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DEVELOPMENT OF A FIFTH YEAR IN MEDICAL EDUCATION IN THE UNITED STATES*

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The old proprietary medical school in this country taught medicine very badly as viewed by modern standards. There was no attempt even to demonstrate the foundation sciences in laboratories, which, except for the dissecting room and the study of necropsy material, scarcely existed. Chemistry and physiology were taught only in lecture rooms, while bacteriology and pharmacology had not even been discovered. That physicians and surgeons of any ability were trained at all was due entirely to the presence on the teaching faculties of great personalities who, by their precept and their example, dominated the fields of clinical medicine and clinical surgery. Those early schools taught the theory and the practice of medical and surgical art well, so far as they could be taught in the lecture room and at the bedside in hospital wards. A fixed and graded course of instruction of three years' duration was generally adopted about 1886, coincident with the development and addition of laboratories of instruction in the basal sciences of physiology, bacteriology, histology, physiologic chemistry and pharmacology. The course was increased to four years in most schools in the early nineties, at which time the great modern development in the specialties of medicine was added to the curriculum. Strange as it may seem, the chief objectives of a medical education, general medicine and general surgery, remained nearly stationary, so far as methods and time allotted to them are concerned, until they came to represent a minor portion of the curriculum in most medical schools.

About five years ago many schools began to realize this abnormal condition, and in order to return to the more normal conditions existing before the invention of surgical specialties, these fundamental clinical subjects were placed again in a proper relation to the rest of the work of medical education. In conjunction with this reform a more intimate relationship with the general wards of the hospitals has been added to the medical curriculum, and the system of clinical clerkships based on the English plan has been developed in many schools. It is not fair to criticize the amount of time devoted in the present four year course to either the basal laboratory sciences or to the various specialties of medicine or to the fundamental clinical branches,

while the total time needed to fulfil the requirements established by the universities and in some states by the medical practice acts demands of medical students a greater amount of time than it is possible for them to devote to their education without incurring a really measurable menace to their health. The requirement of 4,000 hours of classroom work, divided into four annual courses of thirty weeks each, amounts to more than six hours a day. In some universities the requirement exceeds this minimum, which has been fixed by the laws of several states. If the content of the science of medicine requires such a devoted apprenticeship from its followers, it is fair to conclude, therefore, that the four year course has become inadequate to meet the demands for a curriculum which shall teach medicine adequately on modern lines.

Medical education has reached this stage of its development under the influence of several governing agencies. The medical schools themselves have come largely under university control, and these schools of high grade have been the most potent factor in improving medical education, both by raising the preliminary standards and by improving the methods of instruction and the facilities for education within the schools themselves. A second factor of equal importance and of the greatest possible importance in reducing the number of the low-grade schools which have existed in the United States has been the Council on Medical Education of the American Medical Association, under the leadership of its chairman, Dr. Arthur Dean Bevan. This body has held annual conventions during the past eleven years, and has been the most active agent in the elimination of low-grade schools, and in the struggle for higher standards in medical education. The work of this council was ably seconded by the report of the Carnegie Foundation for the Improvement of Teaching, issued in 1911. The third factor for the improvement of medical education has been found in the state boards of licensure.

The work of these three bodies has usually been in harmony, but the most recent development would seem to indicate that the state boards were pulling somewhat apart from the schools, and from the general profession as represented by the Council on Medical Education. There seems to have arisen a sort of rivalry between various state examining boards to place their particular states on a somewhat higher plane of education and requirement for licensure than is the practice in other states. As long as the state legislatures followed the lead of the Council on Medical Education and prescribed the methods of examination and qualifications of preliminary education, no special harm was done; but when various states began to prescribe the curriculum that should be taught in the uni-

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versities, their action gave rise to endless difficulty, and they were usurping functions which might more properly have been left to the universities. The recognition of the inadequacy of the present four year curriculum to give a competent medical education without detriment to the health of the medical student is primarily a university and not a state matter. Nevertheless, various state legislatures have empowered their boards of medical examiners to correct this error in modern medical education by prescribing a year's hospital practice on the house staff of some approved hospital as a prerequisite for admission to licensure examinations. By this action these states have removed a year of necessary training from the control of the schools of medicine and placed it in the hands of the hospital boards, which, in the past, have been more concerned with the care of their patients than with developing the educational opportunities that are inherent in every hospital service. It would seem to be an amusing paradox, if it were not really a serious matter, that any state should require a year's practice of a prospective physician before admitting that physician to an examination to test his fitness to perform the work of administering to patients in medicine and surgery. Several universities have followed blindly the state examining boards in requiring a year's practice in some recognized hospital as a prerequisite to receiving their degree of M.D. It would seem that this action in accepting a year's work without university control other than a more or less thorough examination of the hospitals involved is a bad educational procedure.

The necessity for adding a fifth year to the present four year medical course is undoubtedly granted by all students of medical education; but such a year when added should remain under university control and should result in a relief to the crowding of the present curriculum. The student in his added fifth year should receive under the supervision of university officials the equivalent of the last of the two years of a hospital internship as at present administered, and not merely the ordinary first year as now made up, in most hospitals, entirely of laboratory and subordinate work without responsibility. This fifth year should give the student of medicine, in addition to a year of clinical work and training in hospital practice, an extension of his opportunity for training both in the laboratory subjects in the first years of his course and also in the specialties of medicine during the second two years. Finally, and of great importance, this proposed extension of time in the curriculum should secure to the student a certain amount of leisure during his whole course in medical education to be devoted to reading outside of the regular curriculum. The recent graduate in medicine should receive in a properly organized five year course of study an opportunity to assimilate a broad view of the whole field of the practice of medicine.

The organization of a proper fifth year should not be left to the control of state boards and hospital authorities. Under such a system the hospital intern never has received and will not receive an experience proportionate to the amount of time expended in a year's service. It is not possible at present for a state board to have any but a perfunctory control over the managers of privately endowed hospitals, and there do not exist at the present time a sufficient number of state and municipal hospitals to care for the annual

additions to the number of medical graduates. The present system of graded intern service controlled by a rotating visiting service has resulted in a tradition that the intern house officer is the head of his wards and has prevented the development of a system of continuous influence because controlled by the rotating visiting physicians and surgeons. The limit in time of service both for the intern and for the attending staffs has failed to build up any permanent organization. It is a notorious fact that during the first of the usual two year service as a hospital intern the recent graduate gives to the institution much more than he receives except in the very best organized hospitals. During this year, under the present arrangement, the intern does a maximum amount of drudgery in the laboratory in return for a minimum amount of instruction and experience. He accomplishes really no advanced work in the diagnostic and therapeutic study of disease. This part of his hospital course is secured by him as an intern only during the last half of an eighteen or twenty-four months' service. The exceptional hospitals to which this criticism does not apply are those institutions which are connected either directly or indirectly with medical colleges, and in whose wards active clinical teaching is carried on.

It is not possible that any state classification of hospitals based on the number of beds, laboratory facilities, library plant and similar criteria will ever be able to hold the management of an institution in the first rank of educational progress unless there is instilled through the whole institution that spirit of scientific thought and study which can come only from a daily accountability to a group of eager students. It follows, therefore, that the hospitals which are most completely under university control will offer the best service for medical and surgical interns, and it is an equally logical conclusion that if the training and work of the hospital intern himself is to be used as a means of education, that work from beginning to end must be also under university control.

The educational advantages which will follow from the addition of a properly organized fifth year will consist of an opportunity to remove from the first two years of the medical course all clinical work and to permit the student during those two years to devote himself to a laboratory training and theoretical study of the fundamental sciences which underly medicine. Only in this way can the student secure a sufficient time to learn the necessary parts of those fundamental sciences which have so enormously increased during the past ten years.

A second advantage to be secured is the opportunity for extending the time to be devoted to training in medical specialties. Even in a five year course, however, no attempt should be made to do more than give the graduate in medicine a knowledge of the principal pathologic conditions which occur in the organs of special sense and in the special functions which are grouped under the heading of medical specialties. He should be trained to recognize the normal condition of those special organs and systems and to recognize variations from the condition of health. In no sense should the attempt be made to make the recent graduate of medicine a thoroughly trained man in any single one of the specialties of medicine. The time to be devoted to the student's training in special clinical subjects should be limited to a necessary proportion of the third and fourth years of the curriculum.

The third advantage to be secured will be the devotion of parts of his second and third year to mastering all the methods of diagnosis which are applicable to the study of the problems of surgery and internal medicine in order that finally in his fifth year, under proper instruction and oversight, he may devote his whole time to clinical work in the hospital wards devoted to these two great branches of medicine, which must in the last analysis prove the lifework of the vast majority of medical men.

In developing this fifth year it is important that time should be saved the student throughout the whole course for leisure in which to devote himself to collateral reading on the special clinical cases and the scientific facts which come within his daily observation. In order to carry out such an organization, it is necessary to reorganize the great majority of American hospitals. The old time rotating service for the attending staff, which has begun to disappear, must be abolished entirely. If the hospital is large enough it is better to place two men in continuous charge of half as many beds than to allow these two men to alternate on twice the number for periods of service of six months each. The single-headed continuous service is absolutely essential in any hospital in which a consistent system of education is to be developed. The second change consists in abolishing the old American ideal of a rotating house staff service in either three or four grades each of four to six months' duration during a period of from sixteen to twenty-four months. In place of this there must be established a resident intern staff who shall hold their positions at the pleasure of their superior medical officers for indeterminate periods. Between the head of such a service and his resident staff officers there should be appointed a sufficient number of associates and assistants, who should also be on continuous service except for absences due to necessary vacations.

Finally, there should be added to the resident staff a number of fifth year medical students as clinical clerks. The work of these clinical clerks should be carefully supervised by the resident staff and assistant attending physicians, and should form an integral part of the hospital routine. The clinical clerks should not be an extra burden to the service, but their work should count as a necessary part of the routine work. If possible, these student clerks should reside in the hospital, and should be subject, of course, to all the rules of hospital discipline. The term of service for such student interns cannot be organized on the usual college year of eight months' duration and four months' vacation. On the contrary, the term must be a full year of twelve months without vacation. During such a fifth year the individual student should have his service so divided that he would spend one third of it on internal medicine, one third of it on general surgery and one third which might be divided in similar ward work on such medical specialties as diseases of children and neurology, and on the surgical specialties of gynecology and urology.

The organization of hospitals which might be utilized for this sort of educational work is of two kinds. Either they are directly owned and controlled by the universities themselves, which at the present time is unusual, or, if they are classified as extramural hospitals, the control of the personnel of the attending and resident staff and control of the wards for teaching purposes should lie absolutely within the power of the

university. One of the great problems which is being solved in several ways by the universities of the United States is the bringing of the many well-organized and well-endowed private hospitals of the country under the control of these educational bodies. A beginning has been made in many places, but the relation of some of the best medical schools of the country to the hospitals in which they now enjoy their teaching facilities in clinical branches still leaves something to be desired so far as permanency and completeness of organization are concerned.

Probably in no such case has the perfect plan been formulated as yet. The ideal arrangement that the university shall own and operate its own hospitals demands too great an endowment to warrant any attempt for a general adoption. New funds are needed by every university today to improve both the educational and the research features of the scientific as well as the clinical departments of its school of medicine. And it would seem too great a task to add to the search for these funds at the same time an endeavor to secure a plant and sufficient endowment to provide hospital facilities while in every university town there already exists one or more hospitals which are well supported and in which medical education has been neglected by precept and tradition for many years. That the universities need these unused educational opportunities belonging to their neighbor, the hospitals, is perhaps self-evident. It ought to be equally appreciated that the hospitals need in their services the scientifically trained teachers of the university to serve them as physicians and surgeons. This fact is evident to all concerned in the management of those hospitals which have made proper alliances with university schools of medicine, to the trustees, to the lay officials and the trained nurses, to the general public, and last and really the most enthusiastic of all, to the patients in the wards. The question to be decided in each locality is, Can the local hospitals, which are already in existence, be utilized in medical education to the same advantage as would result from the building and ownership of a hospital by the university? The answer is, Yes, provided the control of the medical appointments and the organization of medical education in the hospital rest absolutely in the universities.

Two problems are presented to any university which wishes to form an alliance with an existing hospital: first to educate the hospital trustees that medical education will benefit the hospital and that the patients will be better cared for by university control of the wards than by any other system; that the hospital, in other words, needs for its development the service of university professors, of the many assistant teachers, of the medical students, and also needs for its patients the access to the college laboratories. When this has been accomplished the second problem will be met in the need for formulating a contract of alliance between the two corporations, university and hospital. This has never been done twice in exactly the same way, and in this paper an attempt has been made to indicate the objectives for which both institutions should work. It is fully believed that there exists no antagonism in the aims of both, but that the real interests of the two are identical. When such an organization as is here outlined has been accomplished, the course in medicine given in American universities will be second to none in point of completeness and thoroughness of execution as compared with that of any other country. The

excellent work in the teaching of the laboratory branches which has already been developed to so high a plane will then be equaled by the clinical teaching in the practical hospital branches, and American medicine shall have been placed on a higher plane than ever before.

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MEDICAL EDUCATION IN THE UNITED STATES*

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With the publication of annual reports on medical education, commenced in *THE JOURNAL* in 1901 by the American Medical Association, began the history of real medical education in the United States. The following year the work was taken up formally and continued by a committee on medical education of the Association, which committee was later merged into the present Council on Medical Education. The continuing and progressive work of this council, supplemented in 1910 by the publication of the Carnegie Foundation, gave an enormous impetus to the movement. Like publicity in all other matters, these publications, which exposed to the public and to the medical profession alike the miserable pretenses which existed, caused the beginning of what might be called modern medical education in this country. Five years prior to this time the Council on Medical Education of the American Medical Association had taken up the subject of existing low standards, and had been making a valiant fight for improvement. The Carnegie Foundation publication came very opportunely to the rescue of the Council's efforts, and gave such an impetus by its pitiless exposure that in the intervening period such a change had taken place as is almost marvelous; which, had it been predicted, would have been considered the fancies of a madman.

The final standards in the United States are hardly yet established; the future is being trusted to for much. In this country of state's rights, things do not progress evenly and the progress of medical education is no exception. But this may be said, that the revolution has progressed so far as to assure the future absolutely and that within a comparatively short period.

Behind the movement stands first and foremost the Council on Medical Education of the American Medical Association. But even this body has not been able to live up to its announced standards on account of the inequality already referred to. Certain sections of the country constantly are found unable to travel the pace, and have lagged behind until finally the Council has adopted as its standard policy to go only just so fast as the slowest might be able to follow. Of course this does not mean that the sluggard is allowed to dictate how fast its pace shall be, but practically its sluggish movements have had a measurably potent influence on the pace. In the main the Council's work has been so well done that it would seem to be hypercritical to question its wisdom in modifying its decisions. Possibly also in the long run those who have been and are dissatisfied with some of its actions will admit in their final judgment that it has acted wisely.

And yet it would seem in some essential instances that it might have "stuck more closely to its guns." Nothing is ever builded for permanency without a sure and solid foundation, and nothing in the way of technical education can be builded soundly without the foundation of preliminary requirements. A weakness at this point is a weakness along the whole line, and where advance could be made rapidly at various points, a weakness in this element impairs the finishing of the whole superstructure.

On paper the medical standards of education in the United States at the present day are a preliminary education of a satisfactorily completed four years' high school course plus a year of college work in chemistry, physics, biology and a modern language, to be followed by a four year graded medical course, the first two years of which are devoted to the laboratory subjects and the second two years to the clinical features, and then a year's practical training as an intern in a hospital. This standard, which is the "ideal standard" of the Council, is in process of attainment, and the signs of the times indicate that it surely will be reached. When once attained, this standard will be the equivalent of and equal to that of any country on the face of the earth. One cannot make a systematized comparison between the medical standards of the various countries because of the fact that they differ in essentials in many respects. For instance, the German standard is founded largely on the laboratory, the English standard is founded largely on the hospital, and it will be seen that the standard of the United States is one which attempts to select the good from both of these standards—that is, the laboratory and the hospital are duly and equally emphasized.

How far, then, has this country been able to attain that which is its ideal? It is hardly just to judge the standard of a country by the standards attained in certain sections. But, on the other hand, it is unfair not to bring in sharp relief the fact that certain sections have measurably approached the more nearly ideal than has the country at large. This is more true of this country than of any other, as has already been pointed out, because of our multiple standards of control, due to state rights. The fact that certain sections of the country have approached more closely to the ideal and are well on the way to the completion of that approach is sufficient evidence that in time all the country will be on the same footing. In studying the situation as it exists today, it is just, therefore, that that portion of the country which is most advanced in these matters be taken as the basis of discussion; consequently I will use the state of Pennsylvania as a peg on which to hang my comments.

As has been stated, the real foundation, without which no superstructure can stand, is the preliminary requirement. Under the yielding and leadership of the Council on Medical Education of the American Medical Association, this foundation has been and is weakened. Whatever may be the excuse, the facts remain the same, and until the day comes that this Association insists that all subterfuges and all evasions be done away with, the superstructure cannot be finished. The reasons given for allowing the student to enter the medical school with conditions in his preliminary work may be basically sound, but the fact remains that it has so weakened the superstructure that it has made it exceedingly difficult for those states wishing and endeavoring to live up strictly to

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