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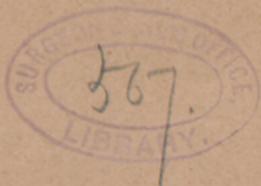
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Medical College.

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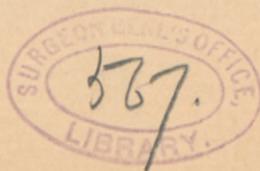
## THE NECESSITIES OF A MODERN MEDICAL COLLEGE.<sup>1</sup>

BY PROF. F. FLETCHER INGALS, A.M., M.D., of Rush Medical College, Chicago.

In the early history of this country, and as late as fifty or perhaps even twenty-five years ago, large tracts of sparsely settled portions of the United States presented conditions in which it was impossible for the thoroughly educated medical man to obtain a just recompense for the time and money necessarily expended in acquiring his medical education, yet these communities required the services of a physician, and it therefore happened that persons with very slight qualification took up the practice of physic and endeavored to supply the demands of the community that was unable to obtain anything better.

With the increase in population, wealth, and civilization the people became more discriminating in their choice of doctors, the communication with distant points was more rapid, the advent of railroads made it easier to secure competent medical men, and consequently the poorly qualified doctors have gradually decreased until at present there are few places in the United States where the citizens do not demand skillful aid for the sick. Fifty years ago there were many thoroughly qualified physicians

<sup>1</sup> The President's address. Read at the meeting of the American Medical College Association, Baltimore, May 8, 1895.



in the country, and the professors in medical colleges were generally men of excellent attainments, but new and ambitious medical colleges began to confer degrees on students with but little preliminary education, and who had attended but two short courses of medical lectures with little or no laboratory or clinical instruction, which necessarily gave a low rank to the profession as a whole. It was realized by many, even at that time, that the product of such methods of education was not what it should be, but the necessities of the sparsely settled communities seemed to warrant the course that was adopted and there can be no doubt that the men thus licensed to practise medicine were far superior to many others who, without any qualifications, were practising in various parts of the country. From these conditions it can be readily understood that the medical college of fifty or even thirty years ago was not necessarily a very pretentious institution. A few small rooms over a store, or in an humble improvised building; or in the more pretentious colleges, a lecture room arranged in the form of an amphitheatre for a hundred or more students with a small chemic laboratory; an articulated skeleton and a few anatomic plates constituted the whole equipment that was thought necessary for teaching medicine. With the changed conditions that have come about the last quarter of a century, the college that starts to-day with the equipment that was satisfactory fifty or twenty-five years ago, is held in derision by the profession and secures for its students only the poorest of the low grade men who hope to acquire some dignity through their medical title. Within the past few years men have felt more keenly the necessity for proper equipment and the great body of the profession has risen to a plane where it is ready to support the colleges that require much better qualifications of their students, before they can go out with a diploma entitling them to the confidence of the public.

The few back rooms over a store which were adequate fifty years ago to train the prospective doctor; the single amphitheater and little chemic laboratory are no longer sufficient to furnish the accommodations necessary for the better educated men who are seeking a knowledge of the healing art.

In my effort to ascertain what the proper equipment of a med-

ical college should be, I have not relied wholly upon my own opinions, but have availed myself of the ripe experience of others so far as practicable, and I have endeavored to present a consensus of their views.

To-day it is realized that a first-class medical college must have a large and commodious building with beautiful lecture rooms and ample laboratories. The fully equipped medical college of to-day should have two or three amphitheatres, one of which should be large enough to seat the four classes and allow room for a few visitors. The others should be large enough to seat at least two of the classes since there are many times during the course when it is desirable to bring together the students of the various years. In connection with these there should be a number of smaller rooms for clinical purposes or demonstrations. Instead of the single skeleton which was used a few years ago, by the professor of anatomy, the well equipped colleges now furnish a large number of skeletons so that each student may be able to study every bone from the specimen in his hand, therefore, an osteological room has to be provided capable of seating, about tables, half of the first or second year classes, with skeletons sufficient in number to provide one to every two students. A well lighted dissecting room capable of accommodating at least half of the first or second year classes must also be provided, and it is needless to add that ample material is absolutely necessary. The little chemic laboratory which in former years served for the professor to arrange a few experiments, that would now be thought inadequate in the teaching of a grammar school, has given place to a large well equipped laboratory capable of accommodating at least half of the first or second year classes. Histologic and pathologic laboratories capable of accommodating at least one-fourth of either of these classes must also be provided and a bacteriologic laboratory of similar size has come to be a necessity. Even larger rooms than these would better serve the convenience of the teachers but they are not necessary if the class is properly divided and the teacher will accommodate himself to the various sections. With only four years at our disposal with the vast field to be covered, it is impossible to make skilled specialists of our students, or even to complete

their general education; but, it is necessary that every one should be well grounded in the rudiments of medical science and taught how to study and how to utilize his information in general practice for the best interests of his patients. The best medical colleges now realize the necessity of manual training by which their students are taught the practical use of the test tube, the sterilizer, and the incubator, and by which they acquire facility with the stethoscope, the microscope, the ophthalmoscope, the laryngoscope, and whereby they individually learn the proper methods of applying bandages and splints; indeed, training whereby they may learn every mechanical process with which the fully equipped physician must be familiar. For this work additional rooms are needed, each about half the size of the laboratories already referred to.

The recitation system adopted for a considerable part of the work by many colleges is a great improvement upon the old plan of having the class listen to lectures or read medicine. Where this system has been tried its value is more apparent each year in the better qualified classes that are turned out. It is found that this training of the students which requires them to learn the precepts of some good text-book, even though the instructors may be comparatively young men, produces much better results than when the whole class assembles in a large room to hear even the most eloquent of lectures. It seems to me that the best results are obtained by a combination of recitations, with didactic and clinical lectures. The first year about three-fourths of the work should be in laboratory and class room, the class being divided into small sections. These sections are assigned lessons which they recite to instructors, but about eight or ten times a week they assemble to hear didactic lectures from the professors. In cities of sufficient size to support medical colleges, there are always located a number of ambitious young men fully competent to give the classroom instruction when a suitable text-book is provided. These instructors supplement the labors of the regular professors, and in many departments may be called upon to do about two-thirds of the work. This practice gives young men experience and enables them to demonstrate their capacity for teaching and later may become of great value to the college,

when its trustees are called upon to fill vacancies in the regular faculty.

In such a course the professor confines himself to the consideration of the more important subjects of his particular department, which are thus impressed upon the class by his individuality and personal experience. At the beginning of the term he should lay out his entire course, assigning beforehand the lessons for each day. This schedule should be placed in the hands of his instructors so as to form a harmonious course. The recitations should embrace not only those subjects which have been assigned from the text-book, but also all those which the professor has considered in his didactic lectures. The necessity for clinical teaching has been so repeatedly impressed not only upon the teaching corps in our colleges, but also upon physicians and students that every college does its utmost to furnish suitable clinics, and it is a matter of great importance to this Association to decide what constitutes proper clinical facilities for medical teaching. The advantages that were considered ample until recently cannot now be accepted; every college must, therefore, be provided with dispensary rooms and hospital accommodations. I am familiar with the fact that fifty years ago a first-class medical college could be conducted with very little clinical material, but it does not seem practicable to give the instruction, requisite at the present time, with less than four or five thousand out door patients annually, and hospital facilities of less than seventy-five to one hundred beds. Where there are few patients some slight advantage may be derived from the more careful study of each case by the students, but unless there is sufficient clinical material, the experience which the student obtains is necessarily limited; therefore the larger the clinical material at the command of a college, other things being equal, the better will be the instruction that is given to its students. I am aware that these statements may be questioned by professors in some schools where clinical material is scant, but the experience of teachers, both in this country and abroad, will support my views. Without in any way desiring to limit the usefulness of the schools in small cities, I must still maintain that clinical experience is of the greatest possible importance to advanced stu-

dents. The argument that good physicians were made fifty years ago when clinical advantages were very small is not apposite to the case when we consider the great advancement in medical science and in the methods of training that have been made within a quarter of a century. I do not desire to discourage professors in small schools from doing good thorough work in training medical men, for I believe that there is a field that could be well occupied by colleges even where adequate clinical advantages cannot be obtained if they would confine themselves to what might be considered the Junior department of medical teaching. They could by recitations and didactic lectures, ground their students thoroughly in the fundamental principles of medicine, they could teach many of the things that must be learned in the laboratory, indeed they could fit their students thoroughly to enter the third year of the most advanced medical colleges. In this way they might do a laudable and important work for some of the young men in their vicinity who desire a medical education.

In addition to the requisites that have already been mentioned for a first-class modern medical college, a gymnasium for the cultivation of the physical strength and health would undoubtedly be advantageous in aiding the highest mental training. It would also be very desirable if a large examination hall could be added to each of the medical colleges, where the progress of the student might from time to time be ascertained that he might the more efficiently apply his subsequent work, and where final examination could be held under the most favorable conditions for preventing cheating by incompetent students.

I wish to urge upon teachers of medicine throughout the country the importance of several review examinations during the course. I am fully convinced, by experience, that such examinations every five or six weeks impress upon the student many things that would otherwise be lost, and as a result such students are infinitely better qualified at the close of the term than they would otherwise be. I believe these review examinations would be found most beneficial in all departments, not only in showing the student in what he was lacking and upon what he must put the hardest work, but also in giving the professor a

better knowledge of his qualifications when he comes for the term or final examination.

The plan I adopt has given much satisfaction. In this plan students are strictly marked on every recitation and an absence counts zero against them. At the close of the term the average obtained in the recitations counts one-third, the average of the review examinations counts one-third, and the mark obtained on the final examination counts one-third in establishing the grade. This, I believe, is most equitable to the students, and enables the professor to estimate correctly whether the student is qualified to pass the term or final examination, providing due care is always taken, as it should be, to secure an honest examination.

Within the past few years I have had frequent occasion to consider the cost of a thoroughly equipped medical college. From these estimates and from the advice I have obtained from others, I have to submit the following figures as a fair estimate of the cost of a medical college properly equipped for teaching medicine in this country at this time.

The buildings for a medical college complete, containing the amphitheatres, clinical rooms, laboratories, and recitation rooms that I have already mentioned (excepting the gymnasium and examination hall) would at this time in most places cost for a total class of two hundred, from \$75,000 to \$125,000, if all under one roof; or for a total class of five hundred, about \$150,000 to \$200,000. The price of land would necessarily vary, but in any city capable of furnishing proper clinical advantages it would probably be between \$30,000 and \$50,000. The fitting up of a chemie laboratory suitable for a total of two hundred students in all its classes would be about \$3,000, or for one of five hundred students would be about \$5,000. The fitting up of the histologic and pathologic laboratories would be about \$3,000 for the smaller class, or about \$5,000 for the larger class. The fitting of a bacteriologic laboratory would be about \$3,000 for the smaller class, or about \$5,000 for the larger class; making a total of \$114,000 to \$184,000 for the smaller or \$195,000 to \$265,000 for the larger school.

The cost of maintenance of all of these laboratories for the

smaller class would be about \$4,000, and for the larger class about \$6,000, exclusive of salaries to the professors and director. The running expense of the college as a whole, exclusive of salaries would be for the smaller class about \$20,000, and for the larger about \$35,000 per annum.

In addition to these expenses small fixed salaries should be provided, as far as possible, for the young men occupying the positions of instructors, demonstrators, etc. For the professors of what might be termed the non-practical departments, such as chemistry, physiology, anatomy, and materia medica, salaries should be allowed adequate to enable them to give a large portion of their time exclusively to their duties as teachers. For the professors occupying the practical departments, it is not so essential that similar salaries should be provided as there is always more or less indirect return for their services; yet, it cannot be questioned that in most cases the best work is accomplished where proper remuneration is received. It is probable that the expense of maintaining the college and paying the professors suitable salaries would not fall short of \$45,000 for the smaller, or \$75,000 for the larger annually. In this connection I will not attempt to estimate the cost of construction and maintenance of dispensaries and hospitals for the accommodation of patients that must be used in the clinical demonstrations, for these can generally, and should always be secured from charitable persons or the public in return for the services of the physicians to the indigent sick. I may state briefly however, that the original cost of these would be much greater than that of the college buildings, and the running expenses would be correspondingly large.

If the colleges were required to bear these expenses, not one of them could afford the other necessary equipment. In consideration of the question, how the money should be obtained for the necessary expenses of a medical college, I know that I reflect the opinion of the profession when I state that such institutions should be amply and liberally endowed; and no opportunity should be lost to impress upon the laity the peculiar beneficence of charitable bequests to this end and the advantages to be obtained by individuals, families and the community at large from

a thoroughly educated medical profession. Until the time when our schools shall be endowed they must depend upon the income from the students for their running expenses.

In this connection I wish to suggest that a professional education should be paid for, and that the average fees charged to-day in the medical colleges throughout the country, are only about fifty per cent. of what they should be to provide the money necessary for furnishing the most complete equipment, and giving the best practical instruction to students; but I do not wish to be understood as advocating uniform prices by all colleges. I believe however, that if all the colleges in the country would raise their fees twenty-five or fifty per cent., as might be agreed upon, it would enable them to furnish much better facilities than are now enjoyed by medical students, and the students themselves would be correspondingly benefited.

Administration. As most of the medical colleges in this country are supported and owned by their respective faculties, it has been the custom for their management to be left entirely with these bodies; but since a few of the colleges have received endowments, or have become connected with universities, the question has arisen as to the best plan to be adopted in their administration.

It is urged by some that as the faculty know more of the needs of students than others, the management should be left entirely with them. It is urged again that under such an administration, it is very difficult and sometimes impossible to correct evils that are liable to creep in, because of the relations of members of the faculty to each other. For example, a good professor may be appointed, but in the course of time, growth of intemperate habits or something else may occur to render his further connection with the institution undesirable. In the meantime, he has formed personal relations with the other professors, which prevent them from taking any active part in his removal, consequently he remains much to the detriment of the school. In such a case, were the administration in the hands of a board of trustees, it would be a comparatively easy matter to make the necessary change. So long as medical colleges are supported by the individual efforts of the faculty, so long, they must, almost of

necessity, remain under the control of this body ; but when they pass into possession of a university or college, whether as an endowed institution or a state school, the administration will necessarily change. It has been frequently urged, that if our colleges were under the charge of boards of trustees distinct from the faculties, it would be much easier to secure bequests for their endowment. This seems to be a true statement, but the experience of four or five colleges shows that it can not be accepted as an invariable rule.

Many instances might be cited where the faculty control has permitted abuses which the personal relations of the professors have rendered them unable to correct ; yet, on the whole, I think it must be conceded that the faculty control in the case of an institution that must in some way be supported by its members is the best plan. Under other circumstances the board of regents or trustees of the university must assume in great part the administration and the responsibility for the conduct of the college ; but even then to what extent the administration should be left in the hands of the trustees or of the faculty, is an open question upon both sides of which many arguments may be made.

Certain institutions assume the whole control of all their departments, allowing the faculty little or no voice in management ; others give the faculty greater or less privileges in the general and financial management of the school.

It appears to me the better plan would be in state schools or in endowed institutions having medical departments, for the board of regents or trustees to have control of the financial management, aided by the advice of a committee from the faculty ; while the general management of the school, as to its curriculum, time and duration of terms, discipline, etc., could better be left mainly to the faculty.

In the appointment of professors or instructors, the faculty should have the nominating power, but only the trustees should appoint. In the discharge of professors, for incompetence or other cause, the trustees alone should act in accordance with the contract made at the time the professor was engaged, and such information as they might desire from the faculty.

In the general management of the school I believe it would be

well for the faculty as a whole, including not only the regular professors, but all of the assistants, to consider all matters of importance, but the final action upon these should be left to a limited number of the more experienced members of the faculty, who should be an executive committee, with power to act, with the consent of the board of trustees or regents.

Although many good arguments may be advanced for absolute control by the board of regents or trustees of any department under its care, yet I feel satisfied that either a nominating or a vetoing power should be left in the hands of the faculty, or the executive committee of the faculty, in order to promote harmony and the best interests of the institution.

The American Medical College Association has already done much to advance the cause of medical education in this country. If our action is wise, we may in the future, shape the course of the better medical colleges, and in so doing we will sooner or later compel those of lower grade to fall into line, if they wish to receive the support of the profession.

It would be unwise for this Association to take any receding step in the requirements laid down for graduation, and when we consider the effect which increased requirements have had upon the colleges adopting them, there is certainly no reason why any individual member of this Association should wish to take a lower grade than that which we have adopted. The judgment of the profession in this matter is shown in the fact that every advance by a college in the way of requirements of students, has been followed by an increase in the size of its classes.

I feel that we have already accomplished all that is necessary, at least for some years to come, as to the duration of the course of study before graduation, although it is of the utmost importance to fix upon the minimum amount of work to be done in this time, and to lay out as your committee has attempted to do, a suitable curriculum.

Much remains to be done in fixing a high standard of preliminary education. The work of your committee in framing a curriculum that may be adopted by the various members of this association, I hope will receive your cordial support, at least in so far that its general features may be adopted, in order that uni-

formity and excellent courses may be secured in all colleges, that desire recognition as first class institutions. The difficulties in the way of deciding upon the preliminary education to be required are many, and I feel that great wisdom is necessary in this body in order to solve the question.

The time has passed with the colleges in this Association, when ignorant young men will be encouraged to study medicine for their fees, and when schools will maintain scant requirements for the sake of attracting incompetent students to their classes.

In the former association of medical colleges an attempt was made to regulate the fee which should be charged by each; this, I do not believe is wise, and I hope the subject may not come up to disturb our councils; or if it does, that no attempt will be made to do more than change the fees by a certain percentage. I believe that the colleges should be left to compete with each other solely upon the merits of their instruction. If a certain body of men choose to give their services gratuitously and to pay from their own pockets the expense of running a medical college, it does not seem to me to be the affair of anyone else, provided others are treated with common courtesy and all adhere strictly to the high requirements adopted by this Association.

In closing I wish to thank this Association for the honor it has conferred through me upon the college which I represent. I am led to believe that this honor was not a personal matter, either to myself or the college, but that it was an expression of appreciation for the stand this institution has taken upon advanced medical education. My colleagues are firmly opposed to any retrograde step, and I can assure you of their support in a policy of steady and constant improvement, in preliminary requirements of students, and in the methods of medical education.



