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SOME PROBLEMS OF MEDICAL INVESTIGATION AND MEDICAL EDUCATION[1]

THE laying of a corner-stone is an occasion on which one's imagination as to the future is stimulated to activity and one's thoughts naturally turn toward consideration of the probable future activity of the building whose erection is to proceed. This structure, whose corner-stone we lay to-day, is to be a hospital for the clinical activities of a graduate school of medicine, and it is a memorial to perpetuate for all time a name—Albert Merritt Billings. Broadly speaking, herein lie the purposes of the structure to be erected on this corner-stone. The corner-stone itself, architecturally considered, is an entirely dispensable feature of a building and in no wise determines the character of the structure to be built in due season, following its laying. However, about a corner-stone center the ideas and sentiments which in future years will be the real expression of the purposes of the structure and constitute an undying memorial to the name honored by the donors of the building.

On such an occasion it may not be inappropriate to devote a little time to the consideration of some problems of medical investigation and medical education. It is recognized very generally to-day that all great hospitals have three functions, care of the sick, investigation of disease and education of all patients, nurses, physicians and surgeons, that pass its portals. Different institutions may stress in particular some one of these functions; no hospital, worthy of the name, may neglect entirely any of this triad. A hospital is an indispensable unit in a school of medicine, be that school intended primarily for investigation or to educate practitioners or teachers and investigators.

The hospital constitutes a fundamental difference between a graduate school of medicine and all other graduate schools, inasmuch as it introduces into the problem the care of sentient human beings in the guise of patients. It is an inescapable fact that the first concern of every hospital is the best possible care of its patients, whatever of the three great functions of a hospital is to be stressed by the particular

[1] Address delivered at the laying of the corner-stone of the Albert Merritt Billings Hospital of the University of Chicago, at Chicago, Illinois, on October 2, 1925.

institution. The hospital may select patients as it wills. Once selected, patients must be given the best service possible in a form so personal that each patient feels that the institution is serving him in particular. These facts must be taken into account in the selection of staff, from chiefs to subordinates, in the character and limitations of investigation and in the methods of education.

The ideas of the function of a hospital expressed above have been a gradual growth over a long period of time, but it is only comparatively recently that they have come into general recognition. Perhaps the lay public does not yet fully recognize them, though rapidly they are adopting this conception of a hospital. With the more general recognition of these functions of a hospital has gone a progressive improvement in medical education.

Many factors undoubtedly have played a part in bringing about these changes, but this is not the appropriate time to discuss them. At the same time I do wish to emphasize one factor whose very great importance it seems to me has not been sufficiently recognized by critics and prophets of medical education. I refer to the part played by the great medical men here in this country that were the leaders in medicine of the generation just preceding our own, to men like the elder Janeway in New York, Fitz and Shattuck in Boston, Osler in Baltimore and your own Billings here in Chicago, to mention but a few and only the internists of that large coterie of medical men who by example and precept were the leaders of the generation whose professional activity has but recently ceased. These men, more than any other influences, are responsible for our developments in medicine to-day. They had the vision, the courage, the perseverance and the character to do the work, without which we would not be to-day where we are. They laid the foundations on which have been builded the present-day structure of medical education and hospital organization. To them, rather than to critics of medical schools and theorists in medical pedagogy, should go our grateful thanks for present-day conditions.

I often wonder, with many doubts I must confess, whether our leaders of to-day are of the caliber of these men, or merely shine by reason of the material equipment supplied by great philanthropists and foundations.

As I imagine the future I picture two general types of hospitals, the one primarily concerned in the expeditious care of many patients, the other chiefly devoted to medical education and investigation. Both, it seems to me, will be quite different from what we now find developed in most, if not all, of our medical centers. In the former the ambulatory diagnostic clinic will play a larger part, for diagnostic methods, though numerous and complicated, rapidly are becoming simplified so that they may be applied to patients who make periodic visits to the hospital at appointed hours. Many more patients than now will be taken into our hospitals who already have been completely worked up and are admitted ready for appropriate therapeutic procedures. This study, preliminary to admission, as well as that on those admitted unworked up, probably will be carried out by a general diagnostic service, whether the patients' future therapy is to be medical or surgical or of other sort. Medical specialism here will have a decreasing import. Within the hospital therapeutic measures of all types will be speedily instituted, and in a relatively short time, for most patients, they will be continued in out-of-town branches somewhat of the nature of convalescent homes. Here surgical cases will spend much of the period necessary for convalescence from therapeutic methods of the surgeon, and medical patients will undergo régimes of dietary or medicinal or mechanical treatment, perhaps to be returned at intervals to the central hospital for such tests of function, etc., as can not be carried out in the convalescent branch of the institution. Easy methods of transportation make possible this arrangement. The beds of such a central hospital will be occupied by each patient for a far shorter average period than at present. Diagnostic work in large part will be done before admission, while convalescent care and observational methods of treatment will be applied in these country branches, where, with the economic advantages of a lower land cost and less expensive construction, will be combined the therapeutic advantages of fresh air, unobstructed sunlight and nearness to God's green earth. Internes and resident staff will serve in rotation in both the urban and country branches of the work. Surgery as such will be recognized as but a form of therapy, while both surgeon and physician will work in the general diagnostic clinic without regard to whether he is on surgical, medical or special service, but rather as a man skilled in some particular diagnostic method which will form part of the basis of the final diagnosis. Investigation and education too will be part of the function of such a hospital, but its efficiency will be measured largely in the terms of excellent and expeditious care of patients.

I have merely outlined in general terms my idea of this type of hospital of the future. Many details, of course, will be developed differently in different places. To my mind most of our large hospitals will

take on this type. Some already are being developed along these lines.

In contrast, as in my imaginings I think of hospitals, will be the other type of hospital—the one primarily concerned in medical investigation and medical education. Here special types of diseases will be admitted for study. Patients will remain much longer than in the former type of institution. Resident and visiting staff will be larger in proportion to number of patients than in a hospital primarily concerned in the expeditious care of patients. More staff members, possibly all, will devote their entire time to work within the walls of the institution. This type of hospital will have all the equipment for diagnosis and care of patients found in the other type of institution, and in addition extensive equipment for the investigation of such problems as are chosen for study. No form of laboratory of the biological and physical sciences, no type of apparatus should be foreign to such a hospital, provided the problems studied need them for their solution. Per capita cost for patients of necessity will be very high.

In general terms such a hospital will be a laboratory for the investigation of biological problems and needs to be organized much as an institute of biology or physics or chemistry. Yet there is a very definite difference that never can be lost sight of. The hospital is peopled with patients that require all the diagnostic and therapeutic skill and the best of nursing care found in the leading hospitals of the land. The staff will need all the clinical acumen and judgment of the best of physicians and surgeons. Every problem should be so moulded that the humanity of the patient is the dominant idea which must determine and set the limits of methods of investigation. The ideal must be that nowhere will patients receive better care and a more highly organized service. The investigator, who in training and at heart is not a clinician, is out of place in such a hospital and most assuredly should not rank high in the scheme of organization. Problems, unconcerned with patients, had best be studied in the laboratories of pure science, not in the laboratories of the hospital. Workers in the hospital profitably can spend periods of study in other laboratories, and always there should be close contact with all members of the biological, physical and chemical institutes of the university. Such a hospital, not developed as an integral part of a university, will be greatly hampered in progress. In general terms I have just outlined my ideas of the second type of hospital. Its effectiveness will be measured, in large part, by its productivity in research.

It is of this second type that the Albert Merritt Billings Hospital proposes to be, and along these general lines it needs to be organized.

The University of Chicago, as I understand from various of its officials and professors, intends to try a great and on the whole a new experiment in medical education, in which this hospital will be an integral part, probably the most important part.

The purpose of this school will be to train, as the main product, medical investigators and medical teachers rather than practitioners. Medicine is to be a graduate department of the university rather than a professional school; organization and development will be determined to that end. The number of students is to be small and particularly selected as potentially capable of development into investigators and teachers. The methods are to be those of the graduate schools of our universities. At once numerous difficulties will confront the organizers of such a school.

The best method of selection of students is a serious problem. The success of your experiment will in large measure depend on its satisfactory solution. For some years now a number of medical schools have limited their student intake to those of particular collegiate training and of high rank. It must be confessed that no methods of selection, so far tried out, have proved to be very satisfactory. Our students of to-day certainly average better as the result of this selection, but many very mediocre men are admitted to all our schools, and many medical educators have grave doubts as to whether the number of really brilliant students in our classes has been much, if any, increased by our methods of selection. More important than this is our ignorance of how many we exclude who, if admitted, would have far excelled those actually chosen. You will need to find a better method of selection, or else your general scheme may be doomed to failure. Very likely you will in succession try and discard methods. Instead of small classes, a very large entering class, with subsequent reduction, may be necessary, or the development of some type of honors school within a larger school may be needed. It is not my place to suggest a method. Merely do I wish to point out that admission selection will be an important part of your experiment.

As already indicated, size of classes will be another problem. The very obvious advantages of small groups of students in close contact with teachers may not offset the stimulation of association with a large body of students and the reduced probability of brilliant graduates incident to small numbers.

Teaching methods present a different type of problem, as yet not satisfactorily solved in any of our schools. Great freedom to the individual student will be desirable, for genius thrives in the atmosphere of great opportunities, and yet there are limitations to this freedom in medicine not incident to

other graduate schools, for after all a very large proportion of your product will be either teachers of practitioners or practitioners themselves, and at least must be trained in the art as well as the science of medicine. As already pointed out, that part of your faculty concerned with the hospital must of necessity be skilled in the practice of medicine, capable of teaching its practical applications. Moreover, change in the medical curriculum has been rendered difficult by legislative fixation, an unfortunate result of the work of some of our standardizing bodies. All this renders difficult an experiment in medical pedagogy which includes great freedom to the individual student, and yet the way out must be found.

In these and many other directions your problems will be great, and how you solve them will be of the utmost importance to the medical world. Like any other experiment, an experiment in medical education will need careful preliminary planning, the ability to recognize defective methods and a readiness to speedily discard the ineffectual. Fluidity of plan is of prime importance for success. Preconceived ideas, too long adhered to, may easily spoil all chances of success. Outside influences must not be allowed to dominate the experiment. Your leaders will need high courage; the courage to go ahead with a well-conceived plan against the opposition of tradition, the greater courage to admit the failure of a pet theory and begin the trial of a new one, probably one evolved by another. It may even turn out that the entire idea of a rather small research hospital and a small body of carefully selected students will produce too few brilliant workers in medicine to justify the expenditures made, and there will be a return to the plan of a larger hospital and a larger student body, with especial opportunity for the particularly gifted of this larger group, for one must confess that there is much to indicate that the small school has not quite measured up to its expectations.

To your leader should be left great freedom in the determination of every phase of your organization. The academic freedom of the institution is as essential as that of the individual. So far academic freedom in experiments in medical education has been hampered by two things: lack of means to carry out necessary steps in the experiment, and lack of freedom to expend existing funds because of limitations set by donors. I know of no undertaking in medical education to-day not hampered by the one or the other of these factors. So I would say to all donors of funds to this undertaking of the University of Chicago: Place funds in great liberality at the disposal of those selected to carry out the project, but leave to them complete freedom in regard to all questions of method, organization and equipment. To your governing bodies equally would I say: Accept not the gift hampered by many conditions as to use. To say "No" to a donor may be the part of great wisdom; a wisdom too rarely shown by governing bodies of educational institutions. Those you select as leaders obviously will have been selected because of confidence in their judgment and ability. To place limitations on what they may do will be but an expression of suspicion and of lack of confidence that can but rankle and may mar the chances of success of your experiment.

In medical education of to-day the clinical departments are on far less sure a footing than the preclinical. For this reason the development of the Albert Merritt Billings Hospital in relation to teaching and investigation becomes the most essential factor in the success of your experiment in medical education and will be watched with scrutinizing, critical eyes. That you have voluntarily undertaken a very important problem all will recognize. Good wishes will follow you in the work. It would seem to your colleagues, scattered throughout this broad land of ours, that here on the shores of one of the Great Lakes, in a region in which the pioneer spirit is still felt, is a fitting place for such an experiment. May it not be that these waters that restlessly lap on the not far distant lake shore express the spirit needed by an institution of a new and untried type. Now tossed by a tempest brewed from dark and lowering clouds, again the incessant beat on the shore of waves generated by the winds of the passing storm, now dark and angry as in a winter's day with icy blast and clouds of driven snow, once more quiet and serene in the calm of a summer's day; such are the moods of the lake, ever changing, always varying, and yet constant, enduring, magnificent, a mighty force continually at work. From the changing activities of the lake with its reserve of enduring force may there come an inspiration and stimulation to this institution which as the years go by will lead it in the paths of progress to the ultimate attainment of its goal, the finished preparation of many leaders in all fields of medical education and medical investigation. To this end may this memorial endure, a lasting tribute to the memory of the name it bears—Albert Merritt Billings.

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