgia, Medical Department—W. H. Doughty, Jr.

Marquette University, Medical Department—Louis F. Jermain.

Medico-Chirurgical College, Philadelphia—Seneca Egbert.

Woman's Medical College of Pennsylvania—Clara Marshall.

Baylor University College of Medicine—Edward H. Cary.

Rush Medical College—J. M. Dodson.

Southern Methodist University—J. H. Black.

University of Alabama, Medical Department—Eugene D. Bondurant.

University of Tennessee, College of Medicine—Herbert P. Brooks.

University of Utah, School of Medicine—Charles P. Vorhies.

ACCREDITED REPRESENTATIVES

The following accredited representatives from state medical examining and licensing boards, state and national medical societies and the government services were present:

NATIONAL SOCIETIES

American Academy of Medicine—A. R. Craig.

Council on Medical Education, American Medical Association—N. P. Colwell.

Federation of State Medical Boards—William P. Harlow.

UNITED STATES GOVERNMENT

Medical Corps, United States Army—Jefferson R. Kean.
 United States Public Health Service—J. W. Kerr.
 Bureau of Education—Kendric C. Babcock.

STATE MEDICAL SOCIETIES

Medical Association of the State of Alabama—Eugene D. Bondurant.
 Colorado State Medical Society—William P. Harlow.
 Iowa State Medical Society—Walter L. Bierring.
 Massachusetts Medical Society—Harold C. Ernst.
 Medico-Chirurgical Faculty of Maryland—Archibald C. Harrison.
 Michigan State Medical Society—Frank B. Walker.
 New York State Medical Society—Egbert Le Fevre.
 Medical Society of North Carolina—C. S. Mangum.
 Ohio State Medical Society—W. J. Means.
 Tennessee State Medical Association—Jere L. Crook.
 State Medical Association of Texas—C. E. Cantrell.

STATE MEDICAL EXAMINING BOARDS

Arkansas—F. T. Murphy.
 Georgia (Regular Board)—J. W. Palmer.
 Kentucky—J. N. MacCormack.
 Illinois—J. A. Egan.
 Louisiana—A. B. Brown.
 Michigan—B. D. Harison.
 Montana—Peter Potter.
 Nebraska—E. Arthur Carr.
 New York (Board of Regents)—Otto von Huffman.
 Ohio—F. A. McCann.
 Pennsylvania—J. M. Baldy.
 South Carolina—A. Earle Boozer.
 Tennessee—H. H. Shoulders.
 Utah—George F. Harding.
 Vermont—W. Scott Nay and E. B. Whitaker.

VISITORS

C. S. Bacon, Arthur Dean Bevan and A. Gehrman, Chicago;
 W. H. McCracken, Louisville; F. F. Lawrence, George H. Matson
 and Frank Winders, Columbus, Ohio; William L. Rodman, Phila-
 delphia; John Sundwall, Lawrence, Kan.

MINUTES OF PREVIOUS MEETING

The reading of the minutes of the previous meeting being called for, the Secretary submitted the minutes as published in the volume of Transactions for 1912, page 78, and on motion of Dr. Woolley, they were adopted as printed.

REPORT OF SECRETARY-TREASURER

The Secretary-Treasurer, Dr. Zapffe, submitted his report.

The membership of the Association at the present time numbers fifty-one colleges. One of these schools, the Medical Department of Washburn College, has sent in its resignation from its membership, to take effect June 30, because the college intends to disband its medical faculty at the close of the present session. Drake University of Des Moines, Iowa, will also close its medical school, merging it with the Medical Department of the State University of Iowa. The College of Physicians and Surgeons of Chicago has donated its stock and equipment to the University of Illinois. The donation has been accepted. The two medical schools in Richmond have merged and will continue under the name of the Medical College of Virginia, after the close of the present session.

Since the last annual meeting of the Association applications for membership have been received from the College of Physicians and Surgeons of New York City (Medical Department of Columbia University), the Hahnemann Medical College of Philadelphia, the University of Utah, University of Texas, Baylor University of Dallas, Texas, the College of Medicine and Surgery of the University of the Philippines, a government institution located in Manila, and the College of Medicine, University of Georgia. The University of Pittsburgh some months ago signified its intention to apply for membership, forwarded application fee of \$25, but has thus far failed to return the application blank properly filled out and signed. Notice has also just been received a few days ago from the Rush Medical College to the effect that the Faculty of Administration had voted that the college apply for membership, but that the Medical Faculty would pass on the matter finally at its next meeting, to be held March 14.

Comparing the membership of the Association with the classification made by the Council on Medical Education of the A. M. A., it appears that of the 24 schools represented in Class A plus, 20 are now in membership and 2 have applied for membership; another has signified its intention to apply for membership. Of the 39 Class A schools (including the 2 colored schools), 24 are in membership and 5 have applied for membership. Six colleges in membership in this Association are in Class B, namely, the Medical Department of the University of Southern California; Washburn College Medical Department (resigned); Detroit College of Medicine; University Medical College of Kansas City; the Creighton Medical School and the University of Oklahoma.

One school, the Baltimore Medical College, has not been classified by reason of the fact that this school will merge with the University of Maryland at the end of the present college year.

The Association and your Secretary are indebted to Dr. Arthur Dean Bevan, the Chairman of the Council on Medical Education of the American Medical Association, for his assistance in securing the applications of some of the colleges received during the year. Dr. Bevan has done a great deal to help the Secretary in this work, and I take this occasion to make acknowledgment of my appreciation of the assistance rendered.

The Transactions of the Association were again printed by the A. M. A. Press, and were distributed earlier than heretofore. Aside from the membership, copies were sent to other medical schools, to all those who were present at the last annual meeting, to colleges and universities, libraries, medical societies, medical examining boards and all those interested in medical education, both in and out of the profession. Thus the Transactions received a very wide distribution, and, judging from the letters received, they were appreciated. In fact, the demand far exceeded the supply, so that in the future a larger edition will have to be issued.

By order of the Executive Council, as is shown in the minutes of the Executive Council meeting held immediately after the adjournment of the last annual meeting (these minutes are published in the Transactions), the matriculation record blanks were not sent out this year. The reason for this action on the part of the Council was that the Council on Medical Education of the American Medical Association is conducting this work in a very thorough manner, and its files are accessible to this Association; therefore, it seemed wise not to burden the colleges with the task of making out a duplicate set of blanks. That these blanks were missed by the membership is evidenced by the fact that the Secretary received a considerable number of inquiries from colleges as to why the blank had not been sent.

In view of the fact that the reports which were promised by the chairmen of some of the committees will in all probability elicit considerable discussion, the Executive Council did not solicit many papers for the program. This, it was thought, would give ample opportunity for a full discussion of the reports and papers, and thus be helpful in arriving at conclusions, or such action as the Association may feel that it wishes to take on any recommendations or suggestions that may be contained in these reports and papers.

The business of the Association has been quite heavy during the year. Much of it has been referred to the Executive Council for disposition and will be reported on by the Council.

The financial status of the Association is as follows: Receipts, \$1,710.02; expenditures, \$1,147.15; cash on hand Feb. 26, 1913, \$562.87.

FRED C. ZAPFFE, Secretary-Treasurer.

On motion of Dr. Woolley, seconded by Dr. Myers, the secretarial portion of the report was received and ordered published,

and the financial part of the report was referred to an auditing committee to be appointed by the chair.

Dr. Le Fevre appointed on this committee Drs. Woolley, Myers and Hazen.

REPORT OF THE EXECUTIVE COUNCIL

The report of the Executive Council was then submitted by the Chairman, Dr. Means.

Applications for Membership.—The Council respectfully recommends acceptance of the following: Medical Department of the University of Texas, inspected by Dr. Jno. A. Witherspoon; Medical Department of Columbia University, New York, inspected by Dr. Egbert Le Fevre; Medical Department of the University of Pittsburgh, inspected by Dr. W. J. Means; Medical Department of the University of Utah, Salt Lake City, membership with recognition for first and second years of a medical course, inspected by Prof. F. C. Waite and Dr. W. P. Harlow; Medical Department of University of Alabama at Mobile, inspected by Dr. Jno. A. Witherspoon and Dr. Fred C. Zapffe; Hahnemann Medical College, Philadelphia, inspected by Dr. Randolph Winslow; Medical Department of the University of Georgia at Augusta, inspected by Dr. Jno. A. Witherspoon and Dr. Fred C. Zapffe; Medical Department of the University of the Philippines under the control of the United States Government; Rush Medical College, University of Chicago.

Several colleges, members of the Association, were rated in Class B by the Council on Education of the A. M. A., following the last inspection. These are: John A. Creighton Medical College, Omaha, Neb.; Detroit College of Medicine, Detroit, Mich.; Medical Department of the University of Southern California and the University Medical College of Kansas City.

After a careful consideration of the data on which this inspection was made, the Council makes the following recommendations: (1) That John A. Creighton Medical College be suspended until an inspection can be made by two members of the Council, whose report shall be made at the next annual meeting; (2) that the Detroit College of Medicine shall be suspended until an inspection can be made by two members of the Council, whose report shall be made at the next annual meeting; (3) that the Medical Department of the University of Southern California be continued in membership, but shall be inspected by two members of the Council and a report prepared for the next annual meeting; (4) that the University Medical College of Kansas City, Mo., be expelled from membership.

Uncompleted Applications.—In the matter of the application of Baylor University, the Council recommends postponement of action pending further investigation, and asks for power to pass favorably on membership if an inspection, to be made within the next sixty

days by two members of the Council in conjunction with the inspector of the Council on Medical Education, shows that this institution is meeting the requirements of the Association. The application of Dartmouth Medical College was withdrawn without prejudice.

Council recommends that the resignation from membership of the Medical Department of Washburn College, Topeka, Kan., be accepted, to become effective July 1, 1913.

On request of the President of the University of West Virginia at Morgantown, an inspection was made of the Medical Department by Dr. Means and Professor Waite in November. Their findings were submitted to the Council, and after due consideration, it is recommended that no recognition be given the Medical Department until a reorganization has been made and the facilities for teaching medicine improved.

The status of postgraduate schools of medicine in relation to this Association was thoroughly discussed, with a view to admitting these colleges to membership on some definite basis, but inasmuch as there was no application for membership from one of these schools before the Council, the matter was not settled definitely. The Council would suggest, however, that the membership of the Association bear this matter in mind, so that some intelligent action may be taken in the near future looking toward the admission to membership of postgraduate schools.

Council discussed the matter of higher entrance requirements very carefully and thoroughly and the members were unanimous in recommending additional preparatory work beyond that of the high-school standard. It recommends the endorsement of the action taken by the House of Delegates of the American Medical Association at its annual meeting held in Atlantic City in June, 1912, requiring one year of collegiate work in physics, chemistry, biology and one modern language, as a standard for an acceptable medical college. The Council recommends the appointment of a committee of three by the Chair to cooperate with a similar committee from the Council on Medical Education for the purpose of preparing a schedule for preliminary education including high-school and college subjects.

Council also recommends that colleges, members of the Association, should exercise much care in accepting students from low-grade schools to advanced standing. For the purpose of discrimination, it is suggested that the classification of colleges of the American Medical Association be used as a guide. The following rule is one that can be followed safely:

(a) Full advanced standing may be granted to students only for work done in other acceptable colleges and in granting advanced standing there should be no discrimination against the college's full-course students. (b) Students from Class B medical schools

should not be given advanced standing higher than entrance to the third year (junior) class, and no credit should be given in any subject except on the recommendation of the head of the department teaching that subject. (c) Students from Class C colleges should not be given advanced standing higher than entrance to the second year (sophomore) class, and then only after thorough examinations in all first-year subjects have been passed.

(Signed) W. J. MEANS, Chairman.

R. WINSLOW.

EGBERT LE FEVRE.

W. P. HARLOW.

C. R. BARDEEN.

J. A. WITHERSPOON.

FRED. C. ZAPFFE.

On motion of Dr. Dyer, the recommendations of the Council with regard to the acceptance of the applications of the Medical Departments of Texas, Columbia, Pittsburgh, Utah (two years), Alabama, Hahnemann (Philadelphia), Georgia and the Philippines and of Rush Medical College were accepted.

The recommendations made with regard to the application for membership of Baylor University was accepted on motion of Dr. Witherspoon.

On motion of Dr. MacCracken, the recommendations with regard to the Creighton Medical College; the Detroit College of Medicine; the College of Physicians and Surgeons, Los Angeles; the University Medical College, Kansas City, and the West Virginia University were accepted.

The recommendation accepting the resignation of Washburn College Medical Department was adopted, on motion of Dr. Coale.

On motion of Dr. Harlow, the report of the Executive Council was accepted as a whole.

REPORT OF COMMITTEE ON EDUCATION

The Chairman of the Committee on Education, Dr. J. R. Guthrie, then presented his report, as follows:

Your committee, in taking a general view of the medical and educational situation for the past year, believes that real progress has been made. Nothing startling or new has happened; nothing radical has occurred to mark the progress, but improvement is rather seen in the tone and determined spirit manifest in supplying better facilities and equipment for the colleges. Observe how much easier it is now for a medical college to secure proper endowment; notice also the wholesome, almost universal, desire among educators to furnish the medical student nothing but the best, the most scientific, practical training for a responsible life work. No more we see the medical college whose chief ambition is a large class

of students. All this has happily changed, and our colleges are chiefly concerned in furnishing a training and culture which is of the highest class. The pernicious rivalry for students, long the bane of our system, has practically disappeared and remains in our memory only as a relic of a past age. As medical education became improved by the introduction of modern principles of pedagogy and laboratory methods, it became so expensive and was furnished at so great a sacrifice on the part of the colleges that commercialism was killed outright.

The entire system stands to-day regenerated, purified and freed from abuses, and our American medical education is highly creditable and steadily improving. The disproportionately large number of medical colleges in this country a few years ago has greatly lessened, not as the result of legislative enactment or resolutions on the part of educational bodies, but rather as the outgrowth of natural law, the evolution of the economic principles as applied to medical colleges.

Commercialism removed, medical education was simply a question of merits, and this, coupled with the universal law of supply and demand, solved the problem.

Colleges up to standard are nowhere now operated for profit, for it costs three times the amount received to furnish a modern, up-to-date medical education. This same influence, the economical problem, has materially decreased the class of students selecting the medical profession as their life pursuit. With fewer accepted colleges and smaller classes of better prepared students, the product should be one fitted for service. A feeling of optimism is everywhere manifest.

Yet there are things which need conservative, concerted action. We have entrance requirements, in the main satisfactory. Is it true that sometimes and in some quarters we are not just, frank and honest in enforcing these requirements? Are we correct in the enforcement of these laws?

If it be true, as sometimes asserted, certain delinquencies of this sort are permitted, would it not be consistent first to insist on greater faithfulness in this matter, rather than make strenuous demands for a higher entrance requirement? A little self-examination might be beneficial. It is also clear that with the best of intentions and the purest motives mistakes may occur. At no previous time was the spirit of the schools so high as now, and with a little more diligence and attention complaints from this source will be silenced.

CONCENTRATION PLAN

In the last two meetings of this Association some discussion was had with reference to the desirability of the concentration plan of teaching the fundamental branches in the medical course. Your

committee being desirous of securing an expression of opinion, sent a circular letter concerning the following points:

1. Do you employ the concentration plan in your college?
2. To what extent do you concentrate?
3. What is your opinion of the efficiency of the plan and your reasons?
4. What changes would you suggest?

Letters were sent to fifty medical colleges. Replies have been received from forty-three, and we will attempt to give the result of this inquiry as follows:

1. Do you employ the concentration plan?

To this, thirty-one colleges replied in the affirmative and twelve no.

2. In answer to the second question, it was shown that the concentration plan was confined to the laboratory branches almost exclusively.

3. In the third instance there seems to be a great difference of opinion as to the efficiency of the plan by those employing it. The following are the objections given:

1. If a student is introduced to a subject gradually he gets a better general viewpoint and the subject soaks in, e. g., take histology with say 160 hours. This could be given in ten weeks with sixteen hours a week. I think it far preferable to give five hours per week for eight weeks and then twelve hours per week for ten weeks.

2. An excessive concentration prevents the students correlating subjects. Histology and physiology if carried side by side have many points of contact, but if one is finished entirely before the other is begun, the student looks on the subjects as distinct and fails to get the mutual relations.

3. In a concentration plan the subject that comes first suffers very greatly, and I do not believe the corresponding advantage to the later subjects is enough compensation, e. g., if a freshman gets all his anatomy in first half year, he does not get it well, for it takes at least half a year for a freshman to learn how to work.

4. The student gets stale when he has but one or two subjects day after day and his mental attitude toward the subject is anything but happy.

5. Variety is one of the most wholesome points in teaching any subject and this is violated by a strict concentration plan.

The points in favor of the plan are:

1. Where tried thoroughly it has produced good results. Better than under the old system.

2. Professors like it best because it leaves much open time in last half of year for research work.

We think it would be therefore a fair statement that the concentration plan in medical education is still on trial; in schools where it has been given the longest trial and the best opportunity, it seems to have worked well to the satisfaction of both student and teacher. In the majority of the schools, however, whether due to insufficient time in testing, or improper application there seems to be still a question of considerable doubt, and it must be a question yet to be finally decided on. The concentration method is practically inapplicable to the clinical years, unless in those schools where fifth clinical year is added to the course. In that event the concentration method may be practiced in the various specialties with evident advantages.

A FIFTH HOSPITAL YEAR

Where a fifth additional year or hospital year has been tried it has been found satisfactory. In many colleges most of the graduates are now seeking and filling positions of interns, and with a little time for adjustments it would seem that most colleges can carry out such an agreement without serious hardship. ✓

Along with consideration of a fifth or college year comes a proper question—the improvement and standardizing of hospitals, an improvement which means much to educational bodies and more to the people who make up the clientele of such hospitals. It goes without dispute that hospital service as such the country over is of inferior quality, in too many cases wholly inadequate to the needs of the people, and furnishing inadequate postgraduate training for our medical graduates. Some system must be evolved by which hospitals will be reorganized on scientific lines where the manner and mode of management will be regular.

ADDITIONAL REQUIREMENT

A great deal of discussion has been indulged in as to the desirability of increased entrance requirements, and the question has been how to secure these advances with the least lack of harmony in the various colleges of the country. An increased requirement, which will be practical and yet not work an inquiry on one or more sections of a country so wide and extensive as ours is a question demanding much study and careful consideration. This Association appointed a committee a year ago whose duties it would be to report on the desirability of modifying, and of elevating the entrance requirements gradually so that it might work no injustice on any one. Your committee, therefore, in the interest of this advance and in the interest likewise of harmony, suggests the following remodeling of our entrance requirements, as affecting Section 1 of Article 3, Paragraph B and C, so that it may read as follows:

(b) A diploma and transcript from a fully accredited high school, normal school or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades and for graduation, the

completion of a standard four year high-school course embracing two years (2 units) of mathematics, two years (2 units) of English, 2 years (2 units) of one foreign language, 1 year (1 unit) of American history and civics, and seven years (7 units) of further credit in language, literature, history or science, making the total of units at least 14, and in addition one year each of physics, chemistry and biology of college grade, of each not less than six semester hours.

(c) An examination in the following branches totaling 14 units:

(A) Required, 7 units.

	Units
Mathematics—(minimum, 2 years; maximum, 3 years). Algebra and plane geometry	2
English—(minimum, 2 years; maximum, 4 years).....	2
One foreign language (minimum 2 years, maximum, 4 years).....	2
History—(U. S.) and civics. Total required.....	1

(B) Elective, 7 units. To be selected from the following:

	Units
English language and literature (in addition to the required work)....	1 to 2
Foreign language—additional, Latin, German, Italian, French, Spanish or Greek (not less than 1 year in any one).....	1 to 4
Advanced mathematics, advanced algebra, solid geometry and trigonometry ($\frac{1}{2}$ year each).....	1
Natural science—chemistry, 1 year; physics, 1 year; biology, including botany, physiology and zoology ($\frac{1}{2}$ to 1 year each).....	$\frac{1}{2}$ to 2
Earth science—physical geography, geology and agriculture ($\frac{1}{2}$ to 1 year each)	$\frac{1}{2}$ to 2
Astronomy ($\frac{1}{2}$ year).....	$\frac{1}{2}$
Drawing ($\frac{1}{2}$ to 1 year).....	$\frac{1}{2}$ to 1
History—ancient, medical and modern and English (1 year).....	1
Economics ($\frac{1}{2}$ year).....	$\frac{1}{2}$
Bookkeeping ($\frac{1}{2}$ to 1 year).....	$\frac{1}{2}$ to 1
Manual training (1 year).....	1

And in addition one year each of physics, chemistry and biology of college grade, of each not less than six semester hours.

NOTE: One unit in any subject is the equivalent of work in that subject for five periods per week for thirty-six weeks, periods to be not less than forty-five minutes in length. One unit is equivalent to 2 semester credits or 2 points.

Gentlemen, in submitting this plan, which is the result of a good deal of thought and consultation, we do not think the last word has been spoken on this important matter. The plan is not free from error, and we desire criticism and welcome it in a friendly spirit in the hope that improvement decided and practical will result. Men cannot see these things alike, nor can they think in the same channel, but we hope by discussion a plan may be revised which will be right scholastically and which can be and will be honestly administered. We have tried to furnish you with a typewritten copy so that with the amended constitution in hand you may easily see and understand what is proposed and be in a better position to form your own deliberate judgment.

JAMES R. GUTHRIE, Chairman.

F. F. WESBROOK.

R. D. COALE.

After a rather full discussion of this report, Dr. Myers moved that the report be referred back to the committee for further consideration, and that the committee avail itself of the advice and assistance of Mr. Kendric C. Babcock, expert on higher education, with a view to making an additional report at a later session. The motion was accepted and the committee ordered to act accordingly.

REPORT OF COMMITTEE ON MEDICAL RESEARCH

In the absence of the members of this committee, no report was received. The Secretary was instructed to publish in the Transactions any report that the committee might wish to make subsequently. (No report having been received from the committee, none is published.)

REPORT OF COMMITTEE ON PEDAGOGICS

The report of this committee was made by Dr. Lyon, as follows:

The Committee on Pedagogy was authorized by the Cleveland meeting of our association in 1908. The first report was made by Dr. H. B. Ward in 1909. This was an excellent discussion of the qualification of teachers and methods of instruction. The report was properly embalmed and laid away in that mausoleum entitled "Proceedings of the New York Meeting." Most of you were present at the obsequies. The reports of 1911 and 1912 were made by Dr. G. H. Hoxie. He considered the crowded schedule and the desirability of leaving the students a little time to think. He made some practical suggestions along these lines. These were respectfully listened to by the same men present to-day, but few or none of his ideas have been carried into effect. The reports were injected with formaldehyd and laid away in the archives. Recently the state of Pennsylvania has decreed that any medical school to be in "good standing" must have a required schedule of thirty-five hours a week. No one has even opened the tomb to see whether the Hoxie reports have turned over in their coffins at this outrage on pedagogic principles.

IS FURTHER DISCUSSION USEFUL?

Seriously, this raises the question whether our reports and discussions do any good. Those gathered here are chiefly deans or secretaries of medical faculties. We all recognize the existing conditions. We all know where lie the chief difficulties to effective teaching. We all know Mr. Flexner's inexorable conclusions. We are familiar with the constructive work of the Council on Medical Education. We remember the valuable discussion on this floor. It seems strange that so few of the workable suggestions from all these sources have filtered through into practical application. The physiologic mechanism of medical teaching is apparently surrounded by a semipermeable membrane, and the big molecules of pedagogic principles find great difficulty in diffusing into the cells. The membrane is partly ignorance, partly indifference, partly conflicting interests. Is there anything we can do to assist absorption? Will a further digestion help bring the unassimilable colloids into solution? Can the membrane itself be made more permeable?

President Harper used to say that a chief function of a university faculty was to educate itself. Probably that is also true of this college association.

Now, one of the established psychologic principles lying at the basis of education is repetition. It is the foundation of habit. It rests on the physiologic generalization that repeated stimuli are more effective than a single stimulus, and that each stimulation makes easier the next one. Several of our correspondents have stated that we need not be afraid of repetition in our course of study. In the main we believe that this statement is correct. At any rate we may make this principle the excuse for another discussion of clinical teaching. It is true no new discoveries can be looked for. The most to be expected perhaps is that, like the katydid, we shall say "an undisputed thing in . . . a solemn way." But if a little more pressure, a little more digestion, a little more stimulation will help to bring the long-recognized food into actual relation to the working cells of our faculties and teachers, then the work of this committee will not have been wholly in vain. May I carry the homely metaphor further by asking each man present, so far as the results of digestion seem acceptable, to serve as a circulatory system by which the pabulum of our conclusions may be brought home to his own institution and instructors, by whom alone it can be made effective for nourishment and growth?

THE PROBLEM INVOLVED

I have taken as my topic the "Problem of Teaching General Medicine." It seems to me that the matter of preliminary education has been fairly threshed out, and that this association will soon come to the irreducible minimum of one year of college added to a high-school education. It seems, further, that medical educators are agreed that the fundamental medical sciences must be taught as science and by scientists. We recognize that our students must learn to know and to do, and the laboratory method has come to stay. We know what kind of laboratory teachers we need, and where to find them, and how much we must pay. We know what equipment they need, and most schools have made fair provision in this direction.

We know further that an army of young men is every year turned loose into the clinical subjects, there to have their carefully built up habits of thought tumbled and scattered like block houses in the children's playroom. After the intensive discipline of the laboratory branches, we find them dissipating their energies among a dozen subjects with no idea of relative values. We find them wearing out their eyes trying to see surgical operations from the peanut gallery, their intellects trying to assimilate half-digested theories and their ham-bones sitting out interminable lectures.

Then we acknowledge with dismay that our average graduate is far from being a scientific physician and tends rapidly to degenerate into the typical routinist.

That this is a criticism of universal application no one will claim. That it is one of very wide application is certain, and no one has advanced it more trenchantly than Professor Graham Lusk. "The great trouble with medical education," he says, "lies in the ill-educated men who conduct the last two years of the medical course." Again he says, "It is a well-known fact that we can produce laboratory men in American laboratories who can do work equal to that which is accomplished in other countries of the world. It is also a well-known fact that we have produced, up to the present, no man who, in the subject of general medicine, stands anywhere near to being a prototype of Friedrich Müller, Krehl or Romberg." If this is a true picture, we may well take notice. We may well acknowledge the subject worthy of careful consideration. And, first of all, we may properly attempt an analysis of the problem and try to decide the methods of attack by which it may be solved.

OUTLINE OF DISCUSSION

Educational authorities are accustomed to consider their subject-matter under the two heads, aims and methods. The first topic constitutes the content of what is commonly called "principles of education," while the second finds expression in "educational psychology" or "methods of teaching." Education means change. Things are to be brought about that otherwise would not happen. We may change, that is, educate, any power of body or mind. The study of aims in education is for the purpose of deciding what powers and habits should be developed and in what direction the change should be made. These being decided on, the methods most likely to prove effective must be adopted.

In accordance with these ideas an outline as applied to general medicine was prepared and submitted to about 150 deans and teachers for criticism and discussion. About thirty careful and enlightening responses were received. For the large amount of time and thought given by the authors of these letters the committee desires to express thanks. These discussions are here for examination by anyone interested, and they will well repay careful perusal. It is the intention to bind them permanently, so that they will be available for any future committee or student of this question. There is much more in these letters than we have been able to embody in this report. What I shall say is founded on these discussions, on the excellent report of the subcommittee on medicine of the Council on Medical Education, on Mr. Flexner's book on "Medical Education in Europe" and other data.

AIMS OF GENERAL MEDICINE

From a study of these authorities we may formulate the aims of a department of general medicine under seven heads:

1. To give a broad and comprehensive presentation of the essential, fundamental facts pertaining to the causes, effects, recognition, prevention and cure of disease and to correlate these facts with the fundamental sciences.

2. To demonstrate and develop the technical skill by which alone the facts are applied in the diagnosis, treatment and investigation of disease.

3. To develop the powers of observation, judgment, thoroughness, persistence and precision by which alone the facts and methods can be intelligently and fully recognized and applied.

4. To develop the powers of expression, oral and written, by which alone the results of observations may be made available to others either at once, or for future reference.

5. To instruct students in the use of medical literature and develop habits of study by which alone the graduate will continue to grow in knowledge all his life.

6. To give the student as much knowledge as possible of human beings into whose life he must enter in a much broader, more sympathetic relation than that of engineer to machine.

7. To inculcate the ethical and professional ideals of honor, self-respect, altruism and social consciousness without which medicine degenerates into a business or a trade.

While the other departments of instruction will properly assist in all these aims, their systematic realization must rest on the department of medicine, the trunk of the tree, the *sine qua non* of medical education.

It is at once seen that this is a large program. Several of our correspondents have well said that it means the work of a lifetime or of several lifetimes. But of course we must limit our endeavors to what can be given to average students in the time of a standard medical course. The words "essential" and "fundamental" in our statement of aims are intended to imply this limitation. And we must at once acknowledge that if the ordinary course of study is too short to develop the essential, fundamental knowledge, technical skill, habits and ideals necessary to start the young graduate as a fairly safe and competent practitioner, our immediate duty is to bring the course of study up to the necessary standard. The discussion of the fifth or hospital year must in the last analysis rest on the determination of the inadequacy of the present standard.

GENERAL MEDICINE AN INCLUSIVE TOPIC

With our program thus formulated and delimited several things become clear. Since the fundamental facts are to be included in

general medicine, no distinction should be made at first between medicine and surgery. All the diagnostic methods should be taught, and surgery should branch off when a special therapeutic method is indicated. Also since general medicine includes the fundamental facts it must embrace general therapeutics and the essentials of neurology, pediatrics, hygiene and other so-called special branches.

From our formulation of aims or principles another conclusion is inevitable. Technical skill, or knowing "how," is put parallel with theory, or knowing "why." Moreover powers of observation and deduction, or knowing "how to know," are of parallel or even greater importance than technical skill and knowledge of theory. Now no one ever learned how to do any thing without doing it. No one ever learned to observe correctly without practice in observing. No one ever learned how to record his observations except by repeatedly recording his observations.

All this has been said so often that you can all sleep comfortably while I speak, just as we all sleep comfortably while someone declares without passion two such profound generalizations as these: "One person in ten dies of tuberculosis," and "Tuberculosis is a preventable disease," just as good citizens sleep comfortably when told that they have the worst municipal government in the world and are asked, "What are you going to do about it?" Once in a while along comes a Flexner and shouts in our ears, whereupon we turn over in bed and snooze off comfortably again on the other side.

RESPONSIBILITY OF MEDICAL TEACHING

The truth is that if our graduates in medicine are insufficiently trained, we—the group of men here present—are responsible. We either haven't the brains or the backbone to change things. In either case our slumbers should be fitful and our working days fuller of activity. Really, gentlemen, this is serious business; and I for one, when I hear that one of our graduates has undertaken a surgical operation for which he was not prepared, seem almost to have stuck a dirty finger into that patient's wounds. When I hear of fee-splitting I feel like a thief. When I hear of an avoidable death I have some of the qualms of a murderer. The question, "What are you going to do about it?" shrieks for an answer. This question opens the discussion of methods.

METHODS OF TEACHING: LABORATORY METHOD

Concerning the laboratory side of general medicine there is unanimity of opinion that a certain acquaintance with the methods can be gained through laboratory courses of the same nature as those conducted by the ancillary sciences; namely, systematic work with a considerable number of students in laboratories not immediately related to the hospitals. This is the way in which clinical

pathology is ordinarily taught to juniors. While such a course is justified, there is equal unanimity among experts that such work constitutes only a beginning, and that the continued application of the laboratory methods in the first-hand study of actual patients is an absolute necessity. This necessity must be borne in mind when we come to the consideration of teachers and equipment.

For the present let us turn to the other forms of teaching applicable to general medicine.

DIDACTIC LECTURES

Since a thorough acquaintance with facts is one of our aims, it becomes apparent that the didactic method may be employed, provided the students have the opportunity of acquiring the objective basis by which the matter of lectures or text-books is made intelligible. By this objective substratum I mean that first-hand knowledge of facts, terms and methods by which alone wider discussion and excursion can be comprehended—by which alone words can be vivified and descriptions visualized.

IMPORTANCE OF OBJECTIVE KNOWLEDGE

To me as a teacher of physiology this subject is almost a fetish. I spend probably a fourth of the time of my students in the systematic development of objective knowledge of the methods and principles of this science, but I do not attempt to teach it all from an objective standpoint. I find that when my students have a moderate working acquaintance with the graphic method, they are in a position to understand and interpret heart tracings that they have not made themselves; that if they have studied the process of secretion of the salivary glands, they can visualize the process in the stomach; that if they have seen the effects of secretion on the pancreas, the discussion of the ductless glands without demonstrations becomes intelligible.

Now it is apparent that the fundamental sciences supply in part the objective substrata for medicine. For this, in part, the students have pursued anatomy, physiology, chemistry and pathology. But it is equally apparent that a part of the experiential basis must be supplied by the department of medicine. The student must early see some sick people. Else "fever," "dyspnea," "râles," "contusion," "abscess," "rigidity," "edema" and many more words remain words only, parrot words, learned by rote, glibly repeated it may be, but lonely and unassociated in the mind. Hence we have the argument for some clinical instruction, as intimate as may be and as early as possible, surely by the beginning of the third year.

Concurrent with or following (but not before) this observational basis can come systematic didactic instruction. Whether by lectures or by recitations from a text or by a combination of the two seems from a study of our authorities to be a matter of local conditions.

To me it appears that the working out of this problem should take into consideration our fourth and fifth aims in regard to the development of powers of expression and habits of study. Furthermore, the problem should be worked out in relation to other departments and divisions. For example one department may well work from the text-book with frequent oral and written exercises and consequent development of ability to read and to express. Another department may properly use lectures and develop power to recognize essential points in discourse and make good notes. Whatever be the detailed system, every one agrees that the didactic method is to be employed with discrimination as to subject-matter and sparingly in relation to the total instruction.

SELF-CRITICISM AS A FACTOR IN EDUCATION

I believe, however, that one recognized psychologic fact should not be lost sight of; namely, that self-criticism of motor responses is easier than self-criticism of purely mental functions. A child can more easily tell whether he has made a right angle correctly than whether he has defined it correctly. A man may make a good machinist of himself. He can with difficulty make an electrical engineer of himself. Still less easily can he make a scientist of himself. The broad foundation of theory and of generalization must be laid by systematic instruction in the school. Your average graduate should constantly improve his technical skill in his life-work; he will be less likely to add to his scientific knowledge and to his ability as a thinker. This is not saying that we should teach the latter to the exclusion of the former. But it is saying that in our zeal to produce a competent technician we must not narrow the mental horizon—that we must not submerge the science in the art. This is a real danger, to be borne in mind in every readjustment of curriculum by which didactic instruction is supplanted by technical instruction and in all teaching, especially of the latter kind.

CLINICAL LECTURE METHOD

Taking up the second method of instruction, the clinical lecture, there is a surprising majority expression among our correspondents as to its limited applicability. It is criticized, on the one hand, as not furnishing systematic instruction; one the other hand, as not affording intimate, first-hand information to the students.

The first criticism is met in part by saying that the lecturer must be in command of a very large clinical material from which to develop a systematic course (which is easier said than accomplished). The first criticism is also answered in part by saying that the student in his after-life will have to meet his cases as they come and must be prepared to open his mine of knowledge at any spot and at a moment's notice. The second criticism is partially

met by having certain students participate, either by being abruptly called to the arena or, better, by being afforded opportunity to examine the case in advance. You will all remember, however, Mr. Flexner's description of the ineffective working of the *Praktikant* system in the highly organized clinics of Germany. It can hardly be so good, on the average, in our less organized and controlled hospitals.

Nevertheless the clinical lecture has ardent defenders; and much of its success must depend on the care with which the system is worked out, and on the way in which the student-participant is compelled to work up and present his part of the exercise. That the method may be used in moderate degree should be admitted.

SECTION TEACHING AND INDIVIDUAL WORK

Two other methods of clinical instruction remain to be discussed; namely, so-called section teaching and individual work in hospital wards. It seems to me that many practical considerations demand that the two methods be combined. Abstractly we may say that the student should work out everything by himself in ward and laboratory. Practically, it is acknowledged by all that the student must have supervision and help. Abstractly, we may say that all instruction should be individual. Practically, we cannot furnish instructors enough; and there are other difficulties. Abstractly, we may say that the teacher's criticism and discussion of a student's work pertain only to that student's work. Practically, we know that a valuable by-product of that discussion and criticism may fall to others who are near enough to know the facts under consideration. Teaching in small groups, therefore, appears to combine the maximum of efficiency with the minimum of supervision and expense.

The maximum of value in this type of sectional instruction will be found neither when the teacher demonstrates everything, nor when he simply turns the student loose in the ward and laboratory and says, "Do so and so." The maximum of value is somewhere between these extremes. It will vary in position with the advancement of the students and with other conditions. We need not try to locate it exactly. It is of more importance just now, to decide how many students a teacher may properly supervise and the length of time to be spent in this work. Our correspondents are united in affirming that the sections must be small. Twelve is the largest number named, and a big majority favor sections not larger than six. They assert further that two or three (or four) hours a day for six (or seven!) days in the week and over a period of eight to twelve weeks should be spent by each senior student in ward and laboratory work on actual cases of disease.

Even admitting that under good conditions the students can work part of this time by themselves (and the régime to make this possible needs to be very good indeed, if proper regard be had for the patients concerned), it is apparent that here is a very large problem of organization, equipment and teaching. This problem has been stated so often that some of you are doubtless whispering, "Katydid," but a far better slogan is "What are you going to do about it?" What are *we* going to do about it?

MEDICINE SHOULD BE A UNIVERSITY DEPARTMENT

We must, complacent gentlemen, *we must* organize this inexpressibly important teaching on a university basis. At the present time, as Dr. Blumer has frequently said, it is like chemistry forty years ago. At the present time, in many of our school, sick people are like the instruments in the physics cabinet thirty years ago bearing the notice, "Students must not touch the apparatus." First of all, we must open the cabinets, that is, the hospitals. Secondly, we must organize the teaching so that students may properly use the apparatus, that is, the patients. Incidentally we shall find, as did physics, that many more teachers and much more apparatus are needed the instant that the university type of instruction is adopted.

THE TEACHING HOSPITAL

I can take time but to indicate in brief symbols, as it were, this aspect of our problem. The university hospital is what we are all praying for; but so far but few of our rich men or rich states have been influenced to double, yea, quadruple, the results of their philanthropy by endowing institutions which both minister to immediate unfortunates and also, through educational facilities, radiate blessings to unnumbered others in sick beds far removed in time and space. Meanwhile let us not only pray but work.

Organization, tact and persistence will do much. Scattered and inadequate hospital privileges will bear fruit if cultivated and fertilized. By fertilization we mean all that the medical school can do for the hospital. Have not the schools heretofore asked much and given little? The relation should be *quid pro quo*. And in addition to moral support and other help, the schools may well afford to pay money for their clinical privileges. Often a very moderate annual sum will secure affiliations of great value. The school may properly conduct the laboratory of the hospital or furnish a paid pathologist or support a number of free beds. Gradually the schools can gain control of the staffs; but even pending that all-to-be-desired day, tact and weight of opinion may secure working cooperation. The staff-surgeon has the reputation, it is true, of lying full length in the trough while he eats. But the medical man has often no more than two legs in his victuals; and

the man trained a generation ago, who ought not to try to teach under the new conditions, will sometimes move over a bit to allow the young instructor a chance—on the charity cases!

Seriously, while admitting the real difficulties above indicated, I must express my appreciation of the unselfish zeal of many of the older type of medical teachers and of their willingness to give up their authority, when the good of the school demands the sacrifice. It is ours to demonstrate that a new prophet is come and the sacrifice is due.

PRESENT DEFECTS IN TEACHING MEDICINE

A word only on the teaching side of our topic. At present, in most of the schools of this association, the teaching of medicine is as far from the university standard as Dr. Cook from Captain Scott. A glance at some schedules which I studied would demonstrate this all too easily. In one school for example there are two "professors" of medicine. One is scheduled for one lecture a week. The other conducts a clinic two hours a week. The first gives one-fiftieth, the second one twenty-fifth of his working time to teaching. Contrast this with the professor of anatomy who teaches, according to the schedule, ten hours a week! and the rest of whose time goes to the constructive work of his department and, as shown by his publications, to investigative work in his science. Take another school, three professors of medicine teaching two, two and three hours a week, respectively. Take another, one "professor," one lecture; the rest of the work by subordinates, all practitioners.

Or take up budgets! One school spends yearly for medicine (total budget), \$930; for anatomy, \$3,750; for pathology, including bacteriology, \$4,600; for physiology, including pharmacology, \$3,800. Another school: medicine, nothing; anatomy, \$5,600; pathology, \$7,500; physiology, \$4,500. A third school: medicine, \$200; anatomy, \$7,000; pathology, \$8,000; physiology, \$5,500. A fourth school: medicine, \$1,100; anatomy, \$6,000; pathology, \$4,500; physiology, \$6,600. Of course, other budgets read quite differently; for example those of Stanford, Western Reserve, Minnesota and Michigan. In one school, to its great advantage, a strong young man has been put at the head of medicine on practically a full-time basis. And the salary for this man was voluntarily surrendered from the already inadequate budgets of the fundamental departments. This is mentioned as showing how great is the need to strengthen the department of medicine, and what sacrifices may sometimes be deemed necessary to do it.

NEED OF MONEY FOR PAID TEACHING

Gentlemen, complacent gentlemen and complacent public, you have got to spend money on the teaching of medicine. You cannot expect a busy practicing profession to teach; and even if you had a

right to expect it, this profession could not fill the bill; for the profession of medicine is not the profession of teaching—and “no man can serve two masters.” Practitioners may give valuable help but they cannot bear the larger burdens.

But if you had the money—which admittedly you have not—how would you spend it? As everybody knows we have not bred the self-perpetuating race of clinicians and teachers which has made the German medical schools the models of the world. We have produced a few promising men, already well placed. But the wise school, attempting to build up medicine on a university basis at the present time, will look for a young and vigorous “sport” (I am still using the language of the breeders), and will hope from him to develop the new species of clinical teacher. Select a strong young man who has done some research work in the fundamental sciences and has had a good clinical experience, and tell him to swim or sink. If he sinks or if he drifts into the maelstrom¹ of practice, let him go and get another idealist still in his early thirties. Pay him well for his services. Pay him more than the laboratory head, if you must. I say this with misgiving, for I cannot think one kind of service intrinsically more valuable than the other. But on the other hand, the law of supply and demand cannot be denied. Surround this young man with other young men, some full-paid; others, part-time. Yes, and with old men too, men of experience, vision and zeal, who are willing to cooperate for better things. Presently we shall think the millennium is indeed here!

TEACHING ETHICAL IDEALS

Finally let us recall the seventh of our aims formulated for a department of medicine: To inculcate the ethical and professional ideals of honor, self-respect, altruism and social consciousness without which medicine degenerates into a business or a trade. Is there not need that something be done in this direction? Does not the wide-spread distrust of the medical profession indicate that something should be done? Does not the unrest in the profession demand that something be done? Can we deny that many of the profession are money-mad? Does not cut-throat competition beat the oil business in its worst days? As deans you doubtless often receive from doctors offers to sell their practices or notices of desirable locations for young physicians. Did you ever get one that told of the good a physician could do in that community? No; they say rather, “Practice worth \$6,000 a year. Collections good.” Or they say, “Little competition here. The other doctors are old fogies. I came here six years ago without a cent and have saved \$15,000.”

1. The metaphor would seem to imply that this athlete may swim moderately in “practice” waters, provided he does so for his own development and not to the weakening of his powers for the race in which he is entered.

Gentlemen, the need of higher ideals is very great. But can we suggest methods which will at all help to meet the demand?

If you will pick up almost any book on principles of teaching you will find a chapter on "Responses of Conduct" or "Moral Training." You will find that the psychologists trace the elements of character very far in the complex web of existence—farther indeed than the life of the individual, for there is evidently an important hereditary factor. "To expect school education to determine moral development," they acknowledge, "is like expecting a city water-supply to abolish all sickness." But at the same time they point out that the teacher can "do a little of what so much needs to be done." And we think the department of medicine also can do a little of what so much needs to be done in its sphere of education.

TEACHING BY EXAMPLE MOST IMPORTANT

The department of medicine enjoys the advantage of being able to teach by example even better than by precept. It can place before students worthy examples of men devoted to science, the advancement of knowledge and the amelioration of suffering. It can develop the instinct of workmanship. It can teach a man to do honest work. Any man who learns to do something useful is a better man than he would have been otherwise. Moreover, an overpowering interest in his occupation keeps him from distracting and lowering influences. This interest the instructors in medicine should arouse. Says Thorndyke, "A man's conscience is not the producer but the product of his career." If this be even partially true, habits of thoroughness, persistence, punctuality and patience have real moral value. These habits the instructors in medicine should help to form in their students. The field of preventive medicine should be traversed as the great altruistic fighting-ground of our science. Finally by a host of shining lights such as Pasteur, Livingstone, Walter Reed and Ricketts, it may be shown that the enduring stars in the esteem of mankind are the morally great and not the flaming rockets of worldly success.

We as deans and officials have our part. We help to select the teachers and thereby accept a great responsibility. I remember an instructor who never wrote a prescription on the blackboard without saying, "This will be worth two dollars to you fellows"; another who frequently spoke of his large practice and admonished the students not to be afraid of any kind of surgery when they went out of school. Both these men, I am glad to report, have discontinued their activity as medical teachers. I know a surgeon who recently, for reasons of his own, sold his big limousine and now drives to the college in a little runabout. I venture the suggestion that that surgeon is now a better teacher!

CONCLUSION

The weakest part of medical teaching is general medicine. It should be the strongest. It should be a university department, like the other divisions of biologic science. It must be given its laboratory; that is, a hospital. It must be given its equipment. It must be given its material. It must be given its personnel; that is, paid scientists and teachers who devote their time to this work. It must have money. The problem of teaching general medicine is the great problem in medical education. You have built a good foundation, gentlemen; but you have put on a temporary roof at the height of the first floor, and you are holding divine services in the basement. It is time to build the church.

E. P. LYON, Chairman
ISADOR DYER.
CHAS. M. HAZEN.

On motion of Dr. Bardeen, the report was ordered received and published in the Transactions.

REPORT OF COMMITTEE ON EQUIPMENT

The report of this committee was made by the Chairman, Dr. C. M. Jackson, and on motion, was adopted and ordered published in the Transactions.

Your Committee on Equipment begs leave to submit the following report: After a careful consideration, the subject of clinical equipment was selected for the year's investigation and report. In order to obtain the views of those representing the various medical schools, the following letter was sent last fall to the deans of the schools belonging to this Association:

The Association of American Medical Colleges has adopted a standard curriculum indicating approximately the minimum time for each subject and has also approved an "equipment standard" which is intended to include the minimum equipment which should be considered necessary to teach satisfactorily the work outlined in the curriculum. While this has been worked out fairly well for the laboratory subjects comparatively little attention has been paid to the question of the necessary clinical equipment. The Committee on Equipment is considering the revision and amplification of our present clinical equipment standard (see separate sheet) and to aid in preparing a report they would like to have your suggestions as to what equipment should be considered necessary to teach properly the clinical work outlined in our curriculum. Please specify what is (a) *desirable* and (b) *indispensable* for each division and so far as possible for the individual branches. This should include all equipment—teachers, building, rooms, patients, apparatus, etc.—for both hospital and dispensary (outpatient) departments. In case you prefer to refer the question to others, please request them to reply promptly, and greatly oblige.

About fifty of these letters were sent out and about thirty replies were received. The majority of the replies contained the desired

statements with suggestions as to equipment standard, elaborated in some cases in considerable detail. The committee desires to express its high appreciation of the valuable aid received from the deans and faculties who responded.

While it is very generally agreed that the present clinical equipment standard is inadequate, some have expressed doubt as to whether it is possible to secure a satisfactory minimum standard. It has been said, for example, that the essential point is not the amount of equipment you have, but how it is used. Again, it is claimed that conditions vary so widely in different schools that what is adequate in one may be inadequate in another. It has also been suggested that if we get the right kind of teachers, we can trust them to select adequate equipment. While recognizing an element of truth in all these objections, we must, however, agree with the majority that it is possible to specify, along general lines, a minimum amount of clinical equipment which is always necessary to teach clinical medicine satisfactorily; just as we can specify certain fundamental equipment which is necessary for laboratory instruction.

Furthermore, two methods have been used to estimate the minimum amount of equipment necessary for teaching the various clinical branches. According to the first method, which is that followed in our present clinical equipment standard, the amount of clinical material necessary is based on the number of students to be taught. In support of this method, it is argued that a small class does not need so many patients as a large class, which seems obvious. According to the second method, however, an absolute minimum number of clinical beds or patients must be specified, in order that a sufficient *variety* be furnished to render the student familiar with all the commoner diseases in the various branches of medicine and surgery.

In formulating its report, your committee has recognized as valid the principle underlying each of the foregoing methods. While specifying an absolute number of patients which is considered the minimum necessary to give an adequate variety, it is further provided that for classes beyond a given size the number of patients must be increased in proportion. In all cases the committee has been conservative, and the proposed standard therefore falls short of what many consider necessary.

For the minimum clinical equipment standard, the committee therefore recommends the following:

PROPOSED MINIMUM STANDARD FOR CLINICAL EQUIPMENT

A.—GENERAL

1. *General Hospital* (owned or controlled by school for clinical teaching) must be provided with minimum daily average of 100 available bed-patients, representing the various phases of medicine and surgery, and with

adequate rooms and equipment for clinical teaching. For classes of fifty or more, the minimum is two patients daily per senior student.

2. *Dispensary or Outpatient Department*, must be provided, managed by school, with minimum daily average of forty patient-visits, and for the school year not less than 120 patients per junior and senior students. A deficiency in the number of outpatients may, however, be counterbalanced to a certain extent by a corresponding increase in the number of hospital patients. The Dispensary must have adequate rooms, equipment and patients for clinical instruction in medicine and surgery, including their principal subdivisions.

3. The organization and equipment must provide for thorough individual clinical instruction, both in hospital wards and dispensary, with at least one competent instructor to every six students. Complete clinical records must be kept, both in hospital and dispensary. Above all, equipment and facilities must be intelligently used in the training of students.

B.—SPECIAL

1. *Clinical Laboratory*. Adequate rooms, equipment and facilities must be provided especially for microscopic, chemical and bacteriologic examinations of clinical materials. These facilities must be accessible to every student during at least the entire senior year.

2. Adequate rooms and equipment must be provided for x-ray work and for electrotherapeutics.

3. In *surgery*, equipment and materials must be provided for thorough courses in operative surgery on the cadaver and on animals. In addition, facilities must be provided to allow each student to assist in at least six major operations and to administer a general anesthetic at least six times under competent supervision.

4. In addition to obstetrical charts, models, specimens and equipment for manikin drills, etc., clinical facilities must be provided which will allow each senior student, under proper supervision, to witness at least twelve confinement cases, at least three of which he shall have entire charge of, also under proper supervision, before, during and after labor.

5. Equipment and facilities must be provided so that each student shall observe and take part in at least twelve complete autopsies.

LIBRARY

The college should have a working medical library. It should include the more modern text and reference books, the *Index Medicus*, and thirty or more leading medical periodicals representing all the various departments. The library should be catalogued and accessible to students at all times.

C. M. JACKSON, Chairman.

REUBEN PETERSON.

B. D. MYERS.

REPORT OF DELEGATE TO FEDERATION OF STATE MEDICAL BOARDS

The main topic under discussion at the last and final meeting of the National Confederation of State Medical Examining and Licensing Boards was the adoption of a new constitution which it was believed would pave the way to a merger of the two confederations.

tions then in existence, the National and American. Because of the fact that the officers of the American claimed that the confederation had not taken final action on the question of a merger, a committee was appointed, with full power to act, to meet a similar committee from the American to perfect the details of the merger at such time as was mutually satisfactory.

This joint committee met in Columbus, Ohio, last April but failed to effect a merger. The committee of the National, pursuant to the powers delegated to it, dissolved the National Confederation and then and there the Federation of State Medical Boards was organized, rising, as it were from the ashes of the old National. This new federation, for such it is, has invited all state boards of medical examiners to come into membership and also has invited individuals who are interested in medical education to come into fellowship.

The details of the new organization were carefully worked out, and at its first annual meeting held yesterday it already had a membership of fourteen and sixteen fellows. This organization is working under a splendid constitution, is well organized and represents all the purposes of state examining boards.

At its meeting yesterday it had a fine program, discussing higher entrance requirements, the fifth year, reciprocity and other subjects of more direct interest to state boards. The meeting was well attended and much lively interest was displayed in the proceedings. The federation is in full accord with the principles of this association and appreciates the effective work that has been done. As an expression of its desire to cooperate with this Association, so far as in its power lies, one of the fellows of the federation, Dr. Wm. P. Harlow, was elected to represent it at this meeting. There can be no question that an affiliation of activities and purposes of action on the part of the federation and this Association will not only be mutually advantageous but productive of the greatest possible good to medical education to the profession and to the people.

FRED C. ZAPFFE.

On motion, this report was received.

Dr. Means, delegate to the Council on Medical Education of the American Medical Association, reported verbally that he had attended several meetings of the Council during the year, and had participated in the discussions. A detailed written report was unnecessary, inasmuch as the proceedings of the Council are published in full by the American Medical Association in its journal.

At this juncture the chair appointed the following Nominating Committee: Drs. Harlow, Peterson and Woolley.

On motion, an adjournment was taken until 2 p. m.

AFTERNOON SESSION

The Association reassembled at 2 p. m., and was called to order by the President.

Vice-President Waite then took the chair, while the President read his address, entitled, "Some Problems in Medical Education." (Page 5.)

Dr. William Pepper (University of Pennsylvania) followed with a paper entitled "The Fifth or Hospital Year." (Page 18.)

Dr. Charles R. Bardeen (University of Wisconsin) read a paper on "The Divided School." (Page 22.)

Dr. W. C. Borden (George Washington University) read a paper entitled "Value of Organization in Medical Colleges." (Page 29.)

SUPPLEMENTAL REPORT OF COMMITTEE ON MEDICAL
EDUCATION

Dr. Guthrie announced that the Committee on Medical Education had acted according to the instructions received at the morning session, and as the result of its deliberations presented a report, which was discussed freely. That portion of the report referring to the high school requirement for admission to medical schools as finally adopted, on motion of Dr. Lyon, is as follows:

(b) A diploma and transcript of record from a fully accredited high school, normal school or academy requiring for admission evidence of the completion of a standard course in primary and intermediate grades, and for graduation, the completion of a standard four-year high-school course, embracing two years (2 units) of mathematics, two years (2 units) of English, two years (2 units) of one foreign language, one year (1 unit) of American history and civics, and seven years (7 units) of further credit in language, literature, history or science, making the total of units at least fourteen; and in addition, one year each of physics, chemistry and biology of college grade of each not less than six semester hours.

(c) An examination in the following branches totaling 14 units:

(A) Required, 7 units.	Units.
Mathematics (minimum 2 years, maximum 3 years), algebra and plane geometry.....	2
English (minimum 2 years, maximum 4 years).....	2
One foreign language (minimum 2 years, maximum 4 years)	2
History (U. S.) and civics.....	1
(B) Elective, 7 units.	

To be selected from the following:

English language and literature (in addition to the required work).....	1	to 2
Foreign languages, additional, Latin, German, Italian, French, Spanish or Greek (not less than 1 year in any one).....	1	to 4
Advanced mathematics, advanced algebra, solid geometry and trigonometry ($\frac{1}{2}$ year each) 1		
Natural science, chemistry 1 year, physics 1 year, and biology, botany, physiology and zoology ($\frac{1}{2}$ to 1 year each).....	$\frac{1}{2}$	to 2

Earth science, physical geography, geology and agriculture ($\frac{1}{2}$ year to 1 year each).....	$\frac{1}{2}$ to 1
Astronomy ($\frac{1}{2}$ year).....	$\frac{1}{2}$
Drawing ($\frac{1}{2}$ to 1 year).....	$\frac{1}{2}$ to 1
History, ancient, medieval and modern, and English (1 year each).....	1 to 3
Economics ($\frac{1}{2}$ year).....	$\frac{1}{2}$
Manual training (1 year).....	1
Book-keeping ($\frac{1}{2}$ to 1 year).....	$\frac{1}{2}$ to 1

And in addition one year each of physics, chemistry and biology of college grade, of each not less than eight semester hours.

One unit in any subject is the equivalent of work in that subject for four or five periods per week for a year of at least thirty-six weeks, periods to be not less than forty-five minutes in length. One unit is equivalent to two semester credits or 2 points.

Dr. Coale moved that that portion of the report referring to the advanced requirement of college work be referred to a joint committee for further consideration. Dr. Means moved as a substitute that a special committee of three be appointed to confer with a similar committee of the Council on Medical Education of the American Medical Association with regard to the evaluation of this college work, and that the committee be given full power to act, and, further, that any report which said committee would make would be considered as binding on the Association. The motion was carried.

Dr. Means further moved that Mr. Kendric C. Babcock be asked to serve as an advisory member of this committee. Carried.

The Chair appointed on this committee Drs. Guthrie, Dyer and Coale. Mr. Babcock, having signified his willingness to serve in an advisory capacity on this committee, was appointed as such a member by the Chair.

REPORT OF NOMINATING COMMITTEE

In accordance with instructions received, the Nominating Committee presented two names for each office, in which a vacancy was to occur at this meeting. The vote on this report (by ballot) resulted as follows: President, Dr. E. P. Lyon; Vice-President, Dr. F. F. Wesbrook; Secretary-Treasurer, Dr. Fred. C. Zapffe. Executive Council: Dr. C. M. Jackson and Dr. F. C. Waite.

On motion, those receiving the highest number of votes cast for each office were declared duly elected.

REPORT OF AUDITING COMMITTEE

The Auditing Committee, through its Chairman, Dr. Woolley, reported that it had found the vouchers submitted with the report of the Treasurer in proper order, except for the items of postage, exchange on checks, notary fees and office expenses. The Com-

mittee suggested that hereafter large items of expenditure, such as that for postage, be accompanied by vouchers. The Committee recommended the acceptance of the report. The report was signed by Drs. Woolley, Myers and Hazen.

On motion, this report was accepted.

On motion of Dr. Means, Mr. Kendric C. Babcock was duly elected to honorary membership in the Association.

It was moved that the Executive Council be empowered to arrange for the time and place of holding the next annual meeting of the Association, with a view to making the meeting a part of other meetings, as has been done for the past three years.

The Association then adjourned *sine die*.

EGBERT LE FEVRE, President.

FRED. C. ZAPFFE, Secretary.

MINUTES OF THE EXECUTIVE COUNCIL MEETING

The Executive Council met February 26, 1913, at 5:30 p. m.

Called to order by Chairman Means.

The following members of the Council were present: W. J. Means, Randolph Winslow, C. M. Jackson, Egbert Le Fevre, E. P. Lyon, F. C. Waite and Fred. C. Zapffe.

On motion of Dr. Le Fevre, W. J. Means was reelected Chairman of the Council for the ensuing year.

The Council appointed the following committees and representatives:

Committee on Medical Education and Pedagogics (combined): Isadore Dyer, Chairman; Wm. P. Harlow, James R. Guthrie, Wm. C. Borden and Kendric C. Babcock.

Committee on Equipment: Reuben Peterson, Chairman; H. von W. Schulte, Paul G. Woolley.

Committee on Medical Research: Eugene L. Opie, Chairman; Wm. Pepper, J. S. Ferguson.

Representative to Council on Medical Education, American Medical Association, Wm. J. Means.

Representative to Federation of State Medical Boards, Fred. C. Zapffe.

Dr. Le Fevre moved that the Secretary receive an honorarium of \$500 for the next year. Seconded and carried.

Dr. Le Fevre further moved that an appropriation of \$200 be made annually to defray the office expenses of the Chairman of the Executive Council, and that his expenses as delegate to the Council on Medical Education be paid. Seconded and carried.

Adjourned.

W. J. MEANS, Chairman.

FRED. C. ZAPFFE, Secretary.

THE PRELIMINARY COLLEGE YEAR

At a joint meeting of the committee representing the Association of American Medical Colleges and the Council on Medical Education of the American Medical Association held March 22, 1913, pursuant to the power vested in the committee by this Association, the following requirements were adopted for the preliminary college year:

(a) The preliminary college year shall extend through one college session of at least thirty-two weeks of actual instruction, including final examinations.

(b) In excellence of teaching and in content, the work of this preliminary college year shall be equal to the work done in the freshman year in standard colleges and universities.

SCHEDULE

Subject	Lectures or Recitations Per Week	Laboratory Periods * Per Week	Total Hours Per Semester	Total Semester Hours Per Year
Physics, 1.....	2	2	4	8
Chemistry, 1.....	2	2	4	8
Biology, 1.....	2 or 3	2 or 1	4	8
German or French, 2.....	4 or 3	4 or 3	8 or 6
Total	10	6 or 5	16 or 15	32 or 30

* Each laboratory period must extend over at least two hours.

OR, EXPRESSED IN CLASS HOURS:

Subject	Total Hours Lectures, or Recitations	Total Hours Laboratory Work	Total Minimum Hours Didactic and Laboratory
Physics, 1....	64	128	192
Chemistry, 1.	64	128	192
Biology, 1....	64 or 96	128 or 64	128 or 160
German or French, 2..	128 or 96	128 or 96
Totals	320	384 or 320	704 or 640

(c) This preliminary college year shall include courses in physics, chemistry, biology and German or French, each course to embrace at least eight semester hours of didactic and laboratory work in each subject as shown in the above schedule, provided that a student may satisfy the requirement of physics in presenting one unit of high-school physics and completing a half year of college physics which continues and does not duplicate the work done in the high school.

(d) In medical colleges planning to give the work of the preliminary year, provision should be made for full-time expert teachers in the various subjects. Sufficient equipment should be provided to enable the students to do the work intelligently — in amount such as will compare favorably with equipment for these courses in standard colleges and universities.

(e) It should be remembered that the chief object of the work of the preliminary college year is to provide the student with a training that will enable him to enter more readily and intelligently on the study of the fundamental medical sciences in the medical school.

(Signed) JAS. R. GUTHRIE, Chairman.
 R. DORSEY COALE.
 ISADOR DYER.
 KENDRIC C. BABCOCK.

OFFICERS AND COMMITTEES FOR 1913-1914

PRESIDENT: E. P. Lyon, St. Louis University, School of Medicine, St. Louis.

VICE-PRESIDENT: F. F. Wesbrook, University of Minnesota, College of Medicine and Surgery, Minneapolis.

SECRETARY-TREASURER: Fred. C. Zapffe, University of Illinois, Chicago, Ill.

EXECUTIVE COUNCIL

Wm. J. Means, Chairman, Starling-Ohio Medical College, Columbus, Ohio.

R. Winslow, University of Maryland, Baltimore, Md.

C. M. Jackson, University of Missouri, School of Medicine, Columbia.

F. C. Waite, Western Reserve University, Medical Department, Cleveland.

Egbert Le Fevre, University and Bellevue Hospital Medical College, New York City.

The President.

The Secretary.

COMMITTEES

EDUCATION AND PEDAGOGICS:

Isador Dyer, Chairman; Tulane University, New Orleans.

Jas. R. Guthrie, University of Iowa, Dubuque.

Wm. P. Harlow, University of Colorado, Boulder.

Wm. C. Borden, Geo. Washington University, Washington, D. C.

Kendric C. Babcock, Urbana, Ill.

EQUIPMENT:

Reuben Peterson, Chairman; University of Michigan, Ann Arbor.

H. von W. Schulte, Columbia University, New York City.

Paul G. Woolley, University of Cincinnati.

MEDICAL RESEARCH

Eugene L. Opie, Chairman; Washington University, St. Louis.

Wm. Pepper, University of Pennsylvania, Philadelphia.

J. S. Ferguson, Cornell University Medical College, New York City.

MEMBERS

ALABAMA

University of Alabama, School of Medicine, Mobile.

CALIFORNIA

Leland Stanford Junior University, Department of Medicine, Palo Alto and San Francisco.

University of California, Medical Department, Berkeley, San Francisco and Berkeley.

University of Southern California, Medical Department, Los Angeles.

COLORADO

University of Colorado, School of Medicine, Boulder and Denver.

CONNECTICUT

Yale Medical School, New Haven.

DISTRICT OF COLUMBIA

Georgetown University School of Medicine, Washington.

George Washington University, Department of Medicine, Washington.

Howard University, School of Medicine, Washington.

GEORGIA

University of Georgia, College of Medicine, Augusta.

ILLINOIS

Northwestern University Medical School, Chicago.

Rush Medical College, Chicago.

University of Illinois, College of Medicine, Chicago.

INDIANA

Indiana University, School of Medicine, Bloomington and Indianapolis.

IOWA

State University of Iowa, College of Medicine, Iowa City.

KANSAS

University of Kansas, School of Medicine, Lawrence and Rosedale.

KENTUCKY

University of Louisville, Medical Department, Louisville.

LOUISIANA

School of Medicine of the Tulane University of Louisiana, New Orleans.

MARYLAND

College of Physicians and Surgeons, Baltimore.

Johns Hopkins University, Medical Department, Baltimore.

University of Maryland, School of Medicine, Baltimore.

MASSACHUSETTS

Medical School of Harvard University, Boston.
Tufts College Medical School, Boston.

MICHIGAN

Detroit College of Medicine, Detroit.
University of Michigan, Department of Medicine and Surgery, Ann Arbor.

MINNESOTA

University of Minnesota, Medical School, Minneapolis.

MISSISSIPPI

University of Mississippi, Medical Department, Oxford.

MISSOURI

St. Louis University, School of Medicine, St. Louis.
University of Missouri, School of Medicine, Columbia.
Washington University, Medical School, St. Louis.

NEBRASKA

John A. Creighton Medical College, Medical Department, Creighton University, Omaha.
University of Nebraska, College of Medicine, Lincoln and Omaha.

NEW YORK

Columbia University College of Physicians and Surgeons, New York City.
Cornell University Medical College, Ithaca and New York.
Syracuse University, College of Medicine, Syracuse.
University and Bellevue Hospital Medical College, New York.
University of Buffalo, Medical Department, Buffalo.

NORTH CAROLINA

University of North Carolina, Medical Department, Chapel Hills.
Wake Forest College, School of Medicine, Wake Forest.

NORTH DAKOTA

University of North Dakota, College of Medicine, University.

OHIO

Starling-Ohio Medical College, Columbus.
University of Cincinnati, Medical Department, Cincinnati.
Western Reserve University, School of Medicine, Cleveland.

OKLAHOMA

State University of Oklahoma, School of Medicine, Norman and Oklahoma City.

PENNSYLVANIA

University of Pennsylvania, Department of Medicine, Philadelphia.
University of Pittsburgh, School of Medicine, Pittsburgh.

TENNESSEE

Vanderbilt University, Medical Department, Nashville.

TEXAS

University of Texas, Department of Medicine, Galveston.

UTAH

University of Utah, School of Medicine, Salt Lake City.

VERMONT

University of Vermont, College of Medicine, Burlington.

VIRGINIA

Medical College of Virginia, Richmond.

WISCONSIN

University of Wisconsin, College of Medicine, Madison.

PHILIPPINE ISLANDS

University of the Philippines, College of Medicine and Surgery,
Manila.

AFFILIATED MEMBER

Meharry Medical College, Nashville, Tenn.

ASSOCIATE MEMBERS

Dr. Geo. H. Hoxie, Kansas City, Mo.

Dr. W. F. R. Phillips, Mobile, Ala.

Dr. Henry B. Ward, Urbana, Ill.

Dr. Fred. C. Zapffe, Chicago, Ill.

HONORARY MEMBERS

Dr. George M. Sternberg, Washington, D. C.

Dr. Egbert Le Fevre, New York, N. Y.

Dr. Henry S. Pritchett, New York, N. Y.

Mr. Kendric C. Babcock, Urbana, Ill.

