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PRINCIPLES OF CURRICULUM MAKING *

E. P. LYON

Dean of the University of Minnesota Medical School

MINNEAPOLIS

The favorite indoor sport of medical educators is curriculum making. As a game it ranks with jig-sawed pictures and pigs in clover. It is not yet entirely clear whether this game should be played according to Hoyle or Marquis of Queensbury rules. The scores are published in our annual bulletins. Unfortunately, no clear method of recording results has been devised. It is therefore hard to make comparisons, and no national champion has ever been declared. An expert can usually figure out the championship for any particular school. But the results would be much clearer if printed in some such form as this:

Professor Smith, champion	964 hours
Professor Jones, runner-up	807 hours
Professor Brown, booby prize.....	24 hours

It is evident that this game has interesting possibilities. Its serious discussion on this occasion may not be without value. Several of the schools of this Association have recently revised their curricula. Others are engaged just now in this work. These efforts are made necessary by a variety of conditions. In general, it may be stated that dissatisfaction with the results obtained is the principal cause of the desire for change. Furthermore, the new conditions brought about by increased entrance requirements make a readjustment of teaching desirable and perhaps imperative.

We Americans approach such a problem with characteristic thoroughness. We are constitution makers by right of heredity. Our mechanical genius asserts itself. Our instinct is for standardization. We cut all our cogs to the same bevel. A rigid alignment of moving parts is insisted on. We are fond of link-belt machinery. We take advantage of gravity for feeding and screening. The machine runs well. The only trouble is that we forget the insignificant detail that we are making men instead of grinding corn.

* President's Address.

A curriculum, gentlemen of the Association, is an important matter. Not so important as good individual teaching, it is true. Not so important, perhaps, as proper material equipment. Not so important as high ideals and a cooperative spirit among teachers. Nevertheless, curriculum making is a serious business. Are there no principles which may guide us in such an undertaking?

FORMER METHODS

The simplest way to form a curriculum is to have each professor state how much time he wants. This is doubtless the way the curriculum was made which every one was laughing at a few years ago and which required 230 hours of electrotherapeutics. The principle involved was "all cards have the same value. Every hand is a winner."

This method reaches its limit when the added demands of all the instructors make a larger sum of hours than the students can endure. As soon as this happened the usual procedure in the past was to place an arbitrary limit on total time requirements. Then each professor began to fight for as large a share of this time as he was able to obtain. This was probably the way in which a certain curriculum was produced containing 1,300 hours of anatomy. The principle was "jack, high, and a pistol take the pot."

These simple methods and elemental principles may have been adequate in ruder, simpler conditions. The best time-getter was often the best teacher. At least he was a strong personality. No standards existed. No state boards had formulated embarrassing exactions. The student considered one school as good as another; or, most likely, he believed the particular school he was attending to be the only good school. He was concerned with a certain square of parchment to be obtained after so many years and for the payment of so many dollars. He was not expected to think and succeeded in meeting all expectations.

THE FREE ELECTIVE SYSTEM

The opposite of these primitive methods of curriculum making is the free elective plan. This has never been tried out in medical education. But Harvard College had a long experience with a program in which very little restriction was placed on the students' choice of teachers and subjects. Many western universities gave equal or greater liberty to their students. It could almost be said that there was no curriculum. The principle was "American plan hotel. Everything on the table. You pay your money and you take your choice."

The results were excellent for serious students of good judgment. But many men are not serious, and not all serious men

have good judgment. A goodly proportion of men were found to be selecting their courses so as to fit in well with midnight suppers and late breakfasts and afternoon teas, or with more questionable employments. The snap course was the college man's blessing. Men were graduated whose education was an imitation veneer on a pasteboard background. As a consequence, all the colleges, I believe, have had to limit the freedom of election in a marked degree. The group system by which the student is compelled to do a considerable part of his work in one department or group of allied departments has been widely adopted. The principle is "a thorough training in a definite direction."

Of course, the curriculum of a professional school is a group curriculum by the nature of things. The question is whether it shall be fixed and inflexible or variable and elastic.

GENERAL PURPOSES

Now it is evident that if we are to make any serious effort to find guidance in our own experiments in curriculum building, we should begin by determining as well as possible what we are trying to do. It is easy to say that our first business is to make doctors—to make "good doctors." But a good doctor is hard to know¹ and harder still to define. I have discussed this matter before and will only recapitulate my conclusions here.

A good doctor is a keen observer. We must train the powers of observation in our students. We may say that there is a technic of observing and that we must teach this technic.

A good doctor is a trained experimenter. That is, he combines control of conditions with observation. We must train our students in experimental methods in the laboratory and at the bedside. This is technical training.

A good doctor is a skilled technician also in another and narrower sense of the word. He knows how to do certain things connected with the practice of his profession, things requiring accuracy of hand, eye and ear. He has attained a skilful adjustment of certain sensomotor reactions not provided by nor required in the ordinary experiences of life, but essential in medical practice. Such adjustment is attained only by repetition under direction; that is, by development of habit. We must train our students in the technic of their profession.

A good doctor is a man of judgment. He must be able to draw correct conclusions from observations and experiments. He must be able to synthesize isolated elemental facts into a unified compound. We express this idea when we say he must be able to think. And here is the greatest stumbling block. No

1. Am. Med. Assn. Bull., Jan. 15, 1911; also Medical Research and Education, Science Press, 1913, p. 375.

one has discovered a royal road to thought. It almost seems as if it is in a man or it is not. And yet thinking is really a kind of technic. It consists in making valuable associations. If you have on hand the proper thought-stuff and can make the right combinations of it, why, you think. Given a particular sensory stimulus, the resulting impulses presumably go bounding from part to part of the cerebral cortex instead of coming out immediately to the muscles. How these impulses will travel depends on how the cerebrum is constructed and which paths have been made easy. Thought in this sense is involuntary response; it is reflex, it is habit.

A large part of our teaching is devoted to giving students what we consider valuable thought-stuff; facts we call it. We also give them numerous examples of thinking—ready-made combinations of facts or so-called conclusions. This is well. It ought to help them in the same way that seeing a blacksmith forge out a tool should help one to make that tool, or in the same way that seeing a surgical operation should help the student to do it. But when it comes to making new thoughts, the only way is by practice and repetition and habit. We can help another man's thinking chiefly in the same way that we can help his drawing or his chemical analysis or his physical examination, namely, by stimulating his interest, by showing him where he fails and by teaching him to criticize his own work, as he would any other technical achievement.

Finally, the good doctor is a man of character, which means again, I suspect, only that he has on hand certain kinds of brain-stuff, makes certain kinds of associations of it and reacts in certain ways to these associations. Here, again, example and criticism are the basis of teaching. A good doctor is skilled in the technic of right behavior. He makes mistakes in ethics no more than in counting blood-corpuscles.

You will all see that I have used the word "technic" in a broad way. Probably I have stretched it too far. But for to-day we will let it stand and will ask ourselves what principles should guide us in attempting to make this kind of technicians out of the young men who come to us as students.

Putting the matter in another way, our purpose is to train scientific physicians. By a scientific physician I mean one who is imbued with the principles of science and trained in particular scientific methods. I do not mean that he should necessarily be an original investigator. I do mean that he should approach his work in the spirit of an investigator.

Our commonest stumbling block in considering a problem in curriculum making or in teaching is the unfortunate belief that we must turn out our graduates as fully trained doctors. "There

is so much that they need to know," we say. This idea leads us to overcrowd the curriculum and deprive it of elasticity and virility. Our aim should be not to turn out a finished doctor, but a man who will continue to work and learn as long as he lives—a man who will consider that his student life has just begun on the day when he takes his diploma. Our aim should be not to produce a walking encyclopedia, but to inculcate the scientific spirit. What principles are likely to be of service in this work?

ENTRANCE REQUIREMENTS

Of course, the first principle is that we start with good material. We depend on certain "entrance requirements" to supply this material. We cannot stop to consider these requirements to-day except to remark their mechanical character. A sieve is a good instrument for separating different sizes of coal. It is a bad instrument for separating pebbles from diamonds. The best formulated entrance requirements will supply good material only when supplemented by personal consideration of the individual case. Often you can only tell the diamond by seeing whether it will scratch glass. My sentiment is that it is better to try out ten pebbles which will fail rather than risk throwing one diamond into the dump.

PRINCIPLE OF INDIVIDUAL DIFFERENCES

Having selected our students, we must recognize the inequality among them. No two freshmen are alike. No two seniors are alike. No two graduates are alike. No two old doctors are alike. We are all "born short" in one place, "born long" in another, to use William Hawley Smith's² expressive metaphor. The recognition of the principle of inequality is a most important step in curriculum making. Everything else really rests on it. If we had a magic yard-stick by which to measure each man's powers and lay out the curriculum adapted to develop those powers, it would be our duty to do so. Education would then become truly individualistic. Since we cannot accomplish this ideal, we must do our best to approach it. We know that no body of men is able to lay out a perfect curriculum for medical students taken in the average or *en masse*. Witness the severe

2. "All the Children of All the People," Macmillan, 1912. Mr. Smith discusses also the similarities of children. Of course, the principle of similarities is basic in any system of education. The trouble in medical education is that we have assumed not only similarity but even equality among students. This address is a protest against the prevailing rigid curricula, and emphasizes therefore the differences of students, to the present disregard of their similarities. The latter principle will take care of itself in any group curriculum, for as Professor Jackson has said: "Our medical students represent a selected group whose physical and mental characters are, broadly speaking, quite similar. This is tacitly assumed in making fixed requirements for the greater part of the curriculum. Yet the individual differences are undoubtedly of tremendous importance, and have hitherto been largely overlooked in medical education."

criticism which may be laid against the A. M. A. model, founded though it was on two years' work by a committee of a hundred medical educators. Recognizing the principle of inequality of men, how much less can any faculty work out a fixed curriculum adapted to the student considered as an individual. To my mind the argument leads inevitably to the elastic curriculum.

An elastic curriculum is not an elective curriculum, although the elective principle should find recognition in it.

PRINCIPLE OF RELATIVE VALUES

We have said that our aim is to develop technicians and that for this we must furnish facts on which the thing to be done, whether of hand or brain, is founded. In furnishing these facts, the important principle of relative values must receive emphasis. It is a fact that the stomach secretes a certain percentage of hydrochloric acid. It is a fact that the lachrymal glands secrete a certain percentage of sodium chlorid. The former fact is much more valuable to a physician than the latter. It is valuable practically. Many other facts not immediately valuable in treating patients are valuable practically as thought-stuff. Facts are like medicines: some are for external and some for internal use. But the differences among facts as regards usefulness are as great as the differences among medicines. We should do our best from the multiplicity of facts to supply those most likely to be valuable to our students. Now the pie-maker is not a good judge of the value of pie as an article of diet, nor is the specialist in all respects in the best position to evaluate relatively his line of facts. The physiologist should have the help of the internist, the aurist, the oculist and the neurologist in determining what facts of physiology should be taught and the time to be devoted to this teaching. The principle applies equally to all the other teachers and their branches of knowledge.

PRINCIPLE OF MINIMUM REQUIREMENT

This leads to the principle of minimum requirement. Take anatomy for example. We will all admit that certain facts of structure of the body form an indispensable part of a medical man's equipment. A knowledge of these facts must be demanded from every student. This minimum is hard to set—impossible, indeed, in a strict sense. Still for practical purposes it must be set. In my judgment the minimum in nearly every subject is much less than schools have ordinarily required. They have required as much as possible, not as little as possible. In my opinion an effort should be made in each department to ascertain the minimum. This should be taught intensively. The merely

desirable, the questionable and the specialistic material should go into elective courses.

In formulating its minimum a department should bear in mind that not all the teaching of its subject-matter is done by itself. Anatomy is taught—should be and must be taught—by surgery and pathology; physiology, by medicine and pharmacology, and so on.

The sum total of these minima should constitute the required part of the curriculum. Probably they should make up between three-fourths and seven-eighths of the total. Nobody really knows.

PRINCIPLE OF SEQUENCE

In arranging a curriculum the principle of sequence must be kept in mind. Certain subjects are indispensable prerequisites to another subject. Others are desirable prerequisites. While this is true, it is also undoubted that the principle may be carried too far. The subject-matter of medicine is inextricably woven together. It is not even separable from the great body of general science. Our departments are in a measure artificial and arbitrary divisions. If a man goes into physiology before he has had anatomy, he is handicapped, it is true. But, on the other hand, when he gets to anatomy after physiology, he will carry to that work useable facts and enlarged interest. We may acknowledge that systematic knowledge of disease is valuable before the student can take up clinical work to best advantage, and consequently we may make didactic courses prerequisite to clinics. But consider for a moment how much more intelligently the student would approach a systematic lecture course if he had previously seen some sick people. We should not allow too rigid an application of sequence to interfere with larger aims of elasticity and the recognition of individual capability and needs.

PRINCIPLE OF CONCENTRATION

In making a curriculum the principle of concentration deserves consideration. The theory is that the student does better work if he confines himself to one or a few subjects for a given short period of time. He is to concentrate on one thing and get it done. The antagonistic view is that the student gathers more from a subject kept before him for a long time. Under this theory the curriculum may include from six to a dozen subjects running through a semester or a year. Recently I met a freshman in the College of Science, Literature and Arts of our university who was studying seven subjects. She complained of being harried and overworked. I believe she would do better with the same number of class hours devoted to only three or four subjects. I think we should avoid the multiplicity of subjects in the junior

and senior years by concentrating one hour a week lecture courses so as to run a shorter time and more periods a week. On the other hand, I cannot bring myself to accept the Harvard plan by which only anatomy is studied the first semester, only physiology the second, and so on. I think Harvard has stuck to this plan more for the benefit of the teachers, who thus escape class work half of each year, than for the benefit of the students. Be that as it may, too much concentration is bad pedagogy; and inasmuch as it contributes to a rigid curriculum, it is a bad principle of curriculum making. A proper medium is to be sought between concentration to the crystallization point and dilution to tastelessness. At the present time we are more guilty in the latter direction, particularly as regards the rapid shifting of students among clinical instructors. If Dr. A. meets a group of students to-day and does not see them again for six weeks, how is Dr. A. to make his personality felt in these students' training? Dr. A.'s influence is lost in homeopathic dilution, which we should be ashamed to countenance. I know of a school where this exact condition prevails.

The proper degree of concentration needed to produce best results should be possible of determination by the methods of experimental psychology. I understand that something has been accomplished in this line, particularly as regards memory. It is a common impression that "cramming" does not conduce to permanent acquisition. This conclusion is supported by laboratory tests. On the other hand, experiments prove that a subject referred to only at long intervals is not well remembered. There must be a golden mean between concentration and dilution. For this golden mean we should earnestly strive, and the psychologists should help us to find it.

PRINCIPLE OF ATTENTION AND INTEREST

Taking up more particularly the individual student in curriculum making and teaching, we should take into account the element of interest. A girl can dance all night, with the pleasurable expenditure of several foot-tons of energy (no pun intended). Her back aches if she sweeps the floor, though the muscular energy discharged be insignificant. We should avoid a multiplicity of detailed laboratory exercises illustrating the same thing. The humdrum of laboratory repetition kills interest and initiative. Recognition of the principle of interest means an elastic curriculum, for the interest of one student is not the same as the interest of another student.

Interest is the basis of attention and of that self-activity which Dr. Jackson³ so well discussed before this Association two

3. Jackson, C. M.: *On the Improvement of Medical Teaching*, Science, N. S., 1912, xxxv, 566; also *Medical Research and Education*, Science Press, 1913, p. 367.

years ago. So important is this element in education that almost any sacrifice is warranted which will attain it. In our sophomore schedule at Minnesota this semester there is provision for six hours of elective work. It has been our custom in the case of conditioned or backward students to compel them to carry the required courses and postpone their electives. The other day a student appeared before the conference committee of the faculty and made a strong plea to be permitted to carry his elective. He said he was interested in that work and would rather postpone one of his regular studies. The committee voted favorably on his request, and in my opinion they acted wisely, for his failure to work with serious effort has heretofore been due to lack of interest. I expect him soon to observe that this elective work in which he is now interested is really tied up with all the rest. I expect to see his interests broaden and all of his work improve.

PRINCIPLE OF RESPONSIBILITY

Closely related is the principle of student responsibility. We are interested in work for which we are responsible. This is especially true if we select the work ourselves. A fixed curriculum deprives the student of all responsibility. He becomes a boarder coming in to meals when the bell rings, not a man laboring for his daily bread. If he may choose his subject or his instructor, his interest and responsibility increase.

PRINCIPLE OF RESEARCH

The principle of research is very important in curriculum building. I do not advocate research with the idea that we should announce a great discovery every few minutes. I advocate it as supplying the proper atmosphere for teaching. The fixed curriculum segregates a certain portion of knowledge and teaches it as law and gospel. The student is like a red corpuscle confined by the vessel walls to a definite circuit. If the teacher has research interests, he carries them alone. His students cannot follow him. The elastic curriculum permits the capable student to put out an occasional pseudopod and make little excursions with his teacher into the unknown. This cannot help but react on both student and teacher; and most important of all, on the spirit of the school. If time and opportunity for research are to be offered, even to the exceptional student, it means that the electives cannot be confined to the last year, as at Harvard, or to one semester, as in some other schools. The free time should be scattered through the course, at least beginning with the sophomore year. I sometimes hear that the sophomore does not know enough to select any of his work. I cannot agree. The sophomore in most of our medical schools is a junior or senior in the

College of Arts. He is a university man. He should be responsible. He should be thinking about what he is doing. The nursing bottle should be taken away, and he should choose and masticate his own food. Not many will nibble at research, but the aroma of it may well permeate the whole pantry. It will improve the taste of all the other food.

PRINCIPLE OF SPECIALIZATION

The principle of specialization may be given some attention. While every medical student should have the fundamental training of a general practitioner, and while most of the elective courses will naturally be adapted to strengthen the student's general grasp, there is no objection, in my opinion, to a moderate extension of specialistic instruction. There are very few students who would care to move far along a specialty in their undergraduate course; and the dean or students' work committee should have power to prevent an abuse of this principle by limiting elective in the specialties, when such elective would be likely to prejudice a student's general training.

PRINCIPLE OF UNEQUAL PROGRESS

Finally, regard for the differences and inequalities among students should make us consider their inequality of progress: the principle of unequal velocity, if you will. Some students by physical constitution and mental make-up are calculated to go forward more rapidly than others, who being built on the "slow-and-careful" plan may in the end be just as good doctors. Our arrangement of students into definite classes and a four years' required attendance is the worst possible condition for the extra bright man, whom it tempts to laziness, and for the slow man, whom it pushes beyond his powers. In my opinion, students should be received at any time when a workable program can be arranged for them, and graduated at the end of any semester or summer term when they may have completed the requirements. Our extra intern year at Minnesota, as part of the requirement for the degree and consequently of attendance, will, I think, allow us to work this plan without running counter to the four-year rule of the state laws. The class system is a pernicious artificiality in education, and should be done away with in professional education, if not more widely. So should the four months' required vacation. The doctor-in-practice works eleven months or more. Why should the doctor-in-making work only eight or nine? Some students may need the long vacation for health's sake; others may need it for financial reasons. But some would be better off without the long interruption of their studies. Moreover, important elements of economy argue for the continuous session and a cur-

riculum adapted thereto. Our expensive equipments stand idle one-third of the time. Our hospitals and dispensaries go on the year round and are unused for teaching for several months. This would be poor practice in any line of business. For our Northern schools, at least, the University of Chicago idea, with its four quarters and its liberal curriculum, appeal to me as eminently wise. The next best thing is a strong summer term for which credit⁴ is given on the regular course.

Your professors may say that they cannot teach the year around. Well and good. They ought not to. While some of the older men should be "on the job" during the summer and may arrange their vacations at some other season, on the whole the summer quarter or term is a good time to give the younger men a chance. Let them conduct courses given at other times by full professors. A repetition of courses, at least in certain subjects, has advantages and is essential if a really elastic curriculum is to be developed.

CURRICULUM MAKING FROM THE SIDE OF THE TEACHER

I have gradually swung this discussion over from the side of the student to that of the teacher. Several principles of curriculum making may be formulated from the side of the faculty.

THE DEVELOPMENT OF TEACHERS

One of these principles is the development of the teacher. The rigid curriculum works but little for this cause. A professor of principles of surgery, for example, lectures year after year on that subject. For years, perhaps, the same manuscript is read to the classes. There is no incentive for a younger man to prepare himself. Finally, the old professor drops away and a new and untried man must take his place. An elastic curriculum with repetition of the course under various instructors means the opportunity for the development of new men all the time. The prepared man is ready for the advanced position.

PRINCIPLE OF COMPETITION

The principle of competition is as important for efficient teaching as for any other trade or business. The rigid curriculum tends to develop a trust in teaching, with the usual bad characteristics of trusts. The elective system, by giving the student a choice among several men furnishes each teacher with incentives to bring his work to the highest state of efficiency. The experience of Rush Medical College in this regard has been very instructive.

4. The distinction between subject credit and time credit is not sufficiently recognized by medical educators. It is only time credit which is restricted by the state medical laws.

It might be thought that students would abuse this privilege of electing their instructors, and that the easiest teacher would be most popular. That has not been the case. The students can be trusted to go where they get what they consider the best for themselves. Their judgment on the whole can be trusted. A general rule requiring approval of electives by the dean or a committee is a sufficient safeguard against the few who might search for "snap" courses.

The elective system tends to make a larger number of men available and useful as instructors and a larger number of hospitals available and useable for clinical instruction. So long as every student must appear before every instructor, we have the tendency either unduly to reduce the number of instructors or unduly to reduce the time the individual instructor teaches. Either horn of the dilemma is dangerous. To be effective, clinical teaching must approach the ideal of individual teaching. Not how many students an instructor teaches, but how well he instructs a limited number, should be the criterion of his usefulness to a school and of his own sense of satisfaction with his work. As I have said earlier, nothing is worse than a whirlwind program which sends the students in vortices of section instruction so rapidly from teacher to teacher that no one can impress his personality on the students. The belief that every teacher must teach every student, long since given up in colleges of arts and sciences, is pernicious and inexcusable. If your idea of teaching is merely to reach as large a number of prospective consultants as possible, stop teaching and buy stock in a patent-medicine company.

THE CURRICULUM AND THE DEPARTMENTS

As regards whole departments of instruction as distinguished from individual instructors, certain principles of curriculum making may be mentioned. A proper regard for the "born long" and "born short" demands greater elasticity in departmental procedure than is usually the case in our American schools. There should be better provision for the irregular student. Opportunities for laboratory work should be afforded at other than scheduled hours. Men should be encouraged to work alone or with a minimum of supervision. Let us limber up our laboratory organizations. Let our motto be salvation by individual work rather than salvation by formal creed. "Laboratory" should be synonymous with "Opportunity," not with "Drudgery."

The offering of electives is one important means of liberalizing a department. This system allows the instructor to vary at least a part of his work from year to year. It enables him to teach to the interested few those subjects in which he is imme-

diately interested. It diminishes the temptation to introduce the instructor's fads as part of his required courses. It broadens the interests of a department by giving scope for all its members.

The elective system allows the young instructor who is assisting in a large required course to gain independence and confidence by conducting a small elective course in his special line. This is important.

THE CURRICULUM AND THE SCHOOL AS A WHOLE

Now as regards the school as a whole, certain principles of curriculum making may be formulated. It goes without saying that conditions as regards the quality of instructors, students and material facilities must vary among institutions. They ought not to adopt identical curricula.⁵ The American Medical Association and the Association of American Medical Colleges have presented models which are very valuable as points of departure. A curriculum committee should consult other schools, but not with the purpose of adopting their curricula unchanged. Each school should work out its curriculum with broad wisdom, to suit its own conditions. It would be worse than folly, for example, if small and weak schools should attempt a wholesale adoption of the elective work which I so strongly advocate. It would be folly even for a strong school to push this principle equally in all departments. A curriculum is a road or a race track. Road materials are quite different in central Illinois from those which abound in New England. Bear this crude analogy in mind.

The school revising its curriculum should avoid all possibility of allowing this important function to deteriorate into a contest for teaching time. Such a procedure loses sight of the principles involved and the objects to be sought. Consequently, curriculum revision must be approached with care and carried forward with tact and open-mindedness. Our recent experience at Minnesota is perhaps illuminating. The committee on revision was composed of three men only. These men studied conditions thoroughly and were able to speak with authority concerning conditions in our school and elsewhere. They studied the educational and pedagogical problems involved. This committee did not overwhelm the faculty by bringing a complete report at one time. It first secured the approval of the faculty for certain general principles such as (a) "the necessity of limiting the scheduled work to about thirty hours a week or about 4,000 hours for the course." (b) "The necessity of clinic clerkships as a required part of the senior schedule." (c) "The desirability

5. While this statement is true, it may also be stated that important advantages would follow a substantial agreement among the schools as to the minimum requirements in each branch. For one thing, migration of students, at present very difficult, would be facilitated.

of elasticity to meet individual preparation, abilities and needs of students." The individual members of the faculty, recognizing the validity of these educational policies, approached the proposal to decrease their hours in excellent spirit. Consultation of departments with the curriculum committee led to practical unanimity of opinion on details; and when the final report was presented to the faculty, approval was quickly secured.

Gentlemen of the Association, you have listened well. Probably you got into the habit when you sat on the benches as medical students. Probably like the students of this day, of whom we are dealing, you learned to "let it go in at one ear and out at the other." Is our lamentable ability to hear and forget due to something like interference of sound, some mental process by which the impressions from one ear annihilate those from the other? Or is it rather true that we are only to be jarred from our complacent forgetfulness, our nonchalant do-nothingness by something unusual? I think the latter at any rate is a fact; and I am going to risk the dignity of the presidency and hang the moral of my previous remarks on some lines copied from the back of a seat in the amphitheater of one of our medical schools, where they had been scratched in the varnish by some medical student, departed and forgotten.

Talk, Talk, Talk,
Till my ears are split by the din.
Sit, Sit, Sit
Till my pelvis sticks through the skin.
In clinic and lecture and quiz
I wear out my pants to the seam,
Till over the benches I fall asleep
And wear 'em out in my dream.

You laugh! But really are not these doggerel verses as pregnant with pity as the "Song of the Shirt"? Are they not as full of meaning for us as were the words of Hood for callous wealth and heedless government in poverty-stricken London?

The plaint of the student we have heard before, delivered in more dignified but less expressive form by speakers on this floor. Our students are overcrowded. They have not time to think. They do not think. Their individual qualities are crushed. They are made to conform to a common mould. The curriculum is largely responsible. We are responsible for the curriculum.

We make the usual specious arguments. The students are poorly prepared. The time of the course is too short. There is so much to teach. Medicine is going forward so fast.

Let us broaden our conception of medical education by broadening our conception of education itself. Education is primarily the bringing out of something from within, not the

forcing of something in from without. It is the discovery of the individual to himself. It is a process of training, not a process of fattening.

If these conceptions of education gain possession of us, we shall approach our teaching and our curriculum making in a corresponding spirit, and some at least of the difficulties and disappointments of our labor will disappear.

A COMPREHENSIVE INTERPRETATION OF THE
COLLEGE CREDIT REQUIREMENT. (A) ONE
YEAR. (B) TWO YEARS

HOW MANY CONDITIONED HOURS MAY A STUDENT BE ALLOWED TO
CARRY IN THE COLLEGE REQUIREMENTS AND WHAT
LENGTH OF TIME MAY HE BE GIVEN
FOR THEIR REMOVAL?

MR. KENDRIC C. BABCOCK

University of Illinois

URBANA

The official announcement of the requirements for the single preliminary college year made in 1913 by the committee representing the Association of American Medical Colleges and the Council on Medical Education of the American Medical Association reduces to a minimum the need of interpretation of the college credit requirement for the single year. The content of the courses in physics, chemistry, biology and French or German is so nearly standardized in the strong institutions as to make detailed discussion of it unnecessary. No such thing as elementary chemistry for medical or engineering students exists. Elementary chemistry is elementary chemistry and it is nothing else. The fundamental question in interpreting this year's work under present conditions is essentially of the equipment of teachers and of laboratories. A thoroughly good teacher can do much even with inadequate laboratory facilities; while a poor teacher, ill-trained and uninspiring, may make a bad mess of his work with the finest laboratory instruments. In the interpretation of these prescribed college subjects there is at present, it must be confessed, several practical difficulties in conditions which will be discussed later, conditions which will change but slowly.

This discussion therefore will proceed on the basis of two years rather than one year; first, because this phase of the requirement is newer in its general features, and second, because it is likely to become the normal requirement for all strong and progressive colleges. Thirty-two medical schools now require for admission at least two years of work in liberal arts and sciences, seven more will come up to the two-year college requirement within the next two college years. Probably few of these institutions will go beyond the requirement of two years of academic work, though it is conceivable that the present specification of subject may be somewhat enlarged as the execution of the plan progresses.

The first essential of the interpretation is to make sure that the object of the requirement of two years is attained. The purpose of the second year of college work is much like that of the first, yet there is a real and important difference. The new requirement probably has two reasons; first, to secure broader-minded, better-trained, better-sifted, better-matured student material for the medical schools. It parallels quite closely the object which was sought in the prescription of the four years' high-school course, which was to contain not merely certain elementary sciences, but certain liberalizing elements as well. But one year of college work closely restricted to science and to modern language aimed at the establishment of a measure of rather narrow and exact uniformity in the preliminary training in the principles and technic of fundamental sciences, so that a student entering a medical school should be free from the necessity to learn the elements of sciences and enter at once on the definitely professionalized course. In terms of craft rather than of a profession he should have served his apprenticeship if not his journeymanhood and be ready to take up his final four years' test for mastership in the craft. It is almost universally agreed among medical teachers of considerable experience that students who have had one or two years of this collegiate work in addition to sound high-school training are far better material on which to work than were the students of earlier years who lacked this form of training. There is by no means the same agreement as to the value of a full four years' college course even if that course has included a good measure of scientific subjects.

Additional requirement of a second year of college work gives opportunity for the student to pursue his three required sciences with more leisure and with more definite coordination with other subjects as well as with somewhat more advanced courses, such as quantitative analysis, organic chemistry and embryology.

It would probably result unfortunately for the quality of medical students if the content of these two years should be made as rigidly if not as narrowly scientific as the content of the single year has been. Encouragement should be given to students to take subjects in these two years which would liberalize and socialize the prospective candidate for the practice of medicine. The man who knows only medicine or surgery is not certain of his skill in coping with the new phases of social organization, or disorganization, so far as these relate to community health and prosperity. The control of epidemics, for example, is not solely a matter of prompt isolation of individual cases and of equally prompt disinfection. Knowledge of social organization, politics and economics of community life, and no small amount of individual and social psychology are involved in a wise practice of

medicine under present-day conditions. If the physician or surgeon is to be a forceful, human member of the community, a leader in the large sense of the word, as well as healer, adviser and a brother confessor, in a word, if he is to stand "foursquare to all the winds that blow," he should have been trained to some close and accurate thinking in psychology, economics, sociology and government, not to mention the more subtle liberalizing subjects, such as literature, language, mathematics and the fine arts.

An interpretation of the two years' college requirement for admission must, therefore, be based on this larger idea of the purpose of added time. The mere addition of more science preparatory to a course already well grounded in that field might be a superfluity, and there is altogether too much need just now of saving for the prospective candidate for the M.D. degree as much time as is possible and consistent with the making of a safe product. Breadth and sanity in preparation might well be the motto before those who devise the entrance requirements to the medical schools. Many a man without collegiate education now finds himself handicapped in his honorable competition with his more fortunate brethren, because of the narrowness of his preparation and its consequent life-long limitation and regrets the necessity of remedying this deficiency at unnecessary cost. In much the same manner will those on the old level stand in relation to those on the new. The man who bases his professional education on a scant high-school course will in the long run find his index of efficiency and satisfaction comparatively low, unless he has worked out the compensation for his deficiency in some roundabout and expensive manner.

The determination of the number of conditions or conditioned hours which a student may be allowed on entrance to a given course is by no means easily determined. The practice of reputable institutions, even in the same section of the country, will vary considerably, and in different sections of the country, still more widely. There is a distinct movement at the present time on the part of strong and vigorous institutions to do away with entrance conditions altogether in admitting to the college proper or to technological departments, and to require that a student present the full fourteen or fifteen units required for admission. The University of Chicago, for example, announces "Entrance with conditions is not permitted." The University of California requires a student to present fifteen acceptable units, but may condition him in the particular course which he may desire to enter; for example, in engineering if his grouping of subjects has not been satisfactorily made. Reed College, Portland, Ore., announces that "No students are admitted on condition," and

supplements this frank statement with what is perhaps the best concise presentation of the argument against admitting conditioned students:

"Although the secondary-school opportunities are greater than ever before, although the wider range of admission subjects makes failure every year less excusable, yet colleges admit students with conditions, allow them to try to do college work in the same classes with those who are prepared, and, in addition, require them to make up deficiencies in secondary-school work. The effect of this policy is to hamper the work of those secondary-school teachers who are striving to promote sustained intellectual effort; for the prospective college student interprets this leniency as a guarantee of admission despite superficiality or deficiency of preparation. He is thus prepared for further evasion of work after he gains easy admission to college.

"When students are admitted on condition, the college is hampered by the extra burdens placed on the unfit. Unless the devices for determining preparation for college are useless, those students most heavily 'conditioned' must be, as a class, least fit for college work. Yet on precisely this class is laid the heaviest load. At the same time scarcely any provision is made for assisting these students to carry the extra burdens which, with all the secondary-school aids, they have failed hitherto to carry. The inevitable result is a lowering of the standards of work for the whole college."

Practically every sentence in this argument against conditioned admission to college could be urged with slight modification against conditioned admission to medical schools. Highly desirable as this practice may be, it is after all a council of perfection to the majority of colleges, universities and medical schools. Relatively few institutions are so situated as to make it possible or even advisable to undertake immediately the execution of such a rigid policy of exclusion. An institution situated as Vanderbilt University is, which requires fourteen units for admission and permits two conditions, or Wofford College in South Carolina, which requires fourteen units and permits four units of condition, should not be required to measure up to the standard set by institutions otherwise and more favorably situated, which require fifteen units and permit no conditions. In actual practice, the medical college which would admit two students one of whom had had one year of college work in one of the best institutions of these two groups, and the other from one of the weakest would find that these students represented a range of preparation varying by at least a whole year, for fourteen units with conditions means substantially three years of

high-school work, while fifteen units without conditions can scarcely be completed in less than four years.

Conditions at entrance to a medical school, whether in the one-year or in the two-year course, should be permitted only so far as they conform to these three principles; first, the condition should be such that it may be made up within one year without interference with prescribed work of the first year of the course; second, the condition should not be so large in quantity as to disarrange the schedule of professional work of the first year in order to make it up; third, the conditions should not be in the whole of any one of the prerequisite science subjects. Applying these principles, it would seem fair to the student and his future work to permit him no more than four semester hours whether he entered on the one-year or two-year collegiate basis. Put in other words, this means four hours of conditions in a minimum requirement of thirty semester hours for a year of college work, or four hours of conditions in a minimum of sixty semester hours for two years of college work. Such conditions might represent a half year of one of the fundamental sciences or a half year of an elective subject. Such a handicap could be overcome by work in a summer school or conceivably by course carried on during a semester or the whole year in the liberal arts department of the university in which the medical student may be registered; while the medical course is rigid and exacting, presumably requiring the full time of a student, it is as a rule geared for the average student and would permit a thoroughly capable first-year man credit with specific conditions to carry enough work in addition to make up his condition. Such an argument, however, does not apply equally well to the weak student whose condition is due to poor work rather than to an unwise grouping of his subjects or to late and sudden decision to go into the medical school.

As for the effect of conditions, it must not be so great as to produce wide divergence in the training and ability of the students who make up the first-year class in the medical school. Not the least of the difficulties which the older medical schools formerly experienced in admitting students under the lower conditions was the wide variation experienced in training which the students of the particular class necessarily presented.

Many of the best medical colleges are very frank. California, for example, says applicants must present the junior certificate or its equivalent, which means substantially the completion of two years of liberal arts work. Others use the phrase, "two full years of college work." This is a comparative term, and the possibility of concession is concealed in this phrase. Some others

are definite in their statement that a year of college work means thirty semester hours, or two years mean sixty semester hours. It is conceivable that a good deal of flexibility may be introduced into the acceptance of those terms. For example, a student from a college in Missouri some time ago was admitted to an Eastern graduate school. He had sixteen hours credit for work on the college paper, college choir, glee club, tennis and so forth. Of course, if one would admit all that in the first two years — and that is when the “activity” of the student may be the greatest — this man’s work should not receive the same credits as that of the man who worked seriously for the whole two years.

I think this is a rather wise plan by which to handle such conditions. The half units would not interfere directly with the progress of the student in his work in chemistry, or in biology, for he has by now taken his biology and chemistry, part of his physics and possibly some French and German.

The case of Harvard is somewhat similar, where a student has not fulfilled entirely the requirements for the degree. Students who are not quite able to meet all the requirements in chemistry may enter conditioned in chemistry, but they must make up the condition before the first of the second term of the first year, thus tightening the lines quite perceptibly, requiring the student to do double work in half a year, and get ready for the longer stretch of the second half year.

Another thing in this matter of admission with condition I think should be borne in mind. Even if we assume that thirty units represent a year’s work in college, there is going to be the necessity of considerable flexibility in handling the credentials that come from the smaller colleges. It has fallen to my lot to study rather widely the curriculum of the small college, and to try to pass on the credentials of students coming from such colleges. In doing this work I have come to the conclusion that the certificate of record is not a very exact criterion by which to judge the product. There are always difficulties, first, with the student himself; second, the qualification of the teachers, and third, equipment.

In the University of Illinois we have been recently working at the problem of the correlation of the smaller colleges in this state with the university, and we have discovered some rather interesting features of the correlation of science work of these colleges with the graduate school and with the advanced work of the colleges of the university. For example, not long ago the Committee on Transfer of Credits, of which I happen to be chairman, took up the question of what credits should be given to students who came up from College A with a record of two

years' or one year's work. What credits should be given to a student who came up with a Bachelor's degree from College B, who wished to enter the college of engineering or medicine? We sent out, therefore, to the heads of different departments — men of experience, who have known the situation in the state for a long time — and inquired what should be the rating given the students from these different colleges when they came to the university. The replies revealed several things. We sent first to the department of geology, which is far enough away from the ordinary run of elementary sciences to give us an upper limit to our grading. We found that, on the whole, out of 21 colleges reported on in that rather specialized science, the equipment for teaching and the condition of the college were likely to insure satisfactory correlation of courses in only 9 institutions. Some, of course, were doing very excellent work. Others change so much from year to year that it is not always safe to assume that credentials of two successive years will represent the same values.

In chemistry the credentials from thirteen out of the twenty-one colleges in the state of Illinois might be accepted without much question. This process of evaluation of the work of small colleges is the very essence of this new requirement. Therefore, caution should be exercised in view of the possibility or impossibility of getting a satisfactory estimate of such work. We have had the same experience in medical colleges when only a high-school credential for admission was required. Some of us know the difficulty of finding out what a good high school is, and when its credentials may be fully accepted. The United States Bureau of Education last year, after considerable investigation, prepared a list of accredited high schools in the different states. It was not complete, however. For example, North Carolina was omitted, simply because, after exhausting every process of pressure, we could not get any list out of that state, or out of any official, and so we went ahead without it. Generally speaking, the list of accredited high schools presented in that bulletin represents the most liberal safe practice of the state, through state university officers, or state education officers, or the state superintendent of public instruction.

If the same thing be pushed up a little farther, the question arises, How is the graduate school or professional school going to know which of the colleges sending up students are certainly satisfactory? There are three or four agencies at work that may in the course of time help out. The first is the United States Bureau of Education, which has done something along that line. Second, the Association of American Universities, which has just created a committee to undertake the task of determining the colleges which are satisfactory, and whose students may be

admitted to the graduate schools. That committee will probably present a report in about a year, and make a good one, if it be courageous enough. The second organization which is at work along the same line is the National Association of State Universities. These two are working together, and I think it will interest you to know that the Association of American Universities, which comprises twenty-two universities, has voted that the responsibility of estimating the work of a particular college of a particular state shall primarily rest on the state university in that state. That is not an attempt to raise the state university into any authoritative position of passing final judgment on the small college, but the fact is that the small college is sending its product out. The Association of American Universities has found out that the mere diploma is not quite receivable at face value. There is at present no method other than reference to the state universities, as a rule, for obtaining first-hand information. So the Association has said officially to the state universities, which are members of that Association, that they will be expected, on inquiry, to tell something accurate and definite about the standing of the colleges of the different states. For example, if the University of Pennsylvania writes to me, or to the dean of the graduate school, to know what Ewing College is doing, whether its credentials should be received, it is laid on us to know what is going on there. We should have to say first, in that particular case — and I may use that as a very extreme illustration — that Ewing College reported four collegiate students in 1913, and even if you get one of those four you might not be entirely safe! Again, if inquiry should by any chance come to us from Columbia in regard to Knox College, or any other first-class college, we should have no difficulty in answering it very specifically, as the result of considerable experience.

In this district there is the North Central Association of Colleges and Secondary Schools, which has a commission whose business it is to present an accredited list of colleges similar to that of the accredited list of secondary schools, and last year it did present such a list. From the Secretary, Mr. J. E. Armstrong of the Englewood High School of Chicago, a copy of the names of seventy-three institutions judged by that institution as accreditable may be obtained. Seven colleges were placed on the list for a year, because it was inadvisable to report on them permanently, since they did not measure up fully to the financial standard fixed by the commission. Seventy-three out of the eight hundred possible degree-granting institutions of the whole United States is not a very high percentage, and you are just as likely to get a credential from the seventy-fourth as from the first of the seventy-three.

In conclusion, I want to emphasize the fact that we are bound, in the nature of things, both in the graduate school and the professional school, to treat somewhat leniently for a time the credentials from the smaller colleges, and to work out a *modus vivendi* in connection with these credentials. We have got to live to gether; we have got to take what they send until we are able to do better.

WHO SHALL EVALUATE COLLEGE OR ENTRANCE CREDITS?

MR. ISAAC L. OTIS

Entrance Examiner, Board of Medical Examiners of Maryland
BALTIMORE, MD.

In answering this most important question, two things must be kept in mind. These are the purpose of evaluation and the means of accomplishing it. The purpose may be briefly stated to be that of arriving at a decision which, in each case, will be just both to the established standard of entrance and to the applicant seeking admission. For my understanding of the object of this discussion is that it is to bring out the best method by which it shall be justly determined who, among the many thousands applying each year, are qualified to enter on the study of medicine.

This brings us to the second part of our subject — by what agency shall the actual work of evaluation be done? There are two fundamental questions underlying every case. These are: Has the applicant actually done the work that he claims to have done? and Is the character of the school, or schools, in which it has been done such as to warrant acceptance of certification?

In my judgment, the answer to these questions can be best given by an agency entirely independent of all schools, either preparatory or professional. Each case can then be considered entirely on its own merits; and the work can be so conducted that there will be no suspicion of favoritism, and entire justice will be done in every instance. The state medical board is a good agency in the case of medicine. It presents the disadvantage, however, of requiring a duplication for each profession. It is illogical for the state medical board to certify to the proficiency of men entering on the study of law. Therefore, there should be a central institution for all the professions, including medicine.

The logical means, I think, is a bureau or division of the state education department, with its organization such that the chief is placed beyond the reach of the caprice of politics, but with provisions to safeguard against indefinite tenure by an incompetent or one who has outgrown his usefulness. Both the Pennsylvania and the New York institutions of this kind are well known. We hope soon to have one in Maryland that will profit by, perhaps even improve on, their experience.

A word perhaps would not be amiss about the compensation to the person whose work it is to evaluate credentials. This

should, by all means, be through salary rather than through fees. That salary should be sufficient to enable a thoroughly competent man to give his entire time to the work. It demands qualities of a very high order, alertness, good judgment, ability to take up many different cases and dispose of them on their merits, and a thorough study of the whole educational field and its problems with their solution, gained or hoped for.

My experience of a year and a half as entrance examiner for the Board of Medical Examiners of Maryland has convinced me of the extreme desirability, I may say even absolute necessity, of a national bureau of professional education and licensure. Such a bureau should be a part of a national department of education with its head a full cabinet officer, the creation of which I hope lies in the very near future. It would have unlimited opportunities to collect information concerning schools in every quarter of the globe. The work in Maryland has called for such information, and in states like New York and Pennsylvania this is true to an even greater extent. I have in some cases found it necessary to secure the cooperation of the governor of the state, and, through him, of the State Department at Washington to secure needed information concerning schools and school systems in some foreign countries. This information was absolutely necessary to be able fairly to evaluate credentials from those countries. It could be secured much more easily and completely by a national bureau working in harmony with the other departments of the government. The work of such a bureau could be conducted on such a plane, and most likely would be, that its certification would be of such a recognized standard value that no state bureau would have any hesitation about recognizing it and issuing its own certification on it. There need be no amendment to the United States constitution compelling recognition of certificates from such a bureau. Their character would be a far more compelling force, even as the rating of schools of medicine by your body has proven itself. What a relief such an institution would be to the examiner in the various states!

To sum up, then, I should say that the work of evaluation of credentials should be done by an agency entirely independent of all schools. This should be a state bureau, taking care of all the professions, the head of which should receive a very comfortable salary. The ideal will be attained when there is a national bureau of the highest standard whose information is complete and whose certification cannot fail to command respect everywhere.

WHAT PRIVILEGES MAY BE GIVEN STUDENTS
WHO MATRICULATED ON A SECONDARY
EDUCATIONAL STANDARD AND MUST
REPEAT, BY REASON OF FAIL-
URE TO PASS THE YEAR?

WHAT SHOULD BE THE RULE GOVERNING ADMISSION OF STUDENTS
FROM OTHER COLLEGES TO ADVANCED STANDING, WHO
WERE ADMITTED IN ANOTHER SCHOOL ON THE
HIGH-SCHOOL ENTRANCE REQUIRE-
MENT?

DR. JOHN L. HEFFRON
Syracuse University
SYRACUSE, N. Y.

In opening the discussion on the first question, I can but give the interpretation which the college I represent has made. A student on matriculation complies with the requirements of the college which are in force at the time of his entrance. If he satisfies such requirements he is admitted as a student. If at the end of the year he fails to meet the standard of attainment set up by the college, which must be at least as high as that imposed by the state, he is required to repeat the work of the year. If the college, in the meantime, has set up a higher standard for entrance for the class to which he is relegated, as, for example, one year of college work, it in no way affects the student of a previous year who has failed, for he has already been admitted to the college, and the repetition of the work of the year is the penalty for failure in such work, not for not having presented an acceptable preparation for such work. Furthermore, if he has done work, even though it were not up to the standard of the medical school, he has had as much mental discipline as such a student in a college of liberal arts would get from a year's preparatory work.

If he has exhibited a want of ability for the study of medicine, he is so told frankly and unreservedly and advised to give up medicine. Such advice in our school is given to students who show unmistakable incapacity at the end of the first semester, so that they may save their time and divert their energies to a field of endeavor in which they have greater chance of success. We believe it a mistake and morally wrong to coax along absolutely poor students who will probably fail in the end.

It sometimes happens that a good student, because of illness, or some other equally valid reason, is unable to do the work of the year and must repeat. When that happens to a student of the first and second year, in which the work is almost entirely laboratory work, it is our theory that the course should be robbed of the monotony of a repetition of the regular work of the class, and so the heads of the departments of anatomy, physiology, biological chemistry, bacteriology and pathology assign to such students definite problems to work out under their guidance, which will essentially cover the same ground though in a different way, but with the understanding that he must take the usual, practical examination given to the regular class, besides satisfying his teacher that he has done as much work on his special problems as is required of the students in the regular course.

Occasionally it has happened that a student has done exceptionally good work in a course that has ended before his misfortune overtook him. In such rare cases the student is given credit for the course satisfactorily completed and if he elects to take one or more courses of the next year, so as to lighten the work of that year, he is permitted to do so on two conditions, first, that he take with the class the work of which he is required to repeat, the remaining regular examinations for advancement, and second, that whatever work he may do in advance courses shall not be credited to him at the time. It has occasionally happened that a student, in order to support himself through his period of study, is advised and permitted to extend his course to five years. In such cases we exact no penalty, but lay out the work of the first two years so that it may be extended to three years and credit him with the work done so soon as it is completed to our satisfaction.

After having had much experience in permitting students to go on with conditions never greater than one major and one minor subject, and after determining that in our full curriculum it was practically impossible for a student to make up a condition during the college year and at the same time do satisfactory work in the regular course, we adopted a rule a year ago reading, "If a student fail in the fall rank examinations, he is required to repeat the year, unless circumstances causing such failure warrant special consideration." If under such circumstances a student should be permitted to go on with his class we should require him to make up his deficiency in a summer course in a recognized medical school, and pass examinations of the condition subject before the opening of the next fall semester.

On the second question our ruling is just as specific. We have had considerable experience with such cases. Our school has always had its own entrance requirements. When the state

law required a four-year high-school preparation for entrance to medical schools, our college specified certain subjects which must be included in such a four-year course, as for example, Latin, a modern language, certain mathematics, history, civil government, physics, etc. In 1909 we demanded for entrance one year of college work, in which it was obligatory to include certain specified subjects. In 1910 we required for entrance two years of college work and specified that in these two years the student must have done satisfactory work in certain subjects laid down in the catalogue.

Our rule for admission to advanced standing is that a man must present to the Committee on Examination for admission to advanced standing of the university evidence of a preparation for the medical course identical to that which the class which he desires to enter was required to have, and furthermore, that he must pass examinations in all the subjects of the course in medicine which the class which he would enter has already covered. If the student has received the degree of M.D. from a medical school and wishes to receive our degree in medicine, we give him the standing with which the college from which he has received his degree is rated by the Regents of the University of New York State, provided his preparation for medicine equaled our requirements at the time of his entrance on the study of medicine.

If such college be a "registered" college he is credited with the four years' work, and if he has passed the state examinations for license to practice medicine we accept that in lieu of our own examinations. If he has not passed any of the state examinations we require him to pass examinations on all the subjects of the course. To receive our degree he must, in addition, spend a year in college and take work equivalent to the work of our senior year, which work must include such subjects of our curriculum as he has not had, in whatever year we may have given them. If the school is "accredited," and his preparation at the time of entrance on his medical course is certified as at least equal to our requirements at the same time, he is required to take an examination on the subjects given in as many years as his credit by the state calls for, to supplement this course, and then to meet the requirements of those coming from "registered" schools, i. e., to take another entire year's work in our college.

DISCUSSION ON PAPERS BY MR. BABCOCK, MR. OTIS AND DR. HEFFRON

DR. EGBERT LE FEVRE, University and Bellevue Hospital Medical College: I want to take up a couple of points brought out by Mr. Babcock. First, entering the medical course with conditions from the college. Of course, that is a very simple matter when a man comes from an institution

1. Stenographic report.

affiliated with the medical school, but what about the man who comes from a distant college? Who is to carry on that reexamination if he comes with conditions? It certainly does not seem right that the professors of the medical school should carry on that examination for removal of conditions in a course taken elsewhere. There is another point. It is humiliating sometimes to the administrative officers of a university to have a man, when we tell him our requirements for admission to say: "Yes, that is what you publish, but what are you doing?"

We are trying in our college to enforce the honor system. How are we going to have our men consider that they must run straight when the officers are not on all fours with truth and the published standards? Now, this is becoming really a serious matter in relation to its influence upon the students, and I have been surprised, in talking with state boards of medical examiners, and those who are conducting examinations, who are putting it right up to the colleges and to the administrative officers of the colleges, and saying, "You are starting men on a line of deception, and so forth, by your own conduct in your administrative offices," and I think that sometimes we must plead guilty to it. A man comes supposedly to be liberally educated to the college with high ideals, not only of education, but also of morals, and if he finds that there is a laxness of administering, a stretching of the truth, he loses much of his respect for the institution. We have got to consider that as educators, and also as concerned with the moral aspect of the case, we have a duty to perform.

DR. WILLIAM PEPPER, University of Pennsylvania: I am glad to say that in the state of Pennsylvania a law has within the last year been passed which makes it necessary for a student to complete his work in the sciences before he enters a medical school. As we have been telling personal experiences, I will state that the University of Pennsylvania Medical School has not for three years admitted a single student with a condition in the sciences. We feel that the sciences are a necessary preparation for the study of medicine and that, therefore, a student ought to complete this preparation before he enters a medical school.

With regard to the adjustment of credentials, in the University of Pennsylvania we have a Committee on Admission to the Medical School, composed of three college professors; another Committee on Admission to the College; another on Admission to Advanced Standing in the College, and we have been recently trying to carry out what one of the speakers referred to—a central bureau of admission to all departments of the university. We would like to place at the head of this central bureau one of the professors in the Department of Education, and we have suggested that he or an assistant might very profitably take up such work, particularly that of appraising the work of the various foreign colleges and universities.

We have along the Atlantic Coast many men coming to us from South America and other foreign countries and they offer to us the most puzzling cases of all; we have no real way of adjudging their credentials that I feel can be relied upon. The idea of a national central board to settle such matters seems to me worth consideration.

DR. SENECA EGBERT, Medico-Chirurgical College: A notice has been sent out within the past ten days by the Bureau of Pennsylvania Licensure stating that hereafter no school in Pennsylvania will be permitted to admit a man to the first year of the medical course with a condition of

any kind. For the last few years all credentials of all the schools in Philadelphia, including, I believe, even the university, have been submitted to the state examiner, Professor Loman, and he has been the sole adjudicator. I have not adjudicated a paper for many years, I don't know how long; his adjudication has been the final one.

DR. W. J. MEANS, Ohio State University: I trust there will be a full and comprehensive discussion of these important problems and I further ask that the discussion will not be confined to university schools that are well provided for financially and have already passed the experimental stage. I find the most difficult problems coming to the schools that are not connected with universities or do not receive adequate support from such connection. In some universities, the medical department is the body and the university is only in name. The academic department in such combinations is scarcely in position to give proper evaluation of credentials presented by students wishing to enter the medical department. This has been true in the past relative to the evaluation of high-school credits and now that college work will be required, still more difficult problems are going to present themselves. Some of the gentlemen have referred to their own states and mentioned some of the difficulties to be met. Our problem in Ohio will not be difficult. For some years we have had a minimum legal standard and one who wishes to enter a medical college in Ohio must get a medical student's certificate from the medical board. The standard is 15 units without question. We have no colleges in the state that will not require the minimum college standard beginning with session of 1914. The Ohio State University will no doubt pass on credentials of students seeking admission to the College of Medicine. The standing of Western Reserve and the University of Cincinnati is such that no question can be raised, so that we will be free from such difficulties.

In many of the states there is no legal requirement for premedical education. The District of Columbia has no legal supervision over students entering the medical colleges located there. The colleges, however, have by mutual consent engaged a common examiner, which arrangement will, no doubt, work out to the best advantage of all of them.

Some medical colleges, integral departments of accredited universities, are admitting students on 14 elective Carnegie units. Where such conditions prevail, it will be folly to expect a true evaluation of college credits. I am inclined to the opinion that it was most unfortunate to medical education in this country that the Carnegie standard of 14 elective units was ever adopted or given any consideration. A prominent university in this country, while requiring specified subjects for admission to the Arts Department, admitted to the Medical Department without specification.

Again referring to the college year requirement, I wish to insist that unless the Association makes a specific rule for the evaluation of credentials, we are going to have considerable trouble in establishing a premedical standard that will be honestly administered. In states where the law places the matter of premedical education in the hands of a medical board, like Pennsylvania, New York and Ohio, and several other states that might be mentioned, I believe there will be no trouble and neither will there be any trouble where the medical college is an integral part of a standard university and the officials have a true conception of the premedical education necessary to higher accomplishments in medical education.

The College Association has in the past made rules for administering the high-school standard, but I am sorry to say that these rules have not been observed in many instances. I do not believe there should be any flexible rule, especially in this transition period. There will be no trouble when officials entrusted with the management of medical colleges have high ideals. If they are imbued with the spirit of commercialism, such as we have seen in the past, the premedical college requirement will be very poorly administered. I wish to express my belief, however, that the day of commercialism among colleges, members of this Association, is past and that there will be an honest effort made by every college toward higher medical standards. The trouble is going to come largely from lack of information and understanding; therefore, the more definite we can make the rules for evaluation of credentials, the better it will be for all the colleges interested.

I do not believe any conditions should be permitted in chemistry and biology. A condition in physics, to be removed before entering the sophomore year, will be admissible and work no harm to the college standard. I believe a student who presents 4 units of Latin should be admitted without condition in language. If we are going to hold to the modern language, then no violence will be done to admit a student on condition that the language requirement be completed before the beginning of his sophomore year.

I have not referred to the question of a two-year premedical course. I believe it is well understood that this is ideal, but at the present time our problem is to get the one-year college requirement honestly and fairly administered.

DR. W. ED. GRANT, University of Louisville: I am surprised that a resolution was not offered to settle the matter for all the schools expecting to comply with these requirements. In looking over the entrance requirements of many colleges all over the country, I find them all the same—a completion of a high-school course, with 14 units, after Jan. 1, 1914, and one year of college work in chemistry, physics, biology and modern languages. If that is satisfactory, let us have it known. If not, let us have a distinct understanding. I was requested by the president of our faculty to come back with instructions as to what the requirements should be, so that we could put it in the catalogue for the ensuing year. I am anxious to know whether the 14 Carnegie units are going to be permitted, or whether there are to be certain definite subjects in these Carnegie units, and I hope our Association will go on record in establishing what that is to be. If we are to accept 14 Carnegie units without any conditions, let us say so, and if not, let us say just what the conditions are.

DR. BROWN AYRES, University of Tennessee: I want to add my voice to that of the gentleman who has just spoken. Before the meeting I spoke to Dr. Means about another question that seems to me to be quite important. Institutions are trying to get in line with the requirements of these various national bodies. We have been trying to work on this proposition for some years. Then this Association comes in with certain requirements, and the Council on Medical Education has certain requirements, and they do not agree. For example, in trying to make up a statement of the requirements of the premedical course in the University of Tennessee this year, I wanted to state definitely that certain subjects would be

required for the 14 units, and I wrote down that Latin would be required. It seemed to me on general principles that a student of medicine ought to know some Latin, but I was surprised to find in the latest book published by the Council on Medical Education that no Latin was required. It seems to me that there is nothing that the Association can do at this time that will be more important than to state what the subjects will be, the minimum number of subjects, and, having stated them, to rest on that for a sufficient number of years for us to get the schools accustomed to the idea, training them to bring the same required subjects up. This everlasting shifting is getting our whole school system utterly demoralized. I have had difficulty myself in writing out the requirements of this Association. The Council has other requirements. So let us get it fixed so that we will know where we stand.

DR. B. R. SHURLEY, Detroit, Mich.: In Detroit we have tried to enter into the spirit and letter of all the higher standards for admission to medical colleges. It has been our desire to fulfil absolutely not only these requirements, but to make absolutely no mistake in regard to entrance of any student who applies to our college. You can readily see what an enormous perplexity we have been in while reorganizing, and how delicate the matter is. We have, therefore, propounded an enormous number of questions to Dr. Means. We feel as if we had thrown a terrific burden upon him. We felt that we were in a position where we did not know very much, and we were very anxious to learn exactly what we should do, make no mistakes, and therefore we have flooded Dr. Means and the Council with a series of telegrams. We are still in very great doubt as to what these entrance requirements should be. For instance, the only literary college in Detroit, a sectarian one, offers absolutely no biology whatever in its course of four years. What are we to do with those men? Are we to turn them away or are we to be allowed to accept a biological certificate from the advanced course in our high school? Again, we have a postgraduate course in the sciences at one of the finest high schools in the country in Detroit. Are we allowed to accept men who have taken a postgraduate course in that high school, equivalent and more than equivalent to many of the small literary colleges throughout the states?

All those problems, and a host of them, come to us daily in the admission of students, and we are at sea. It seems to me that this Association should take this matter up definitely, and that there should be a committee of information of three men to whom we could apply, and know definitely and absolutely from them that we are doing everything that we should do in the way of admission to medical colleges at the present time.

MR. JOHN LOMAN, Examiner for Pennsylvania: Credentials for admission to a medical college may be presented for admission to the freshman class or for admission to advanced standing. For the present, let us consider the adjudication of certificates presented for admission to the freshman class.

For a number of reasons, all papers presented for admission to the first year of a course in medicine should be adjudicated by state authorities. College authorities are very naturally desirous of obtaining a large enrollment, partly for financial reasons, partly for reasons involving a desire to have the enrollment as largely cosmopolitan as possible. Knowing that the critic is abroad in the land, and knowing the readiness with which he oftentimes imputes an evil motive, college authorities should be

particularly anxious to avoid even a shadow of suspicion by leaving the adjudication of all entrance papers to the state. It is not a purpose of this paper to say whether college authorities are unduly influenced by mercenary or sentimental reasons in the rating of credentials; we leave that to the critic.

Enthusiasm is a fine thing—and never finer than in the ambitious student who is impatient to begin the practice of his profession. If, however, this enthusiasm be indulged by a dean who admits a student while the student is almost, or quite, hopelessly deficient in what the State Board will require in the way of preliminary study, will that dean do a real kindness to the applicant? Suppose the student should complete his professional course before completing his preliminary course: wouldn't there be two or three serious ways of viewing his case? He could not, of course, be admitted to the State Board examination. That might, possibly, be a blessing in disguise, for the aspirant, but it is not a function of a dean to bestow blessings in disguise. Preliminary studies are required—no matter for what reason, but presumably for the sake of discipline and culture: at all events, they are required; and they are required *as* preliminary studies, with the distinct implication that the benefits to be derived from them will increase the value of the professional course to the student and to the patients whom he will treat. Then why not let the state take charge of the business? And why not insist upon the completion of these studies before admitting a student to his professional course? Surely, we need the best possible skill in all professions, but particularly in those which deal with our individual health and with our strength as a people. The critic would be better satisfied if the state had charge of this important matter—and sometimes the critic is intelligent.

Another reason is suggested why the state should determine the value of certificates, and that is that foreign applicants for admission to our professional schools should not be favored simply because they do not expect to practice their professions in our country. This argument appears all the stronger when we consider that these applicants, in many instances, could not gain admission to professional courses in their own countries with the credentials which they present here. The admission of such students to courses in medicine, or in dentistry, in any of our colleges, is wrong, first, because it is unfair to applicants of our own country who are compelled to come up to the prescribed standard of admission requirements, and second, because it must cheapen the real worth of our institutions in the eyes of intelligent foreigners. There is a constant tendency on the part of foreigners to belittle our educational system, and there are, the critic says, functionaries in our own country—functionaries not wholly disinterested—who give encouragement to this foreign impudence. An applicant, with his beribboned credentials, travels several thousand miles to spread before us these sheets, with their sometimes clamorous typography, and calls for admission. He thinks we are a long distance from his country, and so we are—several thousand miles—but no further than from a neighboring county, when we know his educational system.

Then, again, we see still another reason why the state should have exclusive charge of the adjudication of credentials. The state can establish a bureau and develop it to a high degree of efficiency. Of course those engaged in the work of such a bureau should be entirely free from political influence, for the details of the work are such that no one could

begin the work with the hope of attaining the maximum of his efficiency within less than a considerable time.

Such a bureau should be informally articulated with similar bureaus in other states, with the United States Department of Education, and with the United States consular service. In this way, matters of local interest, as viewed by the authorities of any particular college, would come to be viewed as possibly of general concern, and would be treated with full contemplation of general welfare. Acquaintance with foreign educational systems would be facilitated, and credentials from foreign countries could be evaluated with entire fairness to all concerned.

Wholly aside from any consideration of possible bias on the part of members of a college faculty, in the rating of preliminary credentials, there is a matter with regard to which the critic is not by any means alone in his views. Reference, this time, is made to the well-known fact that professors in courses of liberal college study are, as a rule, not competent to set a proper estimate upon the respective values of high-school studies. College professors generally teach college students better than they can teach secondary students, notwithstanding the fact that they themselves have passed through the secondary course of studies. It is also true that college instruction, in the first year or so of work in liberal courses, is frequently not so good as instruction given in a first-rate secondary school, especially if the instructors in the latter are specialists doing departmental work.

The comparison between the work of the professor in a professional school and that of the teacher in the secondary school must show even a greater difference in ability to judge of the value of secondary studies. Courses in liberal studies are frequently mere continuation of secondary work, while the professor in the professional school deals so largely with topics very different from those with which he was acquainted in his schooldays, that he gradually ceases to include within the compass of his view the region of preliminary and non-professional study: his work has carried him in a direction divergent from that taken by the teacher of liberal studies.

To be sure, nothing would prevent a professional school from employing a man with wide experience in secondary work, to adjudicate papers presented by candidates for admission; but, granting that each of these schools should do this, and granting, also, that each school would have an examiner fully as well qualified as the secondary-school man appointed by the state, there would still be the objection that such a plan would involve the use of as many standards as there were professional schools. To be sure, also, the appointment of a bureau by each state might mean that there would be as many standards as there are states, but the number would be smaller than with the free selection of examiners by the colleges. Furthermore, even an informal articulation of state bureaus with one another and with the United States Department of Education would tend toward the establishment of a national bureau, and toward a national standard of preliminary requirements. Here, then, we may take up the matter of adjudicating certificates for admission to advanced standing, but merely to refer to its importance.

The same arguments which apply in considering preliminary qualifications apply in considering requirements to advanced standing in a professional school. The mere fact that a young man or a young woman does

well in a course of professional study is, after all, not a criterion of the future success of the student. We all know the traditional opinion of the valedictorian. The saddest part of this view of graduates with high standing is that something vitally important was omitted from the preliminary training of the student who outstripped his rivals. This something is generally an item which the professional course cannot supply, a something which should have been a mere incident of broad, and, at the same time, intensive, training in acquirement, as well as in discipline. The confinement of a professional man's training to his chosen work makes failures of mere scholars in medicine, as it does in the case of mere scholars in other professions. But why dilate upon this? We all know the truth of it, and we all are seeking efficiency. Then let us allow the state, an impartial authority with an eye to the general good of the people, to determine the value of credentials, whether they are for admission to a college of medicine or for admission to advanced standing in such a college. We want efficiency, and we may safely trust the state to see that efficiency is obtained.

DR. IRVING S. CUTTER, University of Nebraska: It seems to me that in order to make this college year effective it is absolutely essential that the Executive Committee have a working basis for their interpretation, just as the last speaker said. In order to crystallize this discussion, I would move that a committee of three be appointed by the chair to draw up a resolution covering these points: First, the evaluation of the college year, and, second, the granting of conditions in either preparatory or college work, that committee to report at the afternoon session. (Seconded and carried. See minutes, p. 111.)

IS IT DESIRABLE AT THIS TIME TO FIX A DATE FOR TWO YEARS' PRELIMINARY WORK?*

EGBERT LE FEVRE, M.D.

University and Bellevue Hospital Medical College
NEW YORK

I have no prepared address, as I thought this would be a very short discussion. At the present time I will state my position as follows: It is unwise at present for this association to demand two years of college work as a minimum entrance requirement. We have just started—in fact, we have not yet started on the one year of college work. You heard to-day from Mr. Babcock and others of the difficulties that confront the different medical schools in evaluating credentials and arranging for this one year of college work for prospective students. The educational system in a great many states—in fact, the majority—is such that the prospective medical student, after graduating from a high-school course, cannot go into a university and get this one year of college work.

When this plan was proposed some years ago I went through the colleges to interview the administrative officers in the different universities in and about New York, and found that there was no single university at that time that would give even in two years the science branches as demanded by our requirements. In one college the statement was made to me very bluntly that they were not trying to become a proprietary school for professionals, and that there were enough students coming to them to study one or two years—they put it two years—to get the science branches. They said that they would change the course so that it would be impossible to get this work inside of the four years. There were one or two universities, even in New York, where we found that there was no point in the curriculum that would give a student the subject-matter that we wished, even if he remained there over the three years. It was, therefore, necessary for us to organize this special one-year course, in order to meet the requirement of the prospective medical student. That condition practically prevails, I think, throughout the states, except those that have a state university and that have correlated their course with the needs of their own individual professional schools.

The question has been coming up time and again before the Executive Committee: Are the difficulties of this one year to be simplified by demanding two years? In individual states and in

* Stenographic report.

individual institutions, no doubt they will be, but I do not think, as a college organization, that we are at the present time in a position or should demand two years of college preparation. If a man cannot get this college preparation in one year, then he may, as an individual, be compelled to take two years to acquire it. That is his individual misfortune—if he considers it such. He will probably be a more broadly educated man.

The next question touched by Mr. Babcock was that of broader education. Are we, as a medical college association, demanding this year's work in chemistry, physics and biology in preparation for the study of medicine so as to be able to administer our curriculum in a better way, so as to unburden our curriculum of inorganic chemistry and elementary biology, and have the students have the necessary amount of physics, or are we doing it from a purely cultural side? If we are doing it purely because we wish men better prepared to enter on the study of medicine, then I will say that one year of the intensive course is sufficient, if we take it from that standpoint. If, on the other hand, we are considering it purely from the cultural side, then I will say that two years are desirable, provided that the under-graduate schools will introduce into their sophomore and freshman years the subjects mentioned by Mr. Babcock, and others which have a cultural value—social economics, psychology, etc.—which are ordinarily subjects of the third and fourth years, and do not come in the curriculum of the sophomore or freshman class. Therefore, if you are going to demand two years for cultural value we must have a hearty cooperation of the under-graduate colleges so as to make that of definite cultural value. If we are going to demand two years, using the college year instead of continuing the course, then I think there is danger of exploiting the state and getting an uncertain result.

The statement has been made time and again that we cannot give the men in one year that necessary amount of chemistry, physics and biology that will be of use. Of course, we in New York are in a peculiar and advantageous position. Before a man can enter a medical college he has to have an elemental course in chemistry, physics and biology. Therefore, the high school product that seeks admission to our college has a preliminary training, and we are therefore able to arrange our courses so that it is advanced chemistry, biology and physics which are taught. The man who comes to us from an outside state, where a school does not give this, is handicapped to a degree. He has to do extra work. The New York State Department of Education has borne honestly on this, so that our course has to be evaluated. A student may present to us a high-school certificate containing chemistry, physics and biology, and because we have

printed in our catalogue that we demand a year of college work we then have to send that medical student to Albany with the credentials. They write across that certificate, "Year of college work," so that the student has an official recognition by the state department of that year of college work. We have had in the past year nearly fifteen men who have come to us with credentials of a year of college work. We have sent them to Albany for evaluation, and in only three cases out of those that we have sent have we been able to obtain a credit of a year of college work, although these men have taken their courses in colleges, and one had taken two years of the so-called science branches.

If this Association should demand two years of college work, it is not at the present time going to remove our difficulties of administration. I think that at the present time we should mark time. The time has come in the advance and changing of our entrance requirements when we should pause, when we should allow the colleges that have been coming to the one year to get in stride, to get on that firm base which is what we have been trying to get on the four year high school base, before we reach out for another year of uncertain quantity. It has been hard enough to get the high school; we have fourteen units in one place, fourteen plus in others; college courses of one year of varying value, and, personally, I say I am not in favor at the present time of even considering the two-year course as the minimum requirement for this college association. It should be left, therefore, with every individual institution whether they want to go higher than the one year. That is their affair. I am not speaking now from the minimum side, as far as the College Association is concerned.

DISCUSSION

DR. RANDOLPH WINSLOW, University of Maryland: I am entirely in accord with the remarks that Dr. Le Fevre has just made. We do not and cannot know how this matter of one year of college work is going to work out. We are in no position at the present time to specify any time at which more than one year of college work may be demanded. Certainly it should not be demanded within the next four years. Any specification of time in excess of a year of college work of a certain character should not be undertaken as a minimum requirement before at least four years from now have expired.

There is another question that it seems to me is a matter of some importance, and which more or less bears upon what Dr. Le Fevre has said, and that is in regard to the evaluation of the work that is done. We say one year or two years of college work. Now, that does not specify exactly the amount of work that is done. Suppose a person gets this amount of work, and satisfies conditions, who does not get it in college, is he to be credited with the work that he has learned or acquired in some other manner? Many a man gets instruction—not in college—but in other ways, by private study under instructors, or in other ways. Can

that man be accepted, under proper restrictions, of course; or can he not be accepted?

I don't think there is any doubt as to the sentiment of the Association of American Medical Colleges in regard to increasing the requirement of college work at this time, or within the near future; and so I will not take up more time in arguing the matter, but want to endorse the stand that Dr. Le Fevre has taken as being the proper stand for us under the present conditions.

DR. E. P. LYON, University of Minnesota: I want to agree with the gentlemen who have gone before, for the reasons which they have given, as well as another one. Our Association is making an experiment—an educational experiment—in this one year plan. It would be folly to interrupt that experiment before any reasonable conclusion could be drawn from it. Many of our schools have just made with difficulty arrangements to get the one year of Physics, Chemistry and Biology. They are passing through a trying time. Let them get readjusted. At the same time other schools, particularly those of the stronger universities, are experimenting with the two-year plan. The results of this work with both plans will appear in the State Board examinations and elsewhere. Let the schools which are experimenting along the advanced line proceed with their experiments also, but let us as an Association continue as we are for the time being. We are abreast of the Council recommendations. Let us proceed as heretofore to raise the standards gradually and in such manner as to strengthen the better and not the worst schools of the country.

DR. JOHN M. DODSON, Rush Medical College: This Association was organized twenty-five years ago with the express statement that one of its chief purposes was to elevate the standards of medical education in the United States. Six states now require two years; forty colleges require two years of premedical college work.

I should like to say another thing: It seems to me Dr. Le Fevre made his own answer to the proposition. It is not possible to satisfactorily administer one year devoted to chemistry, physiology and biology. No thoroughly good college or university will undertake to do it. It is perfectly easy to do it in two. The better colleges are all prepared to do that. The two-year requirement is easily administered and it will not diminish the number of students. The fact of the matter is that the break between the high school and college is the only place where increase in the requirements for admission cuts down the number of students. When you have required the student to go to college at all to prepare himself for admission to the medical school, he will adjust himself to two years as well as to one.

There are six or seven states that require two years. The man who has not had two years of college preparation before he graduates in medicine is not eligible to practice in those states. If there is any college in this Association which requires only one year or less, its graduates are not eligible to practice in several states. I should like to inquire if there is a single college in this Association requiring for admission only a high school diploma, or one year of college work in addition to the high school, that prints in its announcement or bulletin a statement to the effect that its graduates, complying only with these requirements, are *not* eligible to practice in Minnesota, in Iowa, in North Dakota, in South Dakota, in Colorado, in Indiana or in Kentucky? If you would be perfectly fair to

your incoming students, such a statement should be presented in large type and in red ink on the front page of every catalogue issued.

DR. PAUL WOOLLEY, University of Cincinnati: I agree with what Dr. Dodson has said.

DR. EGBERT LE FEVRE: We are administering one year of the science branches.

DR. B. D. MYERS, Indiana University: I think the point Dr. Dodson has brought out ought to be emphasized, because it seems to me as if, within the next few years, there may be a good deal of dissatisfaction with the one year of college work. In Indiana, where we require two years of college work for entrance, nearly all of the colleges that are recognized by the State Board of Education have adjusted themselves to this requirement, and in two years are providing the college requirement in Physics, Biology, Chemistry and languages, but no one of them, the State University included, would be prepared to give the year of Chemistry, Physics, Biology and language in one year. Such a year is a tremendous year. Three laboratory subjects would make it a very difficult year without adding a language course to the burden. So I think we ought not to go into this thing expecting that it is going to run too smoothly.

One of the most difficult things is the evaluation of the work of the colleges, and I would like to say just one word in connection with that. The question raised here has been, "Who shall evaluate the work of the colleges or of the high schools?" I don't think that is really so much the question. It is more a question of who can evaluate the work? It is not a task that anyone and everyone can do. No man is permitted to enter our school whose credentials present the least difficulty whatever but that those credentials are turned over to the dean of our college of liberal arts, a man who has been evaluating credentials for twenty years. A man entering our school of medicine enters with the same evaluation of credentials as though he were entering the college of liberal arts. I feel that the help of a man trained in the evaluation of credentials is very desirable.

DR. FRED'K. P. GAY, University of California: I agree with Dr. Dodson in his statements. I think two years is a necessary period for the introduction to science that is required. Any less is far less purposeful. The first—Freshman—year is largely occupied in getting adjusted. It is not possible for a man to cover these subjects in one year. I think the two-year period is desirable, because the work of three laboratory subjects is too much in one year. A man should have two years, and during that time he will not only get the laboratory foundation properly, but he will also have a chance for other subjects which are almost as necessary.

DR. WILLIAM C. WOODWARD, Georgetown University: Dr. Dodson has hit the nail on the head. I move that it is the sense of this body that colleges accepting students who have not had two years of college training state in their catalogues and indicate on their diplomas that the diplomas of such institutions are not good in the states—naming them—that require the two years' preliminary education.

DR. A. L. GRAY, Medical College of Virginia: Speaking for the Medical College of Virginia, I want to say that this Association may be interested to know that the University College of Medicine and the Medical College of Virginia have been working in harmony for one year. They have amalgamated under the name of the Medical College of Virginia, and

have adopted, to go into effect with the coming session, the one year of college work requirement. Our Board and Faculty wish to make known that as soon as possible they will adopt the two year college requirement. We do not believe that we will lose one student thereby. The colleges in our section are absolutely unable to give the required work in one year. We, of course, cannot enforce such requirements with the coming session, but we propose to make the announcement in the next catalogue.

I must confess that I agree with Dr. Dodson that we are hardly fair to the student unless we make known in some way that they cannot practice in certain States. I do not go so far as the previous speaker and say that we should announce it on the diploma.

DR. B. D. MYERS: I fear that may be I gave a wrong impression when I agreed with what Dr. Dodson said. I am in favor of the two year entrance requirement, but I also agree with Dr. Le Fevre that this is not the time to require two years of collegiate work of all schools in the Association. We have been ten years raising entrance requirements and have accomplished what ten years ago would have seemed impossible for a decade. I believe that there are many forces working very rapidly and effectively toward the two year entrance requirement, and I feel it will be far wiser to give these forces a little more time.

DR. GEORGE W. HUBBARD, Meharry Medical College: The conditions in the South, and especially in my school, are such that we are going to have a very hard struggle to get in the one year. We are going to do the best we can. But if we should have the two years, it would be almost impossible, and I might as well say we would have to close up our school.

DR. E. P. LYON: The impression that the graduates of one year schools cannot practice in two year States should be corrected. The States, so far as I know, enforce their laws against the individual, not against the schools. Any graduate of a one year school who personally has a two years' preparation can practice. So if you go away with the other impression, it would be decidedly disadvantageous. While it might be well for all schools to publish a list of states having advanced requirements, the schools in my opinion are not dishonest in failing to do so. Much of the discussion has not been exactly to the question: "Ought the Association at this time to set a date for going on the two year requirement?" The topic of discussion is not what the ideal should be, but rather what in view of all circumstances is the wise thing for this body to do at this time. The discussion has been a good one, and I merely bring that point out in closing it.

SHOULD A HOSPITAL INTERNSHIP BE REQUIRED
AS A PREREQUISITE TO GRADUATION? IF
SO, WHEN SHOULD THIS REQUIRE-
MENT BE OBLIGATORY?

DR. JOHN M. DODSON
Rush Medical College
CHICAGO

I do not know why your secretary should have requested a discussion from me of this topic at this time, because I presented a paper to this body on this very subject two years ago. The conditions have changed somewhat since that time, but I do not know that I have anything material to add.

In my opinion, the discussion of this topic is premature in an association whose standards of admission are not at least equal to two years of college work. I do not think the organization as a body should think for a moment of considering the recommendation of a fifth year until its rules conform to the legal standard of admission to medical study in every state of the Union. For the colleges which already have that requirement it may be interesting to briefly discuss the so-called fifth-year proposition.

With the state of Pennsylvania requiring an intern year as a prerequisite to licensure to practice, with the hospitals of this country clamoring for interns who cannot be supplied, the question whether the medical student should take a fifth year or intern year is no longer debatable. He does it. We really do not need to discuss that question. The real question is, Should he receive his diploma before or after this fifth year, and if this is decided affirmatively, how is this intern year to be administered, and when is it to be made a requirement?

The advantages of having the intern year precede the conferring of the diploma are several. In the first place, it would be certain to lead to a better correlation of the work between the colleges and the hospital, a thing much to be desired. In the second place, it would give the college and the hospital a hold on the intern that would compel him to fulfill his contract with the hospital. This matter has been provided for by the Bureau of Hospitals of Pennsylvania, and various hospitals have tried to solve the problem in various ways. Some have come to require a bond. I had a letter from a hospital in a neighboring city the other day which requires that the student deposit his diploma, this to be returned at the end of his term of service.

A still further advantage would be the fact that the diploma would stand for a more complete education, including this practical year, and would correspond to the degrees conferred in most foreign schools. As you all know, the diplomas of American schools are not valid in England to-day unless the students have had this additional fifth year. I believe therefore, that it will be of decided advantage to have the fifth year made a prerequisite to graduation from the medical school.

How is the fifth year to be administered? This matter is relatively simple in the hospitals which are under the complete control of the medical school. It is only necessary in such hospitals to devise methods of administration whereby this intern year shall be of the greatest possible educational value. In this connection the question of the most desirable service arises. Some institutions have what is called a departmental service, where the intern serves in the medical or the surgical or the gynecological department, and that one alone. Others have a rotation service, where the intern serves a short term in one department, then a term in another department, and then one in a third. In still other hospitals—the smaller hospitals—the service is mixed. The growing tendency on the part of the hospital is toward a departmental service, because the intern does one thing long enough to enable him to do it well, and I am inclined to think the best pedagogic results are attained by this plan. One unquestionably gets better service for the patient in that way. It is much more satisfactory to the attending physician and has, on the whole, advantages for the student. To be sure, he does not learn everything, but he learns a few things well. And where that service is so administered that one who has spent a year in one department can secure an extension of six months or a year in another department, it gives a well-rounded and satisfactory experience. That I believe is the most satisfactory arrangement.

Another thing which I think is absolutely essential to the best results, pedagogically at least, is the resident physician or surgeon. Experience has shown that the average hospital attendant, busy with his outside practice, cannot give the necessary time to the superintendency and instruction of his interns, and I do not believe we shall succeed in accomplishing that until there is some man resident in the hospital, whose business it is to do that very thing. I am convinced that every hospital of one hundred or more beds must make provision for a salaried resident physician, whose business it shall be to conduct the medical work of the hospital under the direction of the staff, and see that the interns do their work properly and are properly instructed.

It goes without saying that no well-administered hospital is without a competent pathologist, and no intern should accept service in a hospital not so provided.

The solution of the hospital problem, in so far as it concerns hospitals not now connected in any way with medical schools, will be brought about by some sort of affiliation by specific contract. In the last five years two hospitals have come, of their own motion, to the institution with which I am associated, and have sought affiliation by which the medical work of those institutions should be put absolutely in control of the faculty of the college. They have compelled the existing staffs to resign and have requested that no person be nominated to their medical staffs who is not at the same time a member of the faculty of the college. I believe these institutions, in which these contracts have existed five and three years respectively, have been well satisfied with the result of that arrangement.

In such an arrangement as that the contracting parties have certain duties and obligations. The college on its part is obligated to furnish interns who are reasonably well trained for the service. They must have been taught how to take a reasonably accurate and comprehensive case-history. They must have been taught physical diagnosis not simply didactically, but in practical courses so as to have acquired some degree of facility. It is hardly fair to expect the staff or resident physician of a hospital to train the intern in the fundamentals of physical diagnosis, yet that is what must be done in many hospitals at the present time. The intern must have a reasonable degree of facility and accuracy in laboratory diagnosis, though not in the ultra-refinements of diagnosis. We cannot expect the average intern to do a Wassermann or make the Lange colloidal gold test of the cerebrospinal fluid, and things of that sort, but the ordinary accepted tests of urine, sputum, feces, stomach contents and blood he should be prepared to make.

If he is to enter the surgical service, he should have a pretty thorough training, and the aseptic conscience should be well developed.

The personality of the interne is of much importance, and if we are to expect the hospital to receive our interns cordially and be satisfied with their service, more attention must be paid to the instruction of the intern as to how to handle people. He must be taught that the patients in the hospital are not simply cases; they are human beings. However the sick may be handled in foreign clinics the American people will not tolerate the treatment of sick persons as inanimate creatures.

The intern must fulfill this contract, and I have already indicated various ways by which he may be compelled to do this.

I shall welcome very cordially the time when we can put the screws on Mr. Intern and say, "You gave your word of honor to this hospital, and it is as sacred as a bond; if you do not keep it you will not receive your diploma." We have had a good deal of trouble in the last few years, and I was interested to hear of similar experiences in other colleges with interns violating their contracts. I am free to say that our students — that is, some of them — are getting into bad odor because of this fact. Of course, there are circumstances under which the intern is justified in deserting his service, and that seems to me one of the most important arguments for a written contract of affiliation between the two institutions. The specifications ought to be very definitely outlined as to what the hospitals contract to do, and, on the other hand, what the intern contracts to do, so that there may be no room for misunderstanding. There is no question but what, when an intern signs a contract to serve a year of service, both hospital and intern have legal rights. I have no doubt but what, if he were discharged, he could compel the hospital to show cause, and were the charges preferred unfounded and trivial, he would have legal redress in the courts, just as under any other contract.

The hospital also has obligations to fulfil. The hospital and the hospital authorities must come to see that this intern year is to be an educational year for the intern and not a mean device for securing cheap medical help, as are most of our training schools for nurses. (Applause.) This does not mean that the intern will not do a great deal of hard work, that he will not indeed do a good deal of work which every man regards as drudgery, for such tasks come in the line of duty of every physician. It does mean, however, that he shall not be loaded down with such menial routine tasks just because the hospital wishes them performed at little cost. He ought to be worked only a reasonable number of hours a day. Even in the very best regulated hospitals the number of hours the intern is obliged to work is at present excessive. It is impossible for him to do all this work and also read up his cases. If this year is to be an educational year he certainly ought not only to have the opportunity, but he should be compelled to study his cases,

For this reason I would make it a provision of the fifth year, that every intern shall do some piece of work during this year of service, of a research or investigative character, and embody his results in a thesis. It may be the study of a single case or of a group of cases, or of some new laboratory procedure of special interest and importance, but it should be a topic that will compel him to investigate matters at first hand, consult the literature and write something worth while. If we are to require that, we must

give him time in which to do it. The hospitals will object to these ideas because it will necessitate more interns, but it is really to their interests quite as much as to the interests of the students to adopt such a plan. The treatment and care of their patients will be made vastly more effective.

The intern must have decent quarters to live in and decent food.

There must be some men who have the capacity and willingness to serve as actual instructors of these interns, and they should be extramural members of the faculty of the college, and responsible to the college. They should meet with the faculty from time to time, be in frequent conference with them, and have a thorough knowledge of and sympathy with the ideals and methods of instruction. The intern should be required to report from time to time—our rule is once a month—to these instructors on the work he is doing, and his daily records should be supervised to see that they are properly written, so that at the end of the year it may be said that the intern has had a year of good, earnest, effective work; he has educated himself—for I do not mean that this instructor should dictate too exactly to the intern. He should be allowed to grow in his own way, and simply be directed along the proper lines.

The faculty ought to have some control over appointments to the hospital staff. On this control will depend very largely the success of the affiliation. I have already related the instance of the two institutions whose affiliation was effected with Rush Medical College. In these cases the control is absolute. If a college undertakes to assume entire responsibility for the medical conduct of a hospital, it cannot afford to have a single string attached to this control of the staff. It must have the power to discharge any individual who is not satisfactory and appoint an individual who, in its judgment, is satisfactory. With outlying hospitals such entire control will probably not be possible, but some degree of control must be exercised. The faculty should have the right to protest against the appointment of any individual it does not deem fit. Another problem enters here. Many of the hospitals are not endowed, and their support depends on their patronage. It is not fair to such a hospital to remove a staff which supplies it with patients and replace it with a staff of young men who have no patients to bring. That, of course, would be fatal. But some members of that staff must be of the right sort and under the control of the faculty.

Should a hospital admit only the students from one school? I should say emphatically no. One of the worst things that can happen to any hospital is the custom of inbreeding. I regret that some of the hospitals here in Chicago are so conducted.

I should like to see every rule of that sort wiped out, and have two or more schools represented among the interns of every hospital. The interns themselves profit by contact with men who have been trained under different conditions and by different men.

How shall these men be selected? That is an important problem. The growing tendency, I think, is to make the selections by appointment. We have a number of hospitals now who are willing to take any man we recommend. If an examination is held, it ought to be something more than a mere written examination; because that puts a premium on unfitness. The hospital is not interested in how much a man can cram in a few days before an examination. It is interested in knowing by actual observation whether he can write a decent history, examine a specimen of blood properly and tell what he sees; such qualifications can only be tested by a practical examination. In the larger cities there must be some way of cutting down the increasing number of examinations by putting a number of them together. About a year ago we conducted at Rush Medical College in the space of two weeks examinations for ten different hospitals. This is absolutely unnecessary. It seems to me that these hospitals could be brought to an agreement by which one good examination might be given, the successful interns to be given the right to select the hospital they desired in the order of rank, each hospital, of course, reserving the right to reject any applicant whom it was thought to be unfitted for its service.

The term of service ought to be as nearly uniform as possible, and I should like to see it made a year, with the privilege of six months or a year extension. Moreover, the date of beginning of the service is of importance. For illustration: The Cook County Hospital, the one great prize of graduates of Chicago schools, holds its examination in March. The men go in in two divisions. The upper half begin their service under the regulations recently promulgated on the first of September following the examination. The second half begins the first of March — a year later. More than half of our senior class now complete their course in March, and this means that those men who secure places in the second division will have to wait a year before beginning hospital service at all. Adding the twenty months' service to that, the man will be two and a half years from the time he graduated before he completes his hospital service. That seems to me an unreasonable hardship.

I think one other thing must be done. I notice that Dr. Baldy, in speaking for the state of Pennsylvania yesterday, and the regulations adopted by their hospital bureau, said that the year of graduate work in one of the departments of the college as an alternative to the intern year had been stricken out. I certainly

think that is a mistake, at least for the present. There are some individuals who are preparing for a career of teaching or investigative or laboratory work who ought to take, in lieu of this hospital year, a year of real research work, with the production of a thesis. Moreover, it seems to me the one way in which we must provide for such students as are not personally fitted for internships, or who may be discharged from a hospital for cause. What are we to do with such a man? He enters a hospital under contract and at the end of say three months is dismissed, perhaps because of some personal unfitness. Are we to withhold his diploma forever? That seems unjust. He cannot be recommended to some other hospital. They will hardly want to take him. There must be some alternative by which that class of men can be cared for.

Finally, one thing more: This five-year arrangement, if it is brought about, by which the year of intern service in the hospital is made a real educational year, is of more importance to the hospital than the college. The college needs the hospital, but the hospital needs the college still more. The hospital needs the quickening, elevating influence of a teaching body. For it is, I think, the universal experience that it is practically impossible to secure real high-grade service for the sick poor unless we have the stimulating presence of the students in the wards, or in connection with the institution, and the service of a staff who are seeking to add something to our medical knowledge by real research.

DISCUSSION

DR. W. S. CARTER, University of Texas: The importance of an intern year can not be overestimated. It is perhaps the most important part of one's medical training, but in the smaller institutions the conditions are different from those in the large cities and in the larger medical centers. In the University of Texas we have striven for the last ten years to get as many internships as possible. We started with six or eight and gradually increased the number to twenty-five or thirty, but with every effort we have not been able to get places for more than 60 per cent. of our graduates. We have attempted in many instances to compete for appointments in some of the larger city hospitals, but satisfactory arrangements could not be made. The conditions here in Chicago, and in other large cities, do not obtain in the smaller cities of the Western and Southern States. We are now placing about fifteen interns in different hospitals in Texas, and probably ten to fifteen in hospitals outside of the State, and yet we cannot at the present time secure enough places for all of the graduates. As Dr. Dyer stated this morning in the report of his Committee, it is absolutely impossible for the college to control that hospital work. If we secure the appointment, that is the most that we can do. Many of them are not charity hospitals, with good hospital organization, and a regular staff, but they depend very largely upon the income derived from private patients, with a large number of physicians patronizing them.

The work is not uniform or organized, and it seems unreasonable to expect a medical college to give credit for that sort of work, to grade that kind of work, or to require it for the degree. On the other hand, it seems a much more reasonable arrangement to have this requirement come from the State Board of Medical Examiners, as Pennsylvania is doing, rather than from the medical colleges. We feel very strongly that it would be impossible for us to furnish enough places and the right kind of places. In several instances we have succeeded in placing graduates in hospitals where they would not continue, because they said they could not get as much clinical training as they had had in their Senior year. Until the condition of the hospitals can be improved, until there can be some standardization, until we as an Association can, with the Council on Medical Education, secure cooperation between the hospitals and medical schools, it seems impossible to require this year for graduation.

So far as the contract of the hospital for the completion of the internship is concerned, that could come from the State Board quite as well as from the college.

Dr. Dodson intimated that the college could withhold the diploma if the intern did not finish his whole year. Dr. Baldy stated yesterday that the State Board of Pennsylvania would not admit one to the examination until he had completed his intern year.

The point of a year of continuous service in medicine or surgery seems a mistake. It is undoubtedly true that it is the best thing for the hospital, and to the best interest of the staff, but it is not to the best interest of the intern. He should specialize after he has had his rounded training in all services. Dr. Baldy stated yesterday that a certain number of beds were required, and that at least six obstetrical cases will be required during the intern year, in addition to the obstetrical cases in the under-graduate course.

The other point, of having salaried house officers, is certainly contrary to the experience in at least one institution, where I understand a change has been made recently in extending the opportunities for clinical teaching by abolishing these officers, in order that the house officer would not interfere with the work of the attending staff in utilizing their cases for clinical teaching.

DR. JOHN L. HEFFRON, Syracuse University College of Medicine: The school which I represent discriminates clearly between the function of the university, or the degree-granting body, and the function of the state. Dr. Dodson mentioned the fact that our medical men are not put on the same par in England with the licentiates of their own schools. He forgot to say that in England no degree is required of a medical student for the practice of medicine. That also is true in other countries. In fact, I think our country alone enjoys the distinction of requiring the degree of Doctor of Medicine before allowing one to take the examination for a license to practice medicine.

I do not think there is any question between us at all with regard to the desirability of a student who has graduated in medicine and who intends to practice medicine taking a service in a hospital, one year or more, as he can afford, but there seems to be a difference as to whether we have a right to withhold the degree of Doctor of Medicine until the individual has satisfied the state by residence in a hospital that he is fitted to be a practicing physician. It seems to me that the question is purely

academic. The college can not control the various hospitals into which her graduates are admitted as interns and it can not be held responsible for the teaching such interns may receive or may lack. The state, which licenses all hospitals, may establish such standards for hospitals as seem to it best.

It is for these reasons that the college which I represent does not agree with the idea that the degree of Doctor of Medicine ought to be withheld from the student until after he has passed a term of service in a hospital. On the other hand, we are perfectly ready to advocate that every state shall require of a man who wishes to practice medicine at least one year of hospital work in a hospital that meets the state's requirement for clinical teaching.

DR. B. R. SHURLY, Detroit, Mich.: I believe that the Association should take the standpoint of a gradual evolutionary change rather than a revolutionary change, so far as the development of the fifth year is concerned. We have established in Detroit an elective fifth year course which can be gradually changed over in such a way that the college will have absolute control of the instruction of these graduates of colleges. Personally, I would rather see a man take on his fifth year of good intern service and understand the management of our sick patients, so that he will not go out and treat them as guinea pigs, but as sick patients, and he will learn this kind of work in a hospital better than any other place. We all recognize this. In making this course an elective fifth year we are able to supervise his instruction. He can be given his examination at the end of his elective fifth year; the college can have the absolute appointive power in these various hospitals; the question of affiliation can be gradually worked out to the satisfaction of the hospital and the medical college. Personally, I would much rather see a man take an intern service of one year than be compelled to take more than two years' college preliminary work. We all know that if he goes one year to college and gets on the ball team, and gets the enthusiasm belonging to the college, if he is the right sort of man he will stay there until he gets through, or is satisfied that he is able to carry on his medical education. It seems to me he should have that privilege after one year of accepting further college work or not, as he may choose.

experiment, we must not demand that they know as many facts as were formerly required.

The supreme value of laboratory and clinical work is well brought out in the paper of Pratt, "Teacher and Learner in Medicine," *Journal A. M. A.*, Aug. 30, 1913.

FACTS AND PRINCIPLES TO BE MASTERED BY STUDY

Recent articles on medical education leave one with the impression that actual handling of objects in the laboratory or of patients in the hospital is the only form of instruction that has any value. In the mastery of other branches of learning it is freely granted that words, facts and figures must be memorized. It is difficult to understand how a student of medicine can by some miracle acquire the information and principles necessary so that he may begin to practice without using somewhat the same processes as does the student of Latin and Greek. The prospective physician must accumulate an immense store of facts, only part of which can be verified by his own experience, and he must study and reflect upon certain great principles. The pursuit of anatomy is chiefly and that of chemistry is largely an exercise of the memory. The doses of drugs must be learned; so must lists of incompatible drugs, the actions of poisons and their antidotes, the incubation periods and dates of eruption of the exanthemata, the commonest locations and varieties of fractures and dislocations, the mechanism of labor, and thousands and thousands of plain hard facts, and fully as much or more information not quite so definite and not quite so easily relegated to the simple group of facts. It is idle to maintain that the learning of facts and principles from books can be done away with, just as it is idle to try to learn physical diagnosis except from the living subject.

TOO MUCH LEARNING DEMANDED OF STUDENTS

The contention of this paper is that the amount of information that the medical student is expected to retain is beyond all reason. If he should succeed indeed we might say: "and still the wonder grew, that one small head could carry all he knew." But he does not succeed; and his laboratory work is likely to be done mechanically and his clinical investigations are in danger of being slighted in consequence. It is like making a pumpkin grow from a strawberry blossom, certainly a difficult undertaking, and not very desirable.

The impression left by the papers examined by me was that they were written by men who had a smattering of many things and who knew nothing well. Science only means accuracy; learning too much promotes looseness. It is my belief that both

the schools and the state boards demand that the candidate shall know too many facts, for most other states are to blame equally with New York State. The branch anatomy is probably the worst offender (it used to be *materia medica*), but all departments are guilty. The excuse given is, of course, that there is nothing in medicine that a physician may not need to know some day, and he would better go over everything possible, one time at least. Far less learning, but that perfectly correlated with what he himself observes, is what the student needs.

It is probably safe to assert that the amount of information that the average brain of a given age is capable of receiving and retaining during thirty-three weeks has definite limits. Let us liken the brain to a quart pot; it will hold exactly a quart and no more. But we are trying to ram into it not two quarts merely, but a gallon; I am tempted to say a barrelful, but will keep to a gallon, which is certainly conservative.

Osler has recently used the same figure. *Quarterly of Federation of State Medical Boards*, Vol. i, 113.

Nevertheless, during the last year medical schools have received communications from various learned bodies urging that new subjects be added to the curriculum. I recall now psychology, the diseases of the lower animals, industrial hygiene and eugenics.

The tragic fate of the frog who tried to be as big as an ox should not be forgotten.

Too little attention has been given to that exceedingly wise paragraph in the report to the Council on Medical Education in 1907 on the part of the committee on the teaching of physiology, "Our committee wishes to put on record its opposition to any curriculum requiring more than thirty hours work a week. We believe the medical schools have gone mad in allowing their curricula to be built up on the basis of the mere addition of the hours demanded by the instructors. Educational authorities in colleges of arts and sciences express amazement at the pedagogical imbecility of medical educators who crush out all individuality in their students, depress their ideals to the one desire to pass off their subjects and make of them, as one teacher recently expressed it, 'Mere stuffed sausages'."

My work in New York State examinations has convinced me that the warning given by the committee five years ago has not been heeded; students are still stuffed sausages. Many if not most medical schools have decidedly more than thirty hours of work a week in the curriculum, and the college year far exceeds one thousand hours of work.

REQUIREMENTS OF STATE LICENSE MAY HINDER IMPROVEMENT BY SCHOOLS

It was gratifying recently to read the sapient remarks of the editor of *The Journal of the American Medical Association* (Aug. 16, 1913), pointing out the folly of a state requiring of schools a four years course of 4,400 or more hours. And now that good medical schools have substituted laboratory and bedside teaching for class-room work the state licensing boards must take account of the change in the methods of instruction. The medical schools have improved enormously in the last ten years, and the licensing examinations have not improved correspondingly; in fact, at present they are in some ways an obstacle to improvement on the part of the schools. A student who has a written examination to pass does not go to a laboratory or hospital to prepare himself, but to a book.

An instructor said to me recently, of a group of students entering a new hospital ward as clinical clerks: "They took hold and dug into their cases like a dog going into a rat hole." Now that homely sentence describes a spirit so fine, an initiative so rare, that it is a crime to let it be stifled by the drudgery of preparing for written examinations.

It requires some courage on the part of the faculty of a medical school to have students give two-thirds of their time to laboratory and clinical work, knowing that they will not stand as well in state licensing examinations as when the sure and easy and worthless old cram-quiz methods are used. After all, a physician must have a license to practice. Clearly the practical examination is the remedy that the state can institute. A written examination is easy to conduct, but to carry out a really effective practical examination for six hundred students would be an appalling task. Nevertheless, it must come. A single examination for graduation and license is worthy of consideration as possibly helping to solve the difficulty.

The idea that students are required to learn too much has been expressed many times better than it is in this paper. It was embodied in the address of the president of this association a year ago, and in a report from the present president. It has appeared recently in papers by Osler and others. Nevertheless nothing is done. My hope is that by focusing attention upon a single thought, and approaching it from another point of view, I may help obtain for it the consideration that it so well deserves.

CONCLUSIONS

1. The answer papers examined indicate that students have an inaccurate, superficial knowledge of the facts of bacteriology; they fail to grasp its principles. There was evidence that quiz

compendes or quiz classes are freely resorted to by students in preparation.

2. In order that methods of teaching in laboratories and hospitals may be effective, it is imperative that the knowledge of facts required of students be carefully selected, and limited to those that are essential. Fundamental principles need more thorough treatment.

3. One remedy lies in reducing the importance of written examinations, and in making practical tests more important.

4. Examinations for graduation and for state license could be combined in one examination.

DISCUSSION

DR. EGBERT LE FEVRE, University and Bellevue Hospital Medical College: I want to speak one word in relation to a fact that was brought out by Dr. Williams, and also touched on by Dr. Neilson, and that is that our students are crowded to the limit with work that they cannot handle. In going over the "educational mortality" each year in the different science departments as well as the clinical departments, we have come right down to the fact that the students have been practically overtoppled with isolated facts. We have made a study of these conditions for two years with the departments having the greatest mortality, and they have had to admit that the laboratory has been running to extremes in details, instead of using the laboratory experiments merely to illustrate and fix the principles. So I am glad that Dr. Williams has brought this paper before us today.

MINUTES OF THE TWENTY-FOURTH ANNUAL MEETING, HELD AT
CHICAGO, FEBRUARY 25, 1914, UNDER THE PRESIDENCY
OF DR. E. P. LYON, UNIVERSITY OF MINNESOTA,
COLLEGE OF MEDICINE AND SURGERY

MORNING SESSION

The delegates and accredited representatives to the meeting assembled in the Congress Hotel, and were called to order by the president at 9:30 a. m.

ROLL CALL

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

Leland Stanford Junior University, Department of Medicine.—Wm. F. Snow.

University of California Medical Department.—Fred. P. Gay.

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

University of Colorado School of Medicine.—Wm. P. Harlow.

Yale Medical School.—George Blumer.

Georgetown University School of Medicine.—Wm. C. Woodward.

George Washington University Department of Medicine.—Wm. C. Borden.

Howard University School of Medicine.—Paul Bartsch.

University of Georgia College of Medicine.—Wm. C. Lyda

Northwestern University Medical School.—J. H. Long.

Rush Medical College.—John M. Dodson.

Indiana University School of Medicine.—Burton D. Myers.

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

University of Kansas School of Medicine.—John Sundwall.

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

Tulane University, Louisiana, School of Medicine.—Isadore Dyer.

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

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

Medical School of Harvard University.—Edward H. Bradford.

Tufts College Medical School.—Charles F. Painter.

Detroit College of Medicine and Surgery.—Frank B. Walker.

University of Michigan Department of Medicine and Surgery.—Charles W. Edmunds.

University of Minnesota College of Medicine and Surgery.—E. P. Lyon.

St. Louis University School of Medicine.—H. W. Loeb.

University of Missouri School of Medicine.—A. Ross Hill.

Washington University Medical Department.—Eugene L. Opie.

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

University of Nebraska College of Medicine.—Irving S. Cutter.

Columbia University College of Physicians and Surgeons.—

W. T. Longcope.

Syracuse University College of Medicine.—John L. Heffron.

University and Bellevue Hospital Medical College.—Egbert Le Fevre.

University of Buffalo Medical Department.—H. U. Williams.

University of North Dakota College of Medicine.—A. G. French.

Starling-Ohio Medical College.—Frank Winders.

University of Cincinnati Medical Department.—C. R. Holmes.

Western Reserve University School of Medicine.—F. C. Waite.

State University of Oklahoma School of Medicine.—Curtis

R. Day.

University of Pennsylvania Department of Medicine.—Wm.

Pepper.

University of Pittsburgh School of Medicine.—Benson A. Cohoe.

Hahnemann Medical College and Hospital.—J. J. Tuller.

Vanderbilt University Medical Department.—L. E. Burch.

University of Texas Department of Medicine.—William S. Carter.

University of Utah School of Medicine.—W. O. Christenson.

University of Vermont College of Medicine.—H. C. Tinkham.

Medical College of Virginia.—Alfred L. Gray.

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

Meharry Medical College.—George W. Hubbard.

The following colleges not in membership in the Association were also represented:

Harvard University Graduate School of Medicine.—H. 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.

Jefferson Medical College.—James W. Holland.

Medico-Chirurgical College of Philadelphia.—Seneca Egbert.
 Woman's Medical College of Pennsylvania.—Clara Marshall.
 Marquette University School of Medicine.—J. Van de Erve
 and Henry C. Tracy.

Baylor University Medical Department.—Edward H. Cary.
 Bowdoin Medical School.—F. H. Gerrish.

Medical College State of South Carolina.—P. M. Rea.

University of Tennessee College of Medicine.—Brown Ayres,
 B. F. Turner and Herbert T. Brooks.

Fordham School of Medicine.—Wm. P. Healy and John E.
 Welch.

ACCREDITED REPRESENTATIVES

The following were accredited representatives from the gov-
 ernment medical services, national and state medical societies and
 state medical examining boards:

UNITED STATES GOVERNMENT

Medical Corps, U. S. Army.—J. R. Kean.

Medical Corps, U. S. Navy.—R. R. Richardson.

U. S. Public Health Service.—W. S. Rucker.

NATIONAL SOCIETIES

American Academy of Medicine.—John L. Heffron, Syra-
 cuse, N. Y.

Council on Medical Education, American Medical Associa-
 tion.—N. P. Colwell, Chicago.

Federation of State Medical Boards.—Herbert Harlan, Balti-
 more.

STATE MEDICAL EXAMINING BOARDS

Connecticut.—Charles A. Tuttle, New Haven.

Indiana.—W. T. Gott, Indianapolis.

Iowa.—Walter L. Bierring, Des Moines.

Illinois.—John A. Robison, Chicago.

Kansas.—L. P. Gaillardet, Formoso.

Maryland.—Herbert Harlan, Baltimore.

Michigan.—Beverly D. Harison, Detroit.

Mississippi.—W. S. Leathers, University.

Missouri.—J. A. B. Adcock, Jefferson City.

North Carolina.—Benjamin K. Hays, Oxford, and L. B.
 McBrayer, Asheville.

Oklahoma.—John W. Duke, Guthrie.

Oregon.—K. A. J. MacKenzie, Portland.

Pennsylvania.—J. M. Baldy, Philadelphia.

Rhode Island.—Gardner T. Swarts, Providence.

- South Dakota.—Park B. Jenkins, Waubay.
 Utah.—G. F. Harding, Salt Lake City.
 Vermont.—W. Scott Nay, Underhill, and E. B. Whitaker,
 Barre.
 Virginia.—S. L. Jepson, Wheeling.
 Wisconsin.—H. W. Abraham, Appleton.

STATE MEDICAL SOCIETIES

- Alabama.—H. P. Cole, Mobile.
 Arkansas.—A. R. Stover, Little Rock.
 Colorado.—H. A. McGraw, Denver.
 District of Columbia.—Wm. C. Borden, Washington.
 Idaho.—D. W. Matthei, Arco.
 Iowa.—Henry Albert, Iowa City.
 Kentucky.—L. S. McMurtry, Louisville.
 Maryland.—Herbert Harlan, Baltimore.
 Massachusetts.—H. C. Ernst, Boston.
 Michigan.—Burt R. Shurly, Detroit.
 Minnesota.—W. L. Beebe, St. Cloud.
 Mississippi.—E. F. Howard, Vicksburg.
 Montana.—F. J. Adams, Great Falls.
 Nebraska.—J. P. Lord, Omaha.
 Nevada.—M. A. Robinson, Reno.
 New Hampshire.—J. M. Gile, Hanover.
 New Jersey.—Emory Marvel, Atlantic City.
 New Mexico.—H. B. Kauffmann, Albuquerque.
 New York.—Luzerne Coville, Ithaca.
 North Carolina.—H. A. Royster, Raleigh.
 Ohio.—Paul G. Woolley, Cincinnati.
 South Dakota.—C. P. Lommen, Vermilion.
 Texas.—John T. Moore, Houston.
 Vermont.—James M. Hamilton, Rutland.
 Virginia.—W. F. Driver, Newmarket.
 Washington.—J. B. Eagleson, Seattle.
 Wisconsin. Charles R. Bardeen.

VISITORS

The following not accredited representatives were also present:

- J. A. Witherspoon, Nashville, Tenn.; V. C. Vaughan, Ann Arbor, Mich.; M. McPhaden, Mount Forest, Ontario, Canada; George Dock and C. H. Neilson, St. Louis; Kendric C. Babcock, Urbana; J. McClintock, Iowa City; A. D. Dunn, Omaha; G. L. Noyes, Columbia, Mo.; Edward B. Heckel, Pittsburgh; A. D. Bevan, C. S. Bacon, A. M. Corwin, A. R. Edwards, D. J. Davis,

Wm. H. Browne, John D. Robertson and Charles H. Parkes, Chicago; J. H. Hathaway, C. G. Jennings, Detroit; Charles P. Emerson, Indianapolis; F. L. Landacre, George H. Matson and F. F. Lawrence, Columbus, Ohio; F. C. Todd, J. E. Moore and R. O. Beard, Minneapolis.

William J. Means and Randolph Winslow, members of the Executive Council, and Fred C. Zapffe, secretary-treasurer of the Association, were also present.

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 1913, pages 39-75, inclusive, and, on motion, they were adopted as printed.

REPORT OF SECRETARY-TREASURER

The report of the secretary-treasurer being called for, Dr. Zapffe submitted his report, as follows:

This report is of necessity a short one, because little has transpired since the last annual meeting worth preserving in the archives.

The usual routine duties were transacted, but one matter stood out rather prominently this year, more so than before, and that was the numerous inquiries received from prospective students asking for information concerning the membership of colleges in this Association, and the standing of colleges with state boards, showing that students are very careful, on the whole, as to where they are going to study medicine.

A great deal of information has also been asked for by state boards of examiners, and has been furnished promptly.

There is no change in the membership of the Association this year. It numbers fifty-one, with no applications pending and no resignations.

The Transactions were distributed widely, as in previous years.

Invitations to this meeting were sent to all the state societies and such national societies as are interested in medical education, to the state boards of medical examiners, to the government medical services and to individuals. The responses received were numerous. Delegates were appointed by a considerable number of organizations and boards to attend this meeting in their behalf.

The financial standing of the Association is as follows: Cash on hand, February 25, 1914, \$473.62. Seven colleges have not yet remitted the annual dues for the current year.

Respectfully submitted,

(Signed) FRED. C. ZAPFFE.

On motion of Dr. B. D. 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, appointed by the Chair, consisting of Drs. Myers, Loeb and Borden.

REPORT OF THE EXECUTIVE COUNCIL

The report of the Executive Council was called for and presented by the chairman, Dr. Means.

REPORT OF THE EXECUTIVE COUNCIL

The Executive Council met in executive session February 23 and 24. Matters pertaining to the welfare of the Association were considered and representatives of the colleges, reported last year as given a lower rating by the Council on Medical Education of the American Medical Association and inspected later by Drs. Colwell, Waite and Means, were given a hearing. The colleges in question were the Medical Department of John A. Creighton University at Omaha, the Detroit College of Medicine and Surgery at Detroit, the Medical Department of the University of Southern California and the University Medical College of Kansas City. The last named college was expelled from membership and it has closed its doors. Separate reports on the other schools were made to the Executive Council, abstracts of which are herewith submitted.

The inspection of the Medical Department of the University of Southern California was made on April 13, 14 and 15, 1913 by Drs. Colwell, Waite and Means. Their findings were made in a lengthy written statement to the Executive Council, a copy of which had previously been submitted to Dr. Bryson, Dean, and to the President of the University of Southern California. The school was found lacking in several things that were necessary to give it place in the acceptable list of colleges. One of these, was the relation between the University and the Medical College. While advertised as the Medical Department, it received no financial support therefrom. Another was, insufficient preparation for clinical teaching and adequate facilities for laboratory teaching were wanting.

We are informed by Dr. Bryson, who appeared before us, that these criticisms have been corrected and that the school has met every suggestion we made. This college is located in a city of over half a million people where there are large clinical opportunities. We believe a medical college is needed in southern California and that the College of Physicians and Surgeons is in position to fulfill the need and should, therefore, be encouraged. We recommend that the college should be continued in membership until another inspection can be made.

John A. Creighton Medical College: An inspection was made of this college on April 23, 1913, by Drs. Colwell and Means, and by Professor Waite, in February. We found the faculty poorly organized. The general policy of the college seemed to be dictated very largely by the clerical faculty of the University. Dr. Muirhead, the Dean, and by the way a very competent official and teacher, seemed to have very little to say in the organization of the faculty and the general direction of educational problems. We also found that the University officials had no conception of the expense attending medical education and therefore gave the depart-

ment no support other than the income from the student body. There was a student body of about 175, tuition \$100 per student, making a total income of about \$17,500, which provides an inadequate amount toward placing the departments on a proper basis.

The conclusions in the report furnished the officers of the college were as follows: "We have gone into the conditions of your college rather critically, but we can assure you with no other purpose than to help you develop it into a first grade school. We have tried to give you the benefit of a wide experience obtained in the inspection of the medical colleges of this country. We have not presented ideals but have endeavored to outline practical and workable problems, that in our opinion are necessary to place your college upon a good working basis. You have a commodious college building with ample room for laboratories, class rooms and outdoor dispensary. With proper equipment of these by way of suitable apparatus and manning them with teachers who are imbued with the responsibilities of modern education, there is no good reason why your college should not take rank among the acceptable schools. The President of the University at our interview with him, desired to be informed as to the needs of the college and expressed his determination to see that financial aid would be forthcoming to meet all proper wants. We will suggest that the University authorities demand of St. Joseph's Hospital more free beds and larger teaching facilities. As long as your attendance remains as large as at present, you should have at least 150 beds."

Dr. Muirhead and Dr. Dunn of the faculty were before the Executive Council and advised that all our recommendations have been faithfully met and are now in operation. They made an earnest request for another inspection. We recommend that membership of this college be continued until such time as another inspection can be made.

Detroit College of Medicine and Surgery: Dr. Colwell, Prof. Waite and Dr. Means inspected this college, Oct. 27, 1913. You will recall that at the meeting one year ago, the Executive Council reported that a joint inspection had been made in November, 1912, and a recommendation was made that further time be given for development. At our last inspection, we found the college in the midst of a change in its organization from a stock company to a corporation *not for profit*, a reorganization of its faculty and improvements in the laboratories. We were much pleased with the evidence of progressive work and complimented the officers for the same. We felt, however, that we could not make a final report, until the improvements, under way, were completed and the reorganization of the faculty and teaching schedules, contemplated and under way, were in operation.

We believe from the evidence presented and the enthusiasm manifested by the officers that when the reorganization is completed, the Detroit College of Medicine and Surgery will meet all the requirements of an acceptable medical college. The clinical possibilities for medical teaching in Detroit, are great. The Secretary has recently placed in our hands the new bulletin and other printed matter that shows a complete reorganization along lines suggested by us in both of our inspections. Following the rule that we have maintained in the past, of not accepting mere statements of improvements, we recommend another joint inspection during this session and if the suggested changes and constructive organization have been completed and are in successful operation, the Detroit College

of Medicine and Surgery shall be given an acceptable rating and continued in full membership.

Baylor University, Dallas, Texas: This college was inspected on April 7, 1913, by Drs. Colwell, Waite and Means. The college is an integral part of the Baylor University (Baptist) located at Waco, Texas. The University authorities, at the time of our visit, did not appreciate the larger financial outlay necessary for teaching medicine and therefore had not given the medical department adequate support. We investigated the relation between the University and the Medical College thoroughly and satisfied ourselves of the cordial feeling between the officials. At a public conference with President Brooks, several trustees and members of the medical faculty, the needs of the medical department were fully explained and that if the officers of the University expected the department to reach a position where it could be recognized as an acceptable college, the University would have to provide considerable financial aid. Suggestions were made for improvements both in the faculty, laboratories and hospital facilities. Our findings did not warrant a recommendation for membership. Dr. Colwell has recently made another inspection of the college but was not satisfied that the improvements were sufficient to warrant a higher rating than "B." We, therefore, recommend that action on the application for membership be postponed another year.

According to a communication from President Hodges and Dr. Simpson, Dean, the Medical College of the University of West Virginia, has been reorganized and fully manned for teaching the first two years of a medical course. Dr. Simpson insists that the suggestions made by Drs. Waite and Means in their report after the inspection of November, 1912, have been fully met, and they now ask membership in the Association with credit for giving two years of a medical course. The Legislature of West Virginia has made a substantial appropriation for its support. The Council recommends that another inspection be made before membership is granted.

The University of Tennessee, located at Memphis, has made application for membership. This college is now an integral part of the University of Tennessee and combines all the medical colleges that formerly existed in Memphis. According to the rule of the Association, the Executive Council will inspect this college during the coming year and report at the next annual meeting.

Several matters pertaining to other colleges, members of the Association were considered by the Executive Council but it is not deemed necessary to make a public report of them at this time.

The Council has the satisfaction of reporting to the members that it is now understood and agreed on the part of the Council on Medical Education, that no adverse ratings will be given colleges, members of the Association without due notice to the Executive Council and an opportunity to make a joint inspection to determine the facts upon which an adverse rating is proposed.

At this point, the Council wishes to call attention to the expense attending inspections. The College Association has no funds from which to pay the expenses of the delegates and therefore, they must be borne by the individual college. It is our opinion, that these inspections have been very helpful to the colleges. They have been made with a view of constructive help and the response of the colleges to the suggestions has

been commendable. We are almost convinced that all colleges would be benefited by constructive criticism.

The Executive Council is impressed with the value of the joint activities of the three organizations interested in medical education. We refer to the Council on Medical Education, the Federation of State Licensing Boards and the Association of American Medical Colleges. It is to be hoped that at the next annual conference of these three great organizations, there will be no conflict in the date of their meetings.

We further recommend that a joint program be prepared so that subjects will not be duplicated and that all the delegates will have an opportunity to enjoy the able papers and discussions of prominent men interested in medical education.

(Signed) W. J. MEANS, Chairman.
E. P. LYON.
R. WINSLOW.
F. C. ZAPFFE.
EGBERT LEFEVRE.
F. C. WAITE.

On motion, the report was received and the recommendations of the Council were adopted.

REPORT OF COMMITTEE ON EDUCATION AND PEDAGOGICS

The report of this committee was called for, and presented by the chairman, Dr. Dyer.

UNIFORMITY IN STANDARDS OF MEDICAL EDUCATION

There has been no thought of supererogation on the part of this Committee in attempting to review or revise what may have appeared to have been satisfactorily done already by organized bodies engaged in the study of medical education. It has seemed necessary for some one to coördinate ideas of methods as practiced by the different colleges in membership in this Association, and this has seemed all the more desirable because of the wide variance in the published catalogs of such colleges.

The way for some uniformity in standards was laid by the Council on Medical Education of the American Medical Association by formulating what should be acceptable forms for colleges to follow, not only so far as entrance requirements are concerned, but so far as curricular outlines were affected. In the main these have been followed, but the detail of administration differs so much in many colleges that no standard obtains sufficiently defined for all to follow.

It seems desirable that the Association of American Medical Colleges should arrive at some agreement, subject to regulation, through which the entrance credits may be uniform in standard and uniform in administration, so that when entrance credits are acceptable at one institution the same be accepted at all others of like grade.

The detail of curricular methods must vary in all colleges, up to a certain point, but the standards which determine grades, work, laboratory periods, and the general scope of any given course should be so uniform that the credits earned at one school should obtain at another school of

the same class, without going behind the returns, a thing which is only too frequently necessary at this time.

✓ Other questions have arisen within the last few years which affect the policy and purposes of this Association. We have discussed the fifth or sixth year of a medical course. We have debated a hospital year, and its value in a medical education. We have committed ourselves to at least one more required year, but as yet have failed to formulate the scope of such a year. Hospitals have been discussed in a mass without any basis for establishing the quality or equipment of a hospital recognized for credit in a medical course. No reports as yet have been made on the degree of affiliation with acceptable hospitals and schools of medicine having their graduates as interns in such.

It has seemed the part of wisdom to obtain a survey of these questions for discussion in some authoritative form, and your Committee, through the presumption and assumption of its Chairman, has issued a questionnaire giving the opportunity to every college in membership to state in exact terms, both facts concerning its organization and methods and opinions concerning the questions most alive in our present stage.

Some colleges have not taken the questionnaire seriously. Others have considered that the printed catalog furnished all the desired information and have left the matters open, though categorical questions were submitted, some of which no catalog could answer. Some colleges have answered some few questions and have ignored others. A few colleges have taken the questions as a serious attempt at organized information and have, in the most explicit manner, satisfied each point submitted.

There remains only the statement that if all colleges solicited had replied with the same spirit with which the questions were sent, the Committee would have had a better report to make. As it is, only a conclusion can be drawn from the opinions expressed, and with the idea of giving a consensus we submit the following analysis of the questionnaire.

✓ The questions were sent to all colleges in membership in the Association of American Medical Colleges, under date of December 15, 1913, with a request for early reply.

No replies were received from the following institutions: University of California, University of Southern California, Cornell,* University of Georgia, Northwestern University, George Washington University, University of Iowa,* University of Kansas, Johns Hopkins University, University of Maryland, Detroit College of Medicine,* St. Louis University, University of Nebraska, Wake Forest College, University of Oklahoma.

Below are submitted the questions, with a digest of the replies from each college or school:

Question 1.—How does the intending student of medicine formulate his entrance credits with your school?

- (a) Certificate.
- (b) Application blank.
- (c) If entrance is effected by examination, by whom conducted? When are examinations held? Have you a form of report for such? If so, please send.

* Returns from Cornell, Detroit, Iowa, Oregon and Vermont came after report was in press.—D.

- (d) Are college credits set forth on separate certificate or form? How are such credits entered in the record of students? (Are periods of laboratory shown or only gross credits?)
- (e) Are matriculation and registration effected in person by student, or may he register or matriculate by mail after entrance certificate has been accepted? Your custom.

A.M.A. Council System:

- (a) Transcript of student's work direct from high school, or from college.
- (b) Application form systematic.
- (c) Examination by the college entrance examining board (Secretary, Thos. S. Fiske, M.D., P. O. Sub-Station 84, New York City) suggested.
- (d) No regulation.
- (e) Immaterial so long as actual attendance is affected at beginning of college session and thereafter.

Alabama, University of:

- (a) Diploma or evidence in detail.
- (b) Blank form used.
- (c) Examination by Dean of College of Arts and Sciences at University or Department of Medicine.
- (d) Gross credits only.
- (e) In person always and without exception.

Baltimore (College of Physicians and Surgeons):

- (a) Entrance credits passed by official State Board Examiner; certificate issued.
- (b) Application blank refers only to matriculation.
- (c) Official examiner; college not related.
- (d) Answered by a, b and c.
- (e) Must register in person.

Bellevue Hospital Medical College, New York City and:

- (a) Regent's certificate.
- (b) Application form.
- (c) Examinations only for advanced standing.
- (d) No answer.
- (e) In person only.

Buffalo, University of:

- (a) State Regents.
- (b) Application form.
- (c) State Regents.
- (d) State certificate.
- (e) In person or by mail.

Cincinnati, University of:

- (a) State examiner; catalog requirements.
- (b) Blank required.
- (c) No entrance by examination.
- (d) Detail record required.
- (e) Personal registration preferred.

Colorado, University of:

No formulated replies to any questions on the ground that institution is in state of transition.

Columbia University:

- (a) Certificate from college of issuance accepted.
- (b) Regular form.
- (c) No entrance by examination.
- (d) Certificate of college accepted with detailed statement of credits.
- (e) In person only.

Dartmouth Medical School:

- (a) College requirements only.
- (b) Not specified.
- (c) Examinations held by Secretary at opening of the session.
- (d) Card record with gross credits.
- (e) In person.

Georgetown University:

- (a) Certificate with exact detail and full particulars required.
- (b) Comprehensive form.
- (c) Official examiner.
- (d) Detailed credits required on official certificate.
- (e) Registration in person.

Harvard Medical School:

- (a) Official statement from college of graduation or at which work has been accomplished.
- (b) Application form to be used hereafter.
- (c) No admission by examination.
- (d) Only gross credits.
- (e) In person.

Howard University:

- (a) School certificate accepted, but regular form in force.
- (b) Regular form.
- (c) No regular examiner; A. A. M. C. examination recognized.
- (d) Full detail required.
- (e) In person.

Illinois, University of:

- (a) Certificate in force.
- (b) No formal blank.
- (c) Examination conducted by Registrar from questions derived from various departments.
- (d) College credits accepted as sent.
- (e) In person.

Indiana, University of:

- (a) Transcript of original record required.
- (b) No regular form.
- (c) No entrance by examination; transcript of record considered sufficient.

- (d) No detailed credits required, but gross credits are checked against college catalog issuing same.
- (e) In person.

Leland-Stanford University:

- (a) Certificate of college work (three years).
- (b) Form employed.
- (c) Examination only upon satisfactory credits.
- (d) Detailed credits required.
- (e) In person.

Louisville, University of:

- (a) State examiner's certificate.
- (b) Regular form employed.
- (c) Examinations by representative of Kentucky State Board.
- (e) In person.

Michigan, University of:

- (a) Not answered.
- (b) Not answered.
- (c) Not answered.
- (d) Not answered, but, from catalog statements, it is presumed that college records are required in detail.
- (e) Not answered.

Minnesota, University of:

- (a) Certificate with exact detail of instruction required.
- (b) Blank form employed.
- (c) Examinations conducted by Registrar.
- (d) Credits in detail set forth by sending institution.
- (e) In person.

Mississippi, University of:

- (a) No formal blank for Medical Department; fourteen high school credits must be established.
- (b) General form employed.
- (c) Examination by Committee of Academic Colleges.
- (d) College credits set forth in detail.
- (e) In person.

Missouri, University of:

- (a) Detailed certificate required.
- (b) No application form.
- (c) Systematic examinations under formal examiner regularly appointed by Faculty.
- (d) Detailed college credits required.
- (e) In person.

North Carolina, University of:

- (a) Regular certificate passed upon by Faculty Committee.
- (b) Regular form.
- (c) Not answered.
- (d) Gross credits.
- (e) In person.

North Dakota, University of:

- (a) Admission certificate not employed; credits must be established.
- (b) No application form except for advanced standing.
- (c) Exceptional cases receive examination.
- (d) Gross credits; catalogs used for checking.
- (e) In person.

Pennsylvania, University of:

- (a) Regular form with detail.
- (b) Regular form.
- (c) Examinations seldom given except for advanced standing.
- (d) Gross credits only.
- (e) In person only.

Pittsburgh, University of:

- (a) Regular form.
- (b) Admission certificate only.
- (c) No answer.
- (d) No answer.
- (e) No answer.

Rush Medical College:

- (a) Two forms, one for regular admission, one for advanced standing.
- (b) Regular form.
- (c) Most students enter by certificate; necessary examinations conducted by special department of examiners.
- (d) Detailed credits.
- (e) In person.

Starling-Ohio University:

- (a) Certificate from State Examiner.
- (b) Form employed.
- (c) Not answered.
- (d) College credits not required until 1914.
- (e) May matriculate by mail.

Syracuse University:

- (a) No certificate.
- (b) No form.
- (c) Not answered.
- (d) College credits set forth by school of issuance accepted on their merits.
- (e) In person.

Texas, University of:

- (a) Certificate in detail required.
- (b) Form employed.
- (c) No entrance by examination.
- (d) College credits required in detail.
- (e) In person or otherwise.

Tufts Medical College:

- (a) Certificate in detail required.
- (b) Form employed.

- (c) Hitherto entrance examinations conducted by college authorities; with 1914-15 no admission by examination.
- (d) Detailed credits.
- (e) In person.

Tulane University of Louisiana:

- (a) Certificate with detailed record required.
- (b) No application form; student is not permitted to make out his own credits.
- (c) Examinations for entrance are held by the authorities of the College of Arts and Sciences and cover all subjects embraced in the entrance requirements for the School of Medicine. Examinations held before opening of session. Regular form employed.
- (d) Hitherto college credits have been accepted in gross. Hereafter detailed credits required.

Utah, University of:

- (a) Regular certificate, but certificate of school of attendance accepted.
- (b) No form.
- (c) Examinations by regular Committee held during days of registration; regular form.
- (d) College credits in detail.
- (e) In person.

Vanderbilt University:

- (a) Regular certificate.
- (b) Regular blank.
- (c) No entrance by examination.
- (d) Detailed credits.
- (e) Matriculation by mail permitted.

Virginia, Medical College of (Richmond):

- (a) Certificate of State examiner.
- (b) Regular form.
- (c) Official examiner. Held in first week of college session.
- (d) Detailed credits.
- (e) Matriculation by mail permitted.

Washington University:

- (a) Certificate of college of issuance accepted.
- (b) Regular form.
- (c) No entrance by examination.
- (d) Detailed credits required.
- (e) In person.

Western Reserve University:

- (a) No certificate; credits from college of issuance accepted.
- (b) Registration blank but no form for application.
- (c) No entrance by examination.
- (d) Only gross credits.
- (e) Mail matriculation permitted.

Wisconsin, University of:

- (a) Regular certificate.
- (b) Same as certificate.

- (c) Not answered.
- (d) Transcripts of work in detail required.
- (e) In person.

Yale Medical School:

- (a) No printed form; certificate of college of issuance accepted.
- (b) No form. Admission card as a matter of record.
- (c) No entrance by examination.
- (d) Detailed credits required.
- (e) In person.

There is no uniformity in the method of establishing entrance credits. Most colleges use some form of certificate, all more or less alike in their general make-up, but with various interpretations. High schools are accepted as standard without referendum to any authoritative source of final standardization. With differing standards for the high school curriculum, pedagogic principles involved and with so widely separated geographic territories involved, no systematic basis can be formulated until some central authority, like the Carnegie Foundation, the General Education Board or a National Examining Board will provide a list of acceptable high schools, derived from the whole of the United States. Some States rely upon the certificate of an official who is employed to pass upon credits; other States are satisfied with a certificate from a State examining board, often political and not academic in its make-up.

The credits for college work are mostly accepted upon the estimate of the college issuing them. Most colleges requiring one or more years of college work accept gross credits and do not require detailed statement of laboratory periods. No standard form of requirements seems to be in use.

The Committee concludes as regulations have been promulgated by this Association covering the basis for entrance credits either from the high school or the college that some systematic forms should be devised by which all colleges in membership should have uniform methods of evaluation of credits, so set out that the student transferring from one college to another might do so with credits easily understood as standard.

Question 2—Please give detailed statement of courses required in each year of your required periods for an M. D. degree. State each branch and what it comprises and the hours required in each subject. State as far as you can the scope of laboratory work in each laboratory course and if your various departments use synoptical methods kindly send outline of the technique employed.

Question 3.—Would you suggest any changes in the present arrangement of your work and, if so, would you state these in particularity?

Many correspondents replying to these questions referred the Committee to the catalogs of the institutions; a large number specifically outlined the subjects in each year.

In reviewing these a general basis of similarity could be concluded, all conforming in greater or less degree to the curriculums established by the Council on Medical Education of the A. M. A. and of the Association of American Medical Colleges. Only two of the colleges solicited

were apparently willing to go into the detail of synoptical methods employed in instruction and, therefore, it is impossible for the Committee to formulate any real comparison.

The general conclusion must be drawn that each college arranges its work for each year upon a plan which suits its own opportunities best and that the schedule of work with its execution is not arranged with a view to co-ordinating with other institutions.

The number of hours in each year varies considerably, as does the distribution of subjects of instruction. The curricular distribution of instruction over four years has been agitated and adopted before now, but the absence of any uniformity argues the need of a special report by the Committee on Education and Pedagogics with a view to establishing a basis through which the credits from one college may be acceptable on their face value to another college of the same rating.

Question 4.—

(a) Is your work in any year or years arranged in half year periods so that a student may transfer in any year from another college to your college?

(b) If you permit such transfer, what are the conditions under which a student may be admitted?

A. M. A. Council Recommendations:

(a) Semester and semi-semester scheme desirable, but dividing the calendar year in three or four periods of completed courses would best provide for transference of students in midterm.

(b) Transfers not desirable unless courses have been completed and final examinations held for credit.

Alabama, University of:

(a) No provision; opinion that it would be difficult to arrange.

Baltimore (College of Physicians and Surgeons):

(a) No provision.

Bellevue Hospital Medical College, New York University and:

(a) No provision. The rules of the Regents are that no credit can be given except for a full year's work.

Buffalo, University of:

(a) Trimester periods. No special provision for transfers.

Cincinnati, University of:

(a) Arrangement of work permits.

(b) Must present satisfactory evidence of prior work.

Columbia University:

(a) No provision for half year transfers.

(b) Advanced standing allowed on work completed, but without reference to midterm transfers.

Dartmouth Medical School:

(a) A two year school with work arranged in half year periods, except in Anatomy.

- (b) Admission is allowed to applicants satisfying proper credits by certificate or examination.

Georgetown University:

- (a) Arrangement of courses permit, but lack of uniformity in other colleges prevents such transfers.
- (b) Have had no applicants to consider.

Harvard Medical School:

- (a) Such transfers possible in the first two years, with the exception of Medicine and Surgery, where the second year work overlaps the third year.
- (b) Advanced standing only at the beginning of academic year.

Howard University:

- (a) Arrangement of courses permits.
- (b) Admission in midterm conditioned upon satisfactory credits and evidence of necessary work for advancement.

Illinois, University of:

- (a) Arrangement of courses permits.
- (b) Admission dependent upon proper credits for prior work and other conditions which attach to honorable transfer.

Indiana, University of:

- (a) Arrangement of work in trimesters does not permit in first and second years. Third and fourth years in semesters allows transfers.
- (b) Transfers permitted except in fourth year on evidence of proper credits for antecedent work.

Leland-Stanford University:

- (a) Midyear transfers at any time except in last year.
- (b) Satisfactory evidence of completed curriculum of prior work required.

Louisville, University of:

- (a) Work arranged in half year periods.
- (b) Transfers permitted on proper credits and other formalities from school of prior attendance.

Michigan, University of:

- (a) Entrance may be effected only for whole session.

Minnesota, University of:

- (a) No systematic plan at present; new curriculum will facilitate such transfers, which are considered desirable.

Mississippi, University of:

- (a) Tri-semester division; no transfers allowed hitherto.

Missouri, University of:

- (a) Work arranged in half year periods, permitting transfers.
- (b) Transfers allowed on satisfactory evidence of credits for prior work.

North Carolina, University of:

- (a) No provision.

North Dakota, University of:

- (a) Work not planned for transfers, but
- (b) Transfers would be decided on individual case.

Pennsylvania, University of:

- (a) No provision for transfers.

Pittsburgh, University of:

- (a) Quarterly system prevails, but transfers are not allowed except for full terms.

Rush Medical College:

- (a) Quarterly system permits transfers, which are
- (b) Permitted from recognized schools with credits for work equivalent to that at Rush.

Starling-Ohio University:

- (a) No provision permitting transfers.

Syracuse University:

- (a) Arranged in semesters, but not so that transfers can be effected.

Texas, University of:

- (a) Arrangement of schedule does not permit of transfers, and
- (b) At present students are not admitted in midsession.

Tufts Medical College:

- (a) Arrangement of courses does not permit of transfers in midterm.

Tulane University of Louisiana:

- (a) Curriculum of third and fourth years is arranged for concentration courses so that students may enter from institutions with like schedule. Some subjects of the first and second years are likewise arranged, but at present transfers could not be undertaken in the first two years.
- (b) Students transferring would be required to submit evidence of work accomplished covering the same detail and requirements as demanded at Tulane. Some students of Tulane actually complete half the third year or fourth year in the first or second semester and return at the same time one year deferred for the completion of the unfinished part of their course.

Utah, University of:

- (a) Arrangement of courses may permit, but no provision for transfers is made.
- (b) Students with proper credits for advanced standing may be transferred.

Vanderbilt University:

- (a) Arrangement of work would allow but the institution does not permit of transfers in midterm.

Virginia, Medical College of (Richmond):

- (a) Arrangement of courses and regulations do not permit.

Washington University:

- (a) Tri-semester periods. A student fulfilling requirements of institution might enter during the year.
- (b) Same regulations apply as for advanced standing.

Western Reserve University:

- (a) Semester arrangement, but courses do not terminate at end of first semester, making it practically impossible for transfers.

Wisconsin, University of:

- (a) No provision at present.

Yale Medical School:

- (a) Half year periods provided, but
- (b) Transfers not permitted.

It would seem that there is room for entertaining the value to be placed upon students migrating from one college to another in midterm. Often potent reasons are advanced for such transfer and enough colleges permit such to argue the recognition of this practice where the curriculum will allow it.

Question 5.—What curricular outline do you propose for the projected fifth year when it is required? (Please give as much detail as you can.)

Question 6.—Does your institution propose to require a fifth or sixth hospital year? Is the hospital year to be required before or after graduation (with added credit)? If your school will require a hospital year, in what way will you satisfy this requirement?

- (a) Name or names of hospital or hospitals;
- (b) State the detail of work to be demanded of intern;
- (c) State how you expect to grade hospital work from the college point of view.

A. M. A. Council Opinion:

Fifth year to consist of

- (a) Internship of at least twelve months in an approved hospital.
- (b) Twelve months (at least) of thorough approved clinical work in the direction of one of the specialties.
- (c) At least twelve months' work in one of the well-established public health courses looking towards the degree of Doctor of Public Health.
- (d) The question of special research courses for those who do not intend to practice needs further consideration.

A fifth year course should entertain a preparatory year in the College of Arts and Sciences with the sixth year as a hospital year.

A provisional list of acceptable hospitals is in course of preparation.

The detail of work to be demanded of the intern has not yet been worked out.

The detail for grading hospital work from the college point of view has not yet been worked out.

Alabama, University of:

Hospital internship with some practical work.

Fifth or sixth hospital year not contemplated at this time.

Baltimore (College of Physicians and Surgeons):

Hospital and clinical laboratory work.

Fifth or sixth hospital year not arranged for at present.

Whether before or after graduation, unimportant.

Mercy Hospital named.

Bellevue Hospital Medical College, New York University and:

Fifth year not to be required.

Fifth or sixth year not proposed; therefore, no consideration of question as to requirement before or after graduation.

Buffalo, University of:

Fifth year of intern work advocated and prepared to enforce it as soon as State laws permit. A small number of students might be excepted for public health work or for pathology in the laboratory. Best for all, however, to follow intern plan.

Before graduation.

Hospitals named: Buffalo General Hospital, Erie County Hospital, Sisters of Charity Hospital. Other hospitals in neighboring cities and in Buffalo. Ninety-five per cent. of graduates become interns.

Hospitals in State should be registered and inspected, under the control of State examining boards or State medical society, or State Department of Health. The intern should work under the supervision of the medical staff of the hospital.

Cincinnati, University of:

Not answered.

Columbia University:

No plans formulated for a fifth year; the question at present under discussion.

The fifth year will be under hospital control but, also, under college control. Fees to be paid to college, which college will satisfy by meeting hospital charges, etc.

The possibility of substituting a fifth laboratory year for the hospital year in exceptional cases is being discussed. Fifth hospital year proposed. Possibility of M.B. degree at the end of fourth year and M.D. degree at end of fifth or hospital year.

Hospitals named: Presbyterian, St. Luke's, Bellevue, German, Mt. Sinai, with clinical work at the Vanderbilt Clinic.

Intern work demanded: Junior work under residents as regular members of staff.

Hospital work graded: Proposed that those hospitals will be accepted for fifth year only under attending staff who hold professorships of Clinical Medicine and Surgery at Columbia.

Dartmouth Medical School:

Two year school.

Georgetown, University of:

Wholly hospital work. Fifth hospital year to be required provided the Association adopts this standard; should be required before graduation.

Hospitals named: Georgetown University Hospital, Providence Hospital (Washington), Garfield Hospital (Washington), St. Francis Hospital (Jersey City), St. Elizabeth's Hospital (Youngstown, Ohio), St. Francis Hospital (Trenton, N. J.), St. Francis Hospital (Tacoma, Washington), Emergency Casualty City Hospital (Washington, D. C.).

Intern work demanded: Agreement to be made with hospital authorities to formulate records in the various divisions of hospital work covering laboratory and post mortem work, as well as clinical features. Desirable to require a summary of the clinical work accomplished.

Grading hospital work: From college point of view, a thorough cooperation between the hospital staff and the college, where the hospital is not a part of the University, is desirable.

Harvard Medical School:

While the faculty of the Harvard Medical School endorses the idea that service as an intern in an approved hospital should be considered an essential part in the training of a physician before he enters upon the practice of the profession and recommends that State licensing boards require such a year of hospital service of all applicants for registration before they are permitted to come before the Board, the Harvard Medical School is not at present prepared to incorporate a fifth year in its curriculum.

Howard University:

Curricular outline:

- (1) Clinical work in hospital ward;
- (2) Laboratory diagnosis covering excretions and stomach contents;
- (3) Cadaveric work as related to Anatomy; autopsies. Presentation and discussion of cases before organized hospital societies. Reference work in library. Practical work in Laboratory of Hygiene and Dietetics.

Hospital year: No arrangements for a fifth hospital year; if arranged, it would have to be given by us before graduation, as the majority of our students are colored and the opportunities for internships are limited.

Hospitals named: Freedman's, Kansas City, Tuskegee, Mercer, Frederick Douglass.

Work demanded of intern: Examination and care of patients; dressings, anesthetics; assisting and acting at operations under guidance of attending surgeons.

Grading of hospital work: If obligatory, students should be graded on the hospital work, attendance, amount and character of work. It would be better to make the hospital year under the direction of the school rather than an intern year. If made an intern year there will be no way of telling how much work is done or how it is done; the schools would have no supervision over the intern.

Illinois, University of:

No consideration of question stated.

Indiana, University of:

Curriculum of fifth year should be in the hospital immediately under the supervision of the University Faculty. The students should devote the year to one line of research related to ward work but embodying laboratory research, and in reviewing literature.

The year in the hospital does not mean much unless the student has a specific problem on which to work.

As an intermediate step the degree of Bachelor of Medicine might be awarded at the end of the fourth year; Doctor of Medicine might be given at the end of one or two hospital years of combined ward and university work. A fifth year is proposed and, if possible, a sixth.

M.B. degree proposed with M.D. after hospital year.

Hospitals named: University Hospital and the City Hospital, under control of the University Faculty.

Intern work demanded: Routine care of patients, with further study of selected cases. No small part of the intern's work should be the supervision of the fourth year medical students assigned to his ward. Graded hospital work: A well-organized hospital service should rank as laboratory work, but this will be justified only after the interns have good supervision from residents.

*Leland-Stanford University:**Fifth year:*

1. That all students spend the fifth year as internes in the University service or in an accredited hospital unless, on account of special qualifications, they are permitted by the Faculty to spend their fifth year in other work.
2. That the requirements of an accredited hospital be the following:
 - (a) That it be a general hospital with rotating intern service in which all major departments of medicine are represented.
 - (b) That the hospital show to the satisfaction of the Medical Faculty that there is sufficient clinical material.
 - (c) That it possess a proper system of keeping clinical records.
 - (d) That it have a regular staff in all clinical departments, that regular rounds be made and that physicians in charge of the services undertake the duty of giving instruction to the interns.
 - (e) That it possess proper facilities for the scientific investigation of their cases. Committee especially desires that the hospital have
 - (a) a well-equipped clinical laboratory with a resident pathologist.
 - (b) a well-equipped X-Ray department with a competent actinographer in charge.
 - (f) That there be a resident physician and, if possible, a staff of senior interns.
 - (g) The Faculty reserves the right to discontinue sending student interns to an accredited hospital at any time.

3. That at the completion of the fifth year, the students shall be required to pass clinical examinations in Medicine, Surgery, and Obstetrics, provision for such examinations to be made by the executive heads of the divisions.

4. That the students be permitted to complete their thesis in the fifth year.

Fifth hospital year with students entering in September, 1914.

Hospital year before graduation.

Hospitals named: Lane Hospital, St. Francis Hospital.

Work demanded of intern and grading of hospital work stated above.

Louisville, University of:

Fifth year not yet arranged.

Fifth hospital year as soon as possible, preferably after graduation.

Hospitals named: Louisville City Hospital and other hospitals in St. Louis. Miscellaneous hospitals in other States.

Intern work demanded: If the class is too large for available internships, a course of instruction in the hospital will be provided equal to one year's hospital training.

No consideration of grading of hospital service.

Michigan, University of:

Fifth hospital year not yet required. It is proposed. Not yet decided as to whether it will be before or after graduation.

Hospitals named: Sixty odd hospitals have been examined and approved by Faculty and any graduate may take work in any of these hospitals.

Other detail not furnished.

Minnesota, University of:

The hospital year goes into effect with the 1515 class. The M.D. degree is to be given only to students who have served the hospital year.

Hospitals named are: University Hospital, Minneapolis City Hospital, St. Paul City and County Hospital.

Requirements for interns are not yet worked out, but the sentiment proposes a thesis upon the work in the hospital as a part of the requirement. Some member of each hospital staff should be made a member of the University Faculty to conduct the intern year.

It is desirable to have hospitals graded from a college point of view. The problem is complex.

Mississippi, University of:

A two year school.

Missouri, University of:

A two year school.

North Carolina, University of:

A two year school.

North Dakota, University of:

A two year school.

Pennsylvania, University of:

Fifth year not contemplated.

The State of Pennsylvania, through its medical examiners, requires a hospital year.

No information on other topics.

Pittsburgh, University of:

Defers the question of a fifth year and a hospital year to the requirement of the State of Pennsylvania through its medical examiners that graduates in medicine before licensure must have served one year in a hospital.

No answers to specific questions as to interns, etc.

Rush Medical College:

No specific curriculum proposed for the fifth year, which has been offered since 1905. The course covers graduate work with intern service and provides for a thesis and examination with Faculty supervision of the work of the student at all times. A fifth year will be required on or after June 1918. The fifth year now leads to the *cum laude* degree. The hospital year is required for graduation.

Hospitals named: Presbyterian, Children's Memorial, Home for Destitute Crippled Children, Cook County Hospital, St. Luke's Hospital, Michael Reese, and "many others."

Hopes to secure information and aid from the investigation of hospitals now being made (believed) by the Carnegie Foundation.

Detail of intern work is formulated.

Grading of Hospital work: On reports from members of the staff as extra mural members of the Faculty to be personally responsible for the supervision of the interns' work and for their instruction by the staff. Further requirement of a thesis embodying original work or examination are qualifications for medical practice.

Starling-Ohio University:

A fifth year not contemplated. If required, should be strictly clinical, with, perhaps internship in a hospital. In the present conditions of hospitals impossible to make a requirement with satisfactory results. Is a matter for State boards, who should take the initiative.

Other questions not discussed.

Syracuse University:

Voluntary service as intern preferred. No provision at present or contemplated for fifth or hospital year. Some state or national body should evaluate hospitals and grade them.

Texas, University of:

Fifth year neither contemplated nor planned, either as a hospital year or otherwise. If required, the hospital year should be taken as an internship after graduation. Not more than 60 per cent. of the graduates of this school can be provided for with hospital appointments if required at this time.

Hospital named: John Sealy Hospital, at Galveston, with six internships, is the only hospital work under control.

Grading hospital work: "We are unable to see how this can be done in the South and West with the antagonism which exists in many hospitals and the lack of affiliation with medical schools. The University should not be expected to give credit for work which it cannot control in any way."

Tufts Medical College:

A fifth graded clinical year in addition to the present course is not desirable. Ninety per cent. of the graduates of this school take voluntary internships. Fifth or sixth hospital year not required.

Hospital connections at present allow clinical clerkships; no internship relation.

Intern work should consist in assignments of fixed periods in the divisions of the hospital with a view to equipment for general practice. Systematic histories and examinations should be made which should be scrutinized by the staff.

Tulane University of Louisiana:

Now requires a preliminary medical year which could readily be incorporated in a plan for a five years' course without stretching the present curriculum.

Tulane has never favored a hospital year as a part of the requirement for graduation. It has favored a fifth clinical year providing hospital experience without residence in the clinical branches, including the specialties which are neglected in every medical curriculum. An outline should provide for elective work with a definition of the courses in detail, with such laboratory divisions as would expand the knowledge and broaden the training of the student. The fifth year is not necessary for the curricular degree but would be useful for creating a greater efficiency in the graduates of the school.

A fifth or sixth hospital year is not proposed at Tulane and would not be entertained as preparation for graduation unless it were demanded by the authorities determining the standards for classification of medical colleges. We believe that our students receive an equivalent in clinical training which is superior to that gathered by interns in many hospitals. The lack of control of hospitals by most medical colleges and the inability to grade the work of interns on any basis at present known precludes the possibility of fixing the responsibility for intern training to a point which would allow credit of any academic character.

Hospitals named: Tulane places its interns in the New Orleans Charity Hospital, New Orleans Touro Infirmary, Shreveport (La.) Charity Hospital, St. Louis City Hospital (St. Louis, Mo.), state hospitals at Vicksburg, Natchez and Jackson, in Mississippi, and local hospitals in other Southern States. Tulane graduates are also successful candidates at hospitals of New York City.

Utah, University of:

Two year school. Expresses the opinion, however, that hospital requirements should be in the hands of state board examiners and not medical colleges.

Vanderbilt University:

No outline completed for fifth year at this time. Hospital year being considered; most likely, after graduation.

No hospitals named at present.

Intern work demanded to be worked out.

Hospital work can be graded when hospitals are classified in the same manner that medical colleges are.

Virginia, Medical College of (Richmond):

No outline as yet. Fifth year not proposed.

Other questions not answered.

Washington University:

No curriculum for a projected fifth year at present required.

Other questions not answered.

Western Reserve University:

Fifth year is individual on basis of a graduate school. Each man must present a thesis on some original work, either in laboratory or clinical line.

Sentiment is now against the fifth or sixth hospital year.

Hospital year should be taken after graduation and credited toward degree of A.M. in medicine.

Hospital work graded: "This is the thing that seems to make it practically impossible to put the hospital year in the curriculum."

Wisconsin, University of:

Two year school.

Yale Medical School:

The faculty favors the fifth year requirement, but would be best administered as a state board rather than as a medical school requirement.

No outline, therefore, has been planned for the fifth year. It is likely that when hospitals have been classified, a fifth year will be required, probably after graduation and in a hospital of a specified class.

Other questions cannot be answered at present.

In summing up the opinions as expressed by the various colleges, it would be difficult to conclude that a required fifth year was understood; more than this, it would seem that a larger number of colleges were not prepared to undertake a fifth year; some colleges frankly declare that they have neither plan nor intention of providing a fifth year.

With the exception of perhaps four colleges, none of those contemplating a fifth year have a clear idea of what the fifth year is to embrace. The fifth hospital year seems to be the most popular construction, but, again, it is a very small number of colleges that have any idea of what is to constitute the hospital year; the large majority is decidedly of the opinion that more must be known about hospitals before a fifth hospital year can be undertaken as a part of the medical course.

The only lucid points brought out by the correspondence are the following:

- 1°. A fifth clinical year is desirable, whether an intern year or not.
- 2°. The question of a five year course might be solved by conferring the M.B. degree at the end of the fourth year and the M.D.

degree after one clinical or hospital year, provided the work of the extra year is accomplished under the direction and supervision of the college conferring the degree. One college already gives the *cum laude* degree and another college suggests crediting hospital work as graduate work towards the M.A. degree.

- 3°. An inconsiderable number of the colleges propose a required hospital year *before* graduation; practically all colleges agree as to the difficulty of providing hospital positions for all graduates in institutions under the direction or control of the college itself. Most graduates are compelled to seek appointments in cities more or less removed from the location of the college of graduation.
- 4°. The opinion is almost unanimous that the intern work cannot be graded on any common standard at this time and that all credits, even where earned, will depend upon indirect evidence of work, at best difficult to evaluate.
- 5°. Considerable opinion is expressed to the effect that the college should have nothing to do with the hospital year as intern, and that this should be a matter for state examining boards, entirely.

The conclusions are that very few colleges want a fifth year and that the large majority of the colleges in membership will not inaugurate a fifth year as a part of the regular curriculum, unless forced to do so; that the available hospital provisions under college control or direction will prevent any general adoption of a hospital year as part of the college course, no matter how much it may be desired.

Question 6 (continued).—Will you express an opinion as to the method and desirability of making the fifth year elective so far as the subjects undertaken are concerned, but that a specified number of subjects should be taken with specified number of hours in the total, divided among a required number of major and a required number of minor subjects?

Will you also state an opinion upon such a fifth year (or sixth year) as taking the place of a required intern year?

Alabama, University of:

No opinion expressed.

Baltimore (College of Physicians and Surgeons):

Fifth year at hospital, clinic and laboratory.

Bellevue Hospital Medical College, New York University and:

No opinion expressed.

Buffalo, University of:

No substitute for a year spent as hospital year should be accepted, with possible exception of outlet for public health work.

Cincinnati, University of:

Not answered.

Columbia University:

The possibility of a fifth laboratory year instead of a hospital year in exceptional cases is being discussed.

Dartmouth Medical School:

A two year school.

Georgetown, University of:

Experience best secured in a hospital.

Harvard Medical School:

The fourth year is at present elective along lines suggested and is successful.

Howard University:

At present better to make fifth year to consist of a number of electives.

An intern year might be accepted as equivalent to such an elective year. This elective year would provide for those students unable to secure internships.

Illinois, University of:

No opinion expressed.

Indiana, University of:

For students not expecting to practice medicine, the fifth year should be strictly university work. This year should be recognized just as the last year of a university course for the M.D. degree.

For students expecting to practice, the hospital year should precede graduate courses.

Leland-Stanford University:

Consider the required intern year essential. Fourth year already partially elective.

Louisville, University of:

Intern year preferable.

Michigan, University of:

No opinion expressed.

Minnesota, University of:

A year spent in the laboratory, in advanced work or research, under proper supervision, should be acceptable in place of the intern year, especially from students who may think of medical teaching instead of practice. Each individual case should be settled separately.

Mississippi, University of:

A two year school; concurs in the view that a hospital year ought not to be required until hospitals are standardized or graded from college point of view.

Missouri, University of:

A two year school.

North Carolina, University of:

A two year school.

North Dakota, University of:

A two year school.

Pennsylvania, University of:

Hospital year desirable and if required should be after graduation.

Generally opposed to a required fifth or postgraduate year as a part of the requirement for a degree. Such work should be optional and the hospital year should be a matter for state examining boards.

Pittsburgh, University of:

No opinion expressed.

Rush Medical College:

A year of special research should be an alternative for the few students who are planning careers as teachers. For intending practitioners there is no substitute for the service as intern; it might be well for the teacher to take hospital service.

Starling-Ohio University:

No opinion expressed.

Syracuse University:

Intern service preferable.

Texas, University of:

Intern year should be required by state board of examiners and not by the medical college.

Tufts Medical College:

Intern service desirable; objection to graded fifth year on ground that it is a mere continuation of the four years already completed.

Tulane University of Louisiana:

Have always had a considerable percentage of juniors and seniors as interns in New Orleans hospitals until three years ago, when only graduates were admitted. Fully 65 per cent. of each class enter hospitals voluntarily. The opinion prevails that no student after four years has obtained enough clinical work to qualify him fully for practice. No hospital training, familiar to the faculty of Tulane, no matter where the hospital is located, can satisfy college credits towards a degree. If a fifth year is to be required, it should be clinical, making for more efficiency in the special branches and in the clinical fields of medicine, surgery and obstetrics. A fifth year seems desirable if arranged in a graded course in which the clinical side and applied laboratory work are chiefly considered.

The hospital year should follow, apart from the college requirements, and more properly belonging to the regulations of state boards.

Utah, University of:

A two year school.

Vanderbilt University:

Not prepared to express an opinion at this time.

Virginia, Medical College of (Richmond):

Hospital year favored, in conjunction with college work, if desired.

Washington University:

The fifth year, when introduced, should be given chiefly to practical hospital work. The intern requirement should be a matter of state boards.

Western Reserve University:

No definite opinion.

Wisconsin, University of:

A two year school.

Yale Medical School:

Not yet considered by faculty. Opinion prevails that elective year would not take the place of an internship.

The preponderating objection to an elective fifth year as replacing the intern year apparently disposes of this question; but as State Boards of Examiners are yet debating the alternative it would be well to entertain the question as one simply laid on the table and not entirely relegated.

If and when the hospital year is required either before the degree is conferred, or after the degree with added credit, there must be provision in acceptable hospitals for all graduates who hope to qualify before state boards. It seems unlikely that this hospital provision will come for some time, and even if there are enough hospitals of proper grade to supply places for interns, the further condition is evident that there must be concert or agreement with medical colleges, by which proper work may be afforded and proper supervision enforced so as to satisfy the necessary credits.

In the meantime a considerable percentage of graduates will be without hospital appointments, and without an alternative to offer state boards or even the colleges requiring the intern year. Some state boards accept this position as one needing provision and the postgraduate year of clinical work done at a hospital, or a year in research or public health service is accepted.

The intern must have exceptional place in a well-organized hospital to get all the clinical work he needs, and it is not an uncommon thing for the clinical student, not an intern, to get a larger variety of work than does the intern.

The question has been submitted in good faith as one of a number imminent in the medical problems of to-day and it has met with a fair consideration.

No deductions drawn from a list of questions such as here outlined and answered from so many points of view can be considered as conclusive of any opinion. They only show the trend of thought of those concerned.

The changes in medical education in the past ten years have been too rapid in this country to permit anyone to make any analysis at this time which would be comprehensive, for we are still in the stage of transition and no one knows what the next ten years may bring.

We may be going too fast, however, in the determination of methods and even standards. In our reach for the ideal we are prone to take the point of view of the educator and to forget entirely the point of view of the one most interested in the educational side, at least, namely the student.

The study of medicine is undoubtedly more and more attractive, but the necessary preparation for the final gratification grows difficult in its detail, more expensive in its execution, and the student is more inclined

to pause than ever before. His time and his money are concerned as well as his capability to undertake the task.

Your committee has undertaken no new thing in this report, but in the endeavor to burnish up old themes and some more recent, we trust that the material may bring some ultimate profit.

Respectfully,

(Signed) ISADORE DYER, Chairman, Tulane University of Louisiana
JAS. R. GUTHRIE, University of Iowa
WM. P. HARLOW, University of Colorado
WM. C. BORDEN, George Washington University
KENDRIC C. BABCOCK, University of Illinois

Dr. Le Fevre moved that the report be received and ordered published in the Transactions. Seconded and carried.

REPORT OF COMMITTEE ON MEDICAL RESEARCH

The report of this committee, which was now called for, was presented by the chairman of the committee, Dr. Opie.

REPORT OF COMMITTEE ON MEDICAL RESEARCH

The Committee on Medical Research, assuming that the establishment of this standing committee has had for its purpose the protection of research from the attack of those opposed to animal experimentation, believes that the events of the past year require no detailed report.

Antivivisection bills have been introduced as usual before the legislatures of certain states but the profession in these states has had little difficulty in demonstrating to legislators the humanitarian purpose and value of animal experimentation and the harmful nature of the proposed laws. During the last session of the legislature of Pennsylvania several bills proposed by Antivivisectionists were defeated. Furthermore, a law to permit biological laboratories and medical schools to purchase animals from the public pounds was favorably reported out of committee but was defeated in the House. The activity of antivivisection agitation several months ago in Philadelphia is illustrated by the arrest of six members of the Medical Staff of the University of Pennsylvania on charges of cruelty to animals. They were indicted by a grand jury last Fall. One of these cases will be tried shortly.

An Antivivisection and Animal Protection Congress was held in Washington during December, 1913. At this Congress and in recent newspaper propaganda the claim has been made that certain methods in wide use for diagnosis and treatment are wantonly used for experimental purposes. The use of tuberculin and luetin has been violently attacked and unjustifiable attempts have been made to emphasize suggestions that its use may be dangerous. At an antivivisection exhibit recently opened in Philadelphia, the operation of lumbar puncture is cited as evidence of human experimentation. The illustration is particularly ill-chosen in view of recent demonstration that this thoroughly established method of diagnosis has in directing treatment immense value as a life saving agency.

An editorial in the *Journal of the American Medical Association* justly says: "The medical profession wholly repudiates and regards with abhor-

rence the employment of any procedure whatever which is in any way likely to injure rather than benefit a patient who has intrusted himself or who has been entrusted to a physician's care. Such action would be absolutely at variance with the prime object of medical service—the welfare and the restoration of the sick.”

The attitude of the medical profession is forcibly stated in the resolutions adopted by the Federation of American Societies for Experimental Biology on Dec. 31, 1913.

1. “We, the members of the Federation of American Societies for Experimental Biology—comprising the American Physiological Society, the American Society of Biological Chemists, the American Society for Pharmacology and Experimental Therapeutics, and the American Society for Experimental Pathology—in convention assembled, hereby express our accord with the declaration of the recent International Medical Congress and other authoritative medical organizations, in favor of the scientific method designated properly animal experimentation but sometimes vivisection.

2. We point to the remarkable and innumerable achievements by means of animal experimentation in the past in advancing the knowledge of biological laws and devising methods of procedure for the cure of disease and for the prevention of suffering in human beings and lower animals. We emphasize the necessity of animal experimentation in continuing similar beneficent work in the future.

3. We are firmly opposed to cruelty to animals. We heartily support all humane efforts to prevent the wanton infliction of pain. The vast majority of experiments on animals need not be and, in fact, are not accompanied by any pain whatsoever. Under the regulations already in force, which reduce discomfort to the least possible amount and which require the decision of doubtful cases by the responsible laboratory director, the performance of those rare experiments which involve pain is, we believe, justifiable.

4. We regret the widespread lack of information regarding the aims, the achievements and the procedures of animal experimentation. We deplore the persistent misrepresentation of these aims, achievements and procedures by those who are opposed to this scientific method. We protest against the frequent denunciations of self-sacrificing, high-minded men of science who are devoting their lives to the welfare of mankind in efforts to solve the complicated problems of living beings and their diseases.”

The committee furthermore wishes to urge on the membership of this Association the wider use of post mortem examination as a means of increasing the value of clinical practice, teaching and investigation. The physician and surgeon can successfully combat the prejudices which prevent the widespread performance of autopsies in hospitals by pointing out that the results of such examinations are essential to the acquirement of maximal efficiency in diagnosis and treatment. Consent for the performance of autopsies can usually be obtained if their value is cogently presented to laymen. In the absence of frequent post mortem examinations there is even today individual risk of return to the indefinite characterization of disease existing centuries ago.

EUGENE L. OPIE (Chairman).
J. S. FERGUSON.

Dr. Le Fevre moved that the report be received and that the committee be instructed to prepare and present later in the session resolutions setting forth the sentiment of the Association on this question. Seconded and carried.

The report of the Committee on Equipment was called for, and the secretary, Dr. Zapffe, stated that the chairman of the committee, Dr. Peterson, had written that the committee had not prepared a report.

REPORTS OF SPECIAL DELEGATES

DR. W. J. MEANS, Delegate to the Council on Medical Education of the American Medical Association, reported as follows:

REPORT OF DELEGATE TO THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

As your delegate to the Council on Education, I beg to state that I attended the business meetings of the Council on Dec. 27, 1913 and Feb. 24, 1914. I was received with courtesy and invited to participate in the discussion of all matters coming before the Council for consideration. Dr. Colwell has kept me in touch with the work going on during the intervals between meetings.

The work of the Council and the Association, being along similar lines, it is exceedingly important that a close relationship should exist between these organizations. One of the important relations is the dual inspection of colleges. This has proven very successful. In this work, Dr. Waite of Western Reserve, a member of the Executive Council, has been associated with Dr. Colwell and me. Familiarity with the work being done by both organizations makes it possible to assist each other and thus reach results that are more satisfactory than where the work is done independently.

With the organizations engaged in promoting the interests of medical education, working in harmony and together, it will be but a few years, judging from the past when the colleges of this country will, with a few exceptions, be doing good work and turning out men of high accomplishments. Hereafter the council will not give a lower rating to colleges in membership in this Association without notice.

(Signed) WM. J. MEANS.

DR. FRED. C. ZAPFFE, Delegate to the Federation of State Medical Boards, reported that the Federation had not met since the last meeting of this Association, and therefore no report could be made.

On motion, both the foregoing reports were received and ordered embodied in the minutes of the meeting.

The discussion of the subjects as announced in the program was now taken up. The first paper was read by Mr. Kendrick C. Babcock on "A Comprehensive Interpretation of the College Credit Requirement. (a) One Year. (b) Two Years. How

Many Conditioned Hours May a Student Be Allowed to Carry in the College Requirements and What Length of Time May He Be Given for Their Removal?"

Mr. Isaac L. Otis discussed the subject of "Who Shall Evaluate the College Credits?"

Dr. John L. Heffron followed with a paper on "What Privileges May Be Given Students Who Matriculated on a Secondary Educational Standard and Must Repeat, by Reason of Failure, to Pass the Year? (Freshmen, Sophomores, Juniors and Seniors). What Should Be the Rule Governing the Admission of Students from Other Colleges to Advanced Standing, Who Were Admitted in Another School on the High School Entrance Requirement?"

The discussion on these three papers was continued by Mr. John Loman, Dr. A. Ross Hill, Dr. Egbert Le Fevre, Dr. William Pepper, Dr. Seneca Egbert, Dr. Wm. J. Means, Dr. W. Ed. Grant, Dr. Brown Ayres, Dr. Burt R. Shurley and Dr. Irving S. Cutter.

Dr. Cutter moved the appointment of a committee of three to consider the evaluation of the credits of the premedical or collegiate year, and the granting of conditions in this preparatory work, and present a resolution covering these points later in the session. Seconded and carried.

The Chair appointed on this committee Mr. Babcock, Dr. A. Ross Hill and Professor Landacre. The Chair suggested that the committee cooperate with Dr. Colwell for the purpose of securing a uniformity with the requirements of the Council on Medical Education.

At this juncture the Chair appointed the nominating committee, consisting of Drs. W. P. Harlow, William Pepper and H. U. Williams.

The Association then adjourned until 2 p. m.

AFTERNOON SESSION

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

Dr. Egbert Le Fevre opened the discussion on the question, "Is It Desirable at This Time to Fix a Date for Two Years' Preliminary College Work?"

The discussion was continued by Drs. R. Winslow, E. P. Lyon, J. M. Dodson, P. G. Woolley, B. D. Myers, A. L. Gray, F. P. Gay, W. C. Woodward and G. W. Hubbard.

Dr. John M. Dodson opened the discussion on "Should a Hospital Internship Be Required as a Prerequisite to Graduation? If so, When Should This Requirement Be Obligatory?"

The discussion was continued by Drs. W. S. Carter, J. L. Heffron and Burt R. Shurley.

On motion of Dr. Means, the Association went into executive session.

Mr. Babcock, the chairman of the Special Committee on Evaluation of Credits and the Allowing of Conditions, reported as follows:

THE 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 requirements 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.

Provided also that a student may satisfy the requirement of French or German by presenting two units of regular high school work in either language and completing a half year of college work in that language, which continues and does not duplicate the work done in the high school, or by presenting three units of regular high school work in French or German.

In the administration of the entrance requirements of the preliminary college year by the members of this Association conditions may be allowed until September, 1917, amounting to not more than one-half of the requirement in physics and one-half of the requirement in a modern language.

All such conditions shall be removed before registration for the second year.

(Signed) KENDRICK C. BABCOCK,
A. ROSS HILL,
FRANK LANDACRE.

Dr. Le Fevre moved the adoption of that portion of the report referring to the evaluation of credits. Seconded and carried.

Dr. Means moved the adoption of that portion of the report referring to conditions. Seconded and carried.

REPORT OF AUDITING COMMITTEE

Dr. B. D. Myers, chairman of the committee, reported that the committee had looked over the report of the treasurer, which was accompanied by proper vouchers, and found it to be correct.

On motion of Dr. Cutter, the report was accepted.

Dr. Means moved the amendment of Article III, Section 1, to conform with the changed and advanced entrance requirements as embodied in the report of the joint committee on schedule and that the Executive Council be instructed to make such changes and publish the amended constitution at its earliest convenience.

Seconded by Dr. Myers and carried.

Answering a query of Dr. Waite, the Chair ruled that the publication of the report of this committee in the 1913 Transactions was considered a formal notice of amendment.

REPORT OF NOMINATING COMMITTEE

Dr. William P. Harlow, chairman, presented the following report:

Your Nominating Committee suggests the following nominations: For president, I. M. Dyer, J. L. Heffron; for vice-president, C. R. Bardeen, R. Peterson; for secretary-treasurer, F. C. Zapffe, B. D. Myers; two members of Executive Council to serve two years, W. J. Means, R. Winslow, C. F. Painter, J. R. Guthrie; one member of Executive Council to serve one year, to fill the unexpired term of Dr. Jackson, E. Le Fevre, W. S. Carter.

(Signed) WILLIAM PEPPER,
HERBERT U. WILLIAMS,
W. P. HARLOW.

Dr. Paul G. Woolley nominated Dr. John M. Dodson for president.

The vote was taken by ballot. The Chair appointed Drs. Opie and Neilson as tellers.

The result was as follows:

President, Dr. Isadore Dyer; vice-president, Charles R. Bardeen; secretary-treasurer, Dr. Fred. C. Zapffe; executive council for two years, Drs. Wm. J. Means and Randolph Winslow; for one year, Dr. Egbert Le Fevre.

On motion, those named were declared duly elected to serve until their successors are elected.

Dr. Opie, chairman of the Committee on Medical Research, suggested that this Association adopt the resolutions on animal experimentation which the Federation of American Societies for Experimental Biology adopted at its last meeting, held in Philadelphia, December 31, 1913. These resolutions were as follows:

(See report of Committee on Medical Research.)

On motion of Dr. Blumer, these resolutions were adopted as suggested by the committee.

The Chair stated that the Association would do all in its power to give publicity to these resolutions and aid all those interested in medical research.

Dr. William C. Woodward moved that the president of the Association be empowered to appoint a committee to cooperate with similar committees from other organizations in the matter of framing a comprehensive scheme for the establishment of a central examining and licensing board in the United States, and to do everything in its power to secure such a board. Seconded and carried.

On motion of Dr. Le Fevre, the regular order of business was resumed.

Here Dr. Le Fevre took the chair, while the president, Dr. Lyon, delivered his address, entitled, "Principles of Curriculum Making."

Dr. Lyon then resumed the chair.

In the symposium on clinical teaching, the following papers were read: "Surgery," Dr. Arthur Dean Bevan; "Obstetrics," Dr. Joseph B. De Lee; "Medicine," Dr. Charles Hugh Neilson.

Dr. H. U. Williams followed with a paper entitled "A Weak Point in Medical Education Revealed by State Licensing Examination." This paper was discussed by Dr. Egbert Le Fevre.

After a few brief remarks by Dr. Lyon, introducing the president-elect, Dr. Dyer, who very graciously thanked the Association for the honor conferred on him by electing him to the presidency, the Association adjourned.

E. P. LYON, *President*.

FRED. C. ZAPFFE, *Secretary*.

MINUTES OF THE EXECUTIVE COUNCIL MEETING

The Executive Council met February 25, 1913, at 5 p. m.

The meeting was called to order by Dr. Means, with the following members of the Council present: W. J. Means, R. Winslow, E. Le Fevre, I. Dyer, F. C. Zapffe, E. P. Lyon and F. C. Waite.

On motion of Dr. Le Fevre, seconded by Dr. Dyer, W. J. Means was reelected chairman of the Council for the ensuing year.

Dr. Le Fevre moved that the secretary of the Association receive an honorarium of \$500 for the next year, and that the chairman of the Executive Council receive \$200 to defray the expenses of his office. Seconded and carried.

Dr. Le Fevre further moved that the expenses of the delegate to the Council on Medical Education, to the meeting of the Council, be paid. Seconded and carried.

The Council appointed as delegate to the Council on Medical Education, Dr. Wm. J. Means, and delegate to the Federation of State Medical Boards, Dr. Fred. C. Zapffe.

Dr. Le Fevre moved that the secretary be authorized to publish in the Transactions the reporter's transcript of all discussions if the original manuscript is not returned by the discussor within ten days after it was submitted to him. Seconded and carried.

Dr. Means announced that the president would be asked to appoint the members of the standing committees, to which there was no objection.

Adjourned.

WILLIAM J. MEANS, *Chairman*,
FRED. C. ZAPFFE, *Secretary*.

OFFICERS AND COMMITTEES FOR 1914-1915

President: DR. ISADORE DYER, P. O. Drawer 261, New Orleans, La.

Vice-President: DR. CHARLES R. BARDEEN, Madison, Wis.

Secretary-Treasurer: DR. FRED. C. ZAPFFE, 3431 Lexington Street, Chicago, Ill.

EXECUTIVE COUNCIL

DR. WM. J. MEANS, 715 N. High Street, Columbus, Ohio.

DR. R. WINSLOW, Baltimore.

DR. F. C. WAITE, Cleveland.

DR. EGBERT LE FEVRE, New York City.

DR. E. P. LYON, Minneapolis.

DR. ISADORE DYER, New Orleans.

DR. FRED. C. ZAPFFE, Chicago.

COMMITTEES

Committee on Education and Pedagogics

W. P. HARLOW, Chairman, University of Colorado, Boulder.

J. R. GUTHRIE, University of Iowa, Dubuque.

K. C. BABCOCK, University of Illinois, Urbana.

W. S. CARTER, University of Texas, Galveston.

R. S. COALE, University of Maryland, Baltimore.

Committee on Equipment

H. C. MOFFITT, Chairman, University of California, San Francisco.

G. LUSK, Cornell University Medical School, New York.

C. R. HOLMES, University of Cincinnati.

Committee on Medical Research

R. M. PEARCE, Chairman, University of Pennsylvania, Philadelphia.

W. B. CANNON, Harvard University, Boston.

A. J. CARLSON, University of Chicago.

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 Rose-dale.

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

Hahnemann Medical College and Hospital, Philadelphia.
 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.

* Now Ohio State University College of Medicine.

* Deceased.