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With Kind Regards

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Inaugural Address
ON
UNIVERSITIES AND MEDICAL
EDUCATION

*Delivered at the Opening of the Medical Session of the Victoria University
of Manchester on October 1, 1912*

BY

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Inaugural Address

ON

UNIVERSITIES AND MEDICAL EDUCATION

GENTLEMEN,—In the first place, in thanking you for the high honour of being entrusted with the delivery of this inaugural address, I must express the anxiety with which I accepted your Vice-Chancellor's invitation. On such an occasion the choice of subjects is so comparatively limited that there is a distinct danger of repeating in feebler language the substance of past speakers or of originating commonplaces.

INTRODUCTORY REMARKS.

At the present time there are several reasons why the relation of Universities to medical education is a natural subject for review. Changes in the older Universities and the multiplication of vigorous and well-equipped Universities in the provinces within recent years have among other beneficial results brought a medical degree within the reach of an increasing number of medical students, and it may be predicted without much hesitation that in the future almost every medical student will be attached to a University. Medical education has recently been much discussed, especially by Mr. Abraham Flexner in two reports to "The Carnegie Foundation for the Advancement of Teaching," the first of which gave a detailed criticism of the medical schools and teaching in the United States of America and Canada (1910), while the second⁶ was devoted to a general survey of medical education in Europe (1912). These reports insist that medical education is an educational rather than a professional problem. The Royal Commission on University Education in London, which has brought out five reports, the last two appendices of which² contain much interesting evidence on medical education from about 50 witnesses, not only from the metropolitan but from a general standpoint, is now considering its final report and recommendations. A Congress of 53 Universities of the British Empire met in London in July,

at which the relation of Universities to technical education was one of the subjects dealt with.

In the past it has often been felt that Universities should not give a technical training, or that they should at most be concerned with principles and not with their practical application. In other words, that a University should continue and expand the work of the schools into a liberal education rather than provide a strictly professional instruction, however good. This was partly due to the proper ambition to send out graduates with a broad outlook and humanisation of character, and partly to a persistence of the vested interests of the classical tradition with which English Universities in the past were almost exclusively concerned. But the view that Universities should not give technical education, though they might examine for and confer medical degrees, may, in the light of the special courses and diplomas set forth in their calendars, be safely regarded as a thing of the past.

THE BEST GENERAL EDUCATION FOR MEDICINE.

No doubt the medical graduates of a University should have a groundwork of general culture and scientific discipline on which their technical knowledge is superimposed, otherwise their training would in no way differ from that given by a technical school. But is it true, as has been and is often assumed, that the necessary general culture can be obtained in one way only? The advantage of "the grand old fortifying classical education" is such a familiar *motif* in addresses given on occasions such as this that it may appear philistine to suggest that the Humanities—*literæ humaniores*—are not absolutely essential to a medical man who perhaps more than anyone should act up to the motto "*Nihil humanum a me alienum puto.*" It must be freely admitted that in the past many, if not most, of the eminent men of our profession went through the classical mill with the same success that characterised their professional life. But it hardly follows that the early was the cause of the later success. On the other hand, although in their time education was in the main a classical monopoly, some of the immortals of our profession, such as John Hunter, owed little or nothing to its influence. Such exceptional geniuses, however, are born with the qualities which enable them to become what they are, and are not educated to it. The school and University routine of Latin and Greek is a hardy survival from the time when Latin at least was of distinct use as a means of communication between men who had no other common language, and was the medium of correspondence of statesmen and philosophers. This no longer holds good to the same extent as it did two centuries ago, and though French and English have to some degree

taken its place, the want of a universal language is shown by the construction of artificial substitutes such as Volapuk, Esperanto, Ido, Neutral, and by the movement for the adoption of a simplified form of Latin as an international language under the name of "Latino." The passing of classical quotations in ordinary life is a prominent feature of recent years, and however true the Duke of Wellington's advice to a young Member of Parliament—"Say what you have got to say, don't quote Latin, and sit down"—may be in other respects, the second is no longer necessary. To quote a hackneyed tag, "*Tempora mutantur, nos et mutamur in illis*"; and in the present circumstances—namely, the enormous advance and scope of science—the value in medicine of a classical grounding requires unbiassed consideration with the object of determining how much should be required from future practitioners.

RESULTS OF CLASSICAL TRAINING AS REGARDS SCIENCE AND MEDICINE.

Valuable as a really good classical training is in some respects and attractive as its advantages are in brilliant exceptions, the bulk of medical men pay somewhat dearly for the luxury of any aroma of classical culture which still clings to them in late middle life to compensate for the years spent at school and sometimes at the University on the dead and difficult languages. A large proportion of medical men have almost entirely forgotten the Greek they once knew, or at most can recall just enough to understand and spell the never-ending flow of new and often unnecessary medical words, some of which bear witness to their inventors' originality in being composed of the Greek termination *itis* appended to a Latin noun or even a comparatively modern name; such are Bartholinitis and Wirsungitis. Latin is more familiar, but largely because prescriptions are still supposed to be concealed from the public by the garb of Latin words often discreetly and somewhat illegibly abbreviated. It may safely be concluded that to the ordinary medical man the direct or marketable advantage of a classical training is entirely out of proportion to the amount of time commonly devoted to it. But it is often urged that, apart from any intrinsic use, the classical languages, in virtue of their peculiar structure, give a mental training and discipline which cannot be obtained from the study of French and German. This statement is difficult to prove, and we have the high authority of Sir Clifford Allbutt¹ for the dicta that "it is not so much *what* a man is taught as *how* he is taught it," and that "the current teaching of Greek and Latin is a parody of education; not only does it restrict the range of the teacher and pupil, but the imaginations of both are stunted." After

nearly 20 years' experience as a master at Eton, A. C. Benson⁴ frankly characterises the results of the classical routine as "intellectual starvation." The want of success of the public-school masters in this respect is hardly surprising, as they are not obliged to undergo any technical training for the profession of teaching—surely an extraordinary anachronism! Further, although many will agree with Stanley Leathes⁷ that "no wrestling with the awkward structure of a German sentence, no graceful manœuvring with the myriad idioms of French, will ever give the easy mastery of language in general that comes from long practice in the artistic construction of Greek and Latin sentences," the ordinary school and University classical education is disappointing in the comparative frequency of its failure to engender the power of writing clear and graceful English. This is probably due to defective teaching and to the neglect of literature in favour of grammar. There seems reason to believe that a classical education does not give the average man any considerable advantage in science and medicine. Philological culture, as Helmholtz pointed out, fosters dependence on authority and militates against individual observation; again, the laws of grammar which have their exceptions do not prepare the mind for the invariable character of physical laws. In fact, the mental attitude of a classical scholar is different from that required at the threshold of a scientific course. The time occupied at any rate by a University classical education is a serious factor, for by the time such a course is completed much of the energy and plasticity of youth has begun to subside. Further, a good classical training often entails neglect of modern languages. This is a most important consideration, for there can be no question that in medical science a knowledge of French and German is of incomparably more use than the highest classical attainments.

SUGGESTED COMPROMISE.

The question of compulsory Greek has recently been much discussed at the older Universities, and although the teachers of Greek, who have its interests most warmly at heart, are as a rule in favour of relaxing this obligatory regulation, conditions remain unaltered.* In spite of what has been said about the drawbacks of a prolonged and exclusively classical education, this decision is probably

* Although it tells against the restriction of classical education, it would be a pity not to quote J. P. MaHaffy's story of "the school boy who said proudly that he had chosen the medical profession, and was already preparing for it. On being asked what the preparation consisted in—Botany or Zoology or what?—he answered contentedly, 'Oh, not at all, but I have given up Greek!'" (John Stearne, an address delivered in the Theatre of Trinity College, Dublin, at the Bicentenary of the Medical School, July 5th, 1912, p. 10. Printed at the University Press by Ponsonby and Gibbs.)

beneficial as regards the elementary education of future medical students, for there is much to be said in favour of retaining the classical languages so long as the teaching of French and German and science is not interfered with or delayed. The dead languages should be taught earlier and better, but they should not be abandoned, and the time spent on them should be rearranged and curtailed. The education best suited for a medical student before beginning his professional subjects should be on the following lines. The subjects ordinarily taught in schools, including Latin and Greek, should be pursued until the age of about 15½ years, when the student's proficiency should be tested by an examination the results of which should count at the University matriculation. After passing this examination the student should spend the next 2-2½ years in obtaining a sound knowledge of French and German, literature, English composition, physics and chemistry, and the necessary mathematics. At the end of this time, when he is from 17½ to 18 years of age, he should be able to pass an examination in these subjects and then begin the study of biology and of anatomy and physiology. This compromise would ensure general culture with a modicum of classical training, and a knowledge of French and German at a time when it can be readily acquired, and yet would not encroach unduly on the time necessary for strictly professional instruction. This education, which is somewhat on the lines provided on the modern side, would be far better than that given on the classical side at public schools, and by providing a good basis of physics and chemistry would do much to remedy the prevailing difficulty of the early science examinations in the medical curriculum.

THE TEACHING OF PHYSICS, CHEMISTRY, AND BIOLOGY.

No doubt the ideal standard is that every student of medicine at his entrance to the profession should be a graduate in arts, with a sufficient knowledge of physics, chemistry, and biology, and of French and German; but these requirements, which are maintained at the Johns Hopkins Medical School, demand more time than can, or should be, afforded by the average student, and it is for the average student that arrangements and regulations must be adapted. The pressure of the sciences to be acquired, at any rate in some degree, by the medical student is no new cry, but it is becoming more urgent. In an address on "Medical Education at the Universities" (1875), in which he pleaded for the establishment of what is now the Victoria University of Manchester, the late Professor J. E. Morgan, the broad-minded author of "University Oars," insisted on the exacting demands made on a candidate for the M.D. London, and quoted with approval the

remarks made by Dr. P. M. Latham in 1835, at about the time that University obtained its charter: "Now I am persuaded that there does not exist at this day in the profession an individual who comes up to the standard which (it is implied) all ought to reach. I have known one, and one only, who came up to the requirements of an introductory lecture which I have read, and that was Dr. Thomas Young. But Dr. Young stood alone among mankind. Yet Dr. Young was the only person whom any man now alive ever saw learned and scientific enough for a physician according to the Utopian measure of things." Dr. Young, of course, was the originator of the undulatory theory of light, who, though the most comprehensive genius and the greatest man of science who ever became a member of our profession, was not a striking success either as a clinical teacher or in private practice. If the remarks as to the demands made on medical students were true 77 and 37 years ago, what estimate must be acknowledged at the present day? For although the statutory curriculum was increased from four to five years in 1898, the average number of years spent by students is nearly seven, and only about 14 per cent. become qualified in the minimum time. The time occupied by the purely technical education is encroaching more and more on what should be active professional life, and there is, therefore, a tendency to push back the commencement of medical studies into the ordinary school curriculum.

The necessity for curtailing the amount of knowledge demanded from medical students is widely recognised, but the question where and what curtailment should be carried out has given rise to a conflict of opinion. The teachers of the earlier subjects naturally desire that the preliminary education should be satisfactory; whereas some clinical teachers, rightly imbued with the importance of adequate hospital experience, urge that the preliminary subjects should be pruned and all that is not essential cut out (West¹¹). It has been suggested that students might be taught some subjects, such as biology, but not tested by examinations, which undoubtedly exert an evil influence on the best men. In the absence of this obligation, however, it is probable that students would not take their work seriously. The question whether or not the preliminary subjects of medical education, chemistry, physics, and biology should be taught at schools and so disposed of before entering a medical school or University has been much discussed. In May, 1911, the General Medical Council recognised secondary schools, when approved by the licensing bodies, as places where physics, chemistry, and biology might be taught, allowance for the time so spent being made to the extent of six months in the five years of the medical curriculum. This question was again under consideration in the summer session of this year and this decision was confirmed. Provided that the

teaching of classics is concluded by the age of $15\frac{1}{2}$ years or so and is succeeded by a course of $2\frac{1}{2}$ years' education in French and German, literature, English composition, science (chemistry, physics, and possibly biology), and the necessary amount of mathematics, it is a matter of convenience rather than of vital importance whether this is carried out on the modern side of a public or secondary school or at a University. It should be done where it can be most efficiently carried out.

It has been urged that the grounding in chemistry, physics, and biology given in secondary and public schools is not adapted for medical students, that more is demanded in the direction of pure science than is necessary, and that the special requirements of medicine are not sufficiently correlated with the science teaching which thus becomes a water-tight episode in instruction. It is held that the teaching of these preliminary subjects should be specialised and remodelled from the point of view of the practical utility in medicine, and more laboratory work in general, and particularly in organic and biological chemistry, included. It is stated that this specialisation cannot be effected at secondary and public schools, and that it must therefore be carried out in a University and by a teacher familiar with the requirements of progressing medical practice; and, further, that if these subjects are taught in schools the general education and culture of the students would be encroached upon. On the other hand, it has been argued that during recent years the science teaching at the public schools has been revolutionised; that the preliminary sciences should be taught on broad lines so as to lay some basis of a liberal scientific education, and not purely as applied sciences; and that it is not necessary that the teacher of the preliminary subjects should be a medical man, or that the instruction should be carried out in a University laboratory rather than in a properly equipped school. Also, that if chemistry, physics, and biology are taught by the Universities boys would necessarily leave school for the Universities at an early age—about 16—a course which would be most disadvantageous if it interfered with instruction in French and German, literature, and English composition. This seems a strong argument, for unless this instruction can be satisfactorily provided at a University, and it seems doubtful if this can be done so efficiently as at school, the general education would be very seriously curtailed. Further, there are obvious drawbacks in emancipating boys from school influence and discipline at the age of 16, and casting them loose into a strange University town.

Those who advocate that the preliminary subjects should be taught in the schools usually include biology with chemistry and physics, and this plan is obviously advantageous from the point of view of saving time. But the

biology most suitable to medical students is not so much a science which must precede human anatomy and physiology as a parallel or illustrative science as far as they are concerned, and like them a useful introduction to pathology and medical practice. The specialised biology necessary for medicine requires the services of a medically-minded teacher in a greater degree than do chemistry and physics, and would therefore appear to be more conveniently carried out in University laboratories than in schools. While there are obvious advantages in introducing physics and chemistry into the last two years of a boy's school life, biology, being on a somewhat different footing, should be postponed until the University course begins, and might be taught during the first three months—preferably the first summer term. In cases in which the student has easy access to a University close to his home and can begin a satisfactory two and a half years' course in modern languages, English, science, &c., at the age of $15\frac{1}{2}$ –16, the biology could be conveniently taken at the same time as the necessary physics and chemistry. In either event biology should be taught as far as possible from the point of view of future utility in medicine. Thus, fungi and bacteria, amœbæ, protozoan and other human parasites, and carriers of disease might be used as "types," and so become familiar at an early stage of the student's career. Some embryology should also be included in the course.

THE TEACHING OF ANATOMY AND PHYSIOLOGY.

In view of the extensive demands on the medical student it has been suggested that the time spent on anatomy and physiology should be curtailed by altering the teaching so as to insist on those details only which are of obvious practical use in medicine and surgery. Thus, medical and surgical or applied anatomy, and not the science of anatomy, would be taught, and the minute details of bony markings, the relations of muscles, and other points in descriptive anatomy which have no direct utilitarian bearing would be omitted. Physiology would be pruned to some extent, for example, by the elimination of exercises in muscle-nerve preparations. On the other hand, more attention would be paid to visceral topography and to the minute study of fresh organs—for example, recognition of the Malpighian bodies in the spleen, the glomeruli of the kidney, the cross-section of the suprarenals, the vessels and bile-ducts in the liver. The appearances of the thorax and of the alimentary canal (by means of a bismuth meal) would be demonstrated with the x ray screen; normal anatomy would, when suitable opportunities arise, be correlated with clinical and pathological changes; and the descriptive lecture would be confined to aspects of the subject such as the lymphatics and develop-

ment which the student cannot verify in the dissecting-room. These and other ways in which the teaching of anatomy may be improved were so fully considered last year by your distinguished Professor of Anatomy that it is unnecessary to proceed further. The teaching of physiology might be made more utilitarian by adopting similar methods: the stethoscope might be employed to demonstrate the sounds of the heart and lungs, greater familiarity with the sphygmometer, the polygraph, &c., ensured, and in the histology class the tissues and organs of man only employed.

Any utilitarian limitation in the amount of anatomy and physiology taught by the Universities must be most carefully considered and, if adopted, frequently revised. For with the constant advance of medicine and surgery it is obvious that anatomical and physiological knowledge which to-day appears of scientific interest only may to-morrow have most important practical significance. This applies with special force to physiology, in which it is most difficult to prophesy what parts of the subject should be ruled out as unlikely to be of use to the practitioner of the future.

Apart from their direct practical application these sciences have a great educational value. Practical anatomy educates the powers of accurate observation and of classification, trains the memory, develops the inductive processes of reasoning, and confers manual dexterity and quickness of eye. In addition to teaching anatomy, physiology, and biology to medical students, Universities have to provide for advanced students and for the research in these subjects.

CLINICAL MEDICINE AND THE UNIVERSITY.

In English Universities the Professorships of medicine and surgery differ from those of other faculties. Their incumbents, unless possessed of ample means, are mainly dependent for their living on sources outside the University, and therefore engage in private practice which must often form the chief interest of their life; whereas the professors of other faculties receive a living wage on the tacit understanding that their activities shall be entirely devoted to their chairs. A clinical professor under present conditions is therefore a pluralist, and though no doubt, in virtue of the catholicity of his interests, he is a better man, there is a limit to human capacity, and it is impossible for him to be equally efficient in all the obligations of such a position. The duties and responsibilities of such a post include (1) the care of the sick in the hospital; (2) clinical instruction in the wards, clinical and perhaps systematic lectures; (3) official duties in the University and medical school; (4) the cares and anxieties of a consulting practice rendered necessary to earn a living and to provide for his family and old age; (5) reading and investigation of new

methods so as to keep abreast of modern knowledge; and (6) original research in order to advance the science of medicine. The claims of the first four of these spheres of activity leave little time for anything else, and especially render research almost impossible. It therefore follows that one of the functions of a University—namely, original research for the advancement of scientific medicine—is practically prevented by the conditions under which the professors hold office. British medicine has certainly no cause to be ashamed of its achievements in the past, but they have been the outcome of individual enterprise and in the face of difficulties which from the enormous advance and specialisation of medical science are now much more formidable. It is therefore hardly surprising that research into the problems of medicine is passing out of the hands of hospital physicians and surgeons. With notable exceptions, such as Mackenzie's work on the heart and Head's on the nervous system, recent advances—for example, those in tropical medicine and parasitology and in the serum and vaccine treatment—have mainly come from men with time and opportunity to work out their ideas in a laboratory, and not from practising physicians and surgeons. The remark of one witness (a pathologist) before the Royal Commission on University Education in London, that "I do not know a solitary physician who is famous, apart from the neurologist, for his original work,"⁵ while it overstates our deficiencies, shows that this tendency is fully recognised. An atmosphere of active investigation exerts a beneficial influence on students, for although the original worker is not necessarily a good or inspiring teacher, the best teacher is one who is also engaged in research, because he stimulates independent thought and inquiry in his pupils, and thus counteracts the dogmatism which is perhaps a necessary element of success in elementary teaching. From the University standpoint clinical medicine may be divided into (a) the teaching of the applied science; and (b) the pursuit of the pure science. As far as the object of the medical faculty is to turn out sound practitioners of medicine, the present arrangement has worked admirably. But to place medicine on an equal footing with other sciences as regard facilities for research, some change is necessary, and on the difficult question how this is to be effected there is considerable difference of opinion.

Possible alterations are the following :—

1. That the professors of medicine, surgery, and obstetrics and gynæcology, whose conditions of tenure would be unchanged, should each have several assistants of proved ability. These assistants should be paid a living wage, and in return should for some (5 to 10) years devote the whole of their time to their chief's clinic. They should take an active part in the teaching as the professors should direct,

and at the same time should specialise in some department—for example, to take medicine, in pathological chemistry and metabolism, hæmatology, neurology, or infectious diseases—in which they should pursue original investigation. This would make clinical medicine more actively productive and would provide a class of scientific clinicians from which professors of medicine could in the future be selected. Such assistants would be of the rank of, or actually be, registrars or junior assistant physicians and assistant surgeons, but would while holding this post be debarred from private practice.

2. A second possible change—namely, the establishment of the whole-time professors of clinical practice, though in principle only an expansion of the first—has not unnaturally aroused much criticism and some opposition, for it would radically change the status and prospects of the professors of clinical practice. The sciences of anatomy, physiology, and pathology, which 30 years ago were, except in some Universities, usually taught by surgeons or physicians as a side or early issue in their active professional life, are now almost everywhere entrusted to specialists or whole-time teachers, and with almost unanimous approval and success. The question is now arising as to the specialisation of the clinical teachers on the same lines. Personally I am convinced that this reform will eventually be effected with advantage both to medicine as a whole and to medical education. The ideal of the whole-time professors of medicine and surgery who, like the professors of pathology, expend all their energies in teaching and working at their branches of medical science, and are continually in touch with the wards which form their laboratories, has often been carried into effect, especially in Germany, in spirit, though not in the rigid letter as to total restriction from private practice. The whole-time professor should be appointed when comparatively young (30–40), so that he has a prospect of at least 20 years' active work. He would be provided with a staff of competent assistants of the same calibre as those mentioned above, and must be paid an adequate salary and given a retiring pension graduated on the duration of service. The professor would be responsible for the organisation of his department, would teach, pursue and inspire original research, and set a high scientific standard. It is obvious that, being always on the spot, he should be a much more efficient head of the department than the part-time professor.

As this whole-time ideal has in the past been more nearly approached in Germany than elsewhere, some critics have assumed that its adoption would entail the substitution of the German method of demonstration of cases before large classes for the bedside and individualised teaching which is such an eminently successful feature in this country. But

it is surely somewhat illogical to fear that the German system would be slavishly followed in its entirety. The problems and difficulties connected with the institution of this new type, the whole-time professor of clinical medicine and surgery, have been brought out in the evidence given before the Royal Commission on University Education in London,² and in this connexion attention may be directed to two addresses by Professor Lewellys Barker,³ the first in 1902 when engaged entirely in laboratory work, and the other in 1911 when professor of medicine in the Johns Hopkins University and physician-in-chief to the Johns Hopkins Hospital. In the earlier address he pleaded for clinical professors "on a University basis," that is, with salaries large enough to enable them to dispense with private practice. In the second address, based on his experience as a professor of medicine, he deprecates hurry in making such a radical change, and advises the institution of endowed whole-time researchers who during their most productive years (25-45) should rapidly increase the scientific output of the clinics and would form a group of men from whom professors could be subsequently selected. The advantages of the whole-time system—namely, undisturbed contact with the hospital patients and students, opportunities for uninterrupted research, for keeping up with the literature, for organising a school of research workers, and the improvement in the teaching, both ordinary and advanced, which would thus result—are sufficiently obvious. Much has been said on the other side; it has been stated, among others, by Sir William Osler, that it would be impossible to keep the public away from a man so conspicuously and favourably placed; and that if this isolation could be preserved the professor would suffer from his narrowed outlook on medicine or, as it has been expressed, that he would be a professor "of hospital practice" rather than of "clinical medicine,"¹⁰ and that he would come to regard patients somewhat in the same light as guinea-pigs and from the laboratory rather than from the broad humanitarian point of view. As a result of the teacher's want of familiarity with the art of managing patients the students, who are to be the future practitioners of the world, would be placed at a disadvantage. Further, it has been urged that, as medicine and surgery are so extensive, a whole-time professor would be obliged to specialise in some branch or other, and so be unable to teach all the branches of his subject with uniform efficiency, and that thus the conception of an all-round Admirable Crichton would fail.⁸

3. To debar the professors from private practice entirely is as yet without precedent in this country, and would necessitate very considerable financial endowment. A less radical change has naturally been suggested—namely, that the chair should be half- or three-quarter time, and that one

day and some afternoons in the week should be free for practice; or that paying wards attached to the hospital should be at the professor's disposal, so as to minimise the waste of time involved in ordinary consulting practice. This would to some extent meet the financial difficulties and the objection that a whole-time appointment would cramp the professor. The drawback, and it is a considerable one, to any kind of part-time appointment is the difficulty in restricting the amount of private work; for, though it might work well at first, the demands on such an incumbent's services must almost necessarily increase with time and eventually encroach seriously on the professorial duties. It is undoubtedly easier for the incumbent of such a chair to abstain entirely than to be temperate in consulting practice.

4. The ideal of the whole-time professors with their expert assistants might be grafted on to the present system, so that the students would all pass through the hands, first of the part-time and subsequently of the whole-time teachers. The advantages of both systems would thus be obtained, and during the period of transition any injustice or interference with the vested interests of present teachers, who have borne the burden and heat of much unremunerative work, would be obviated. It has been suggested that the students should come under the whole-time teacher in the interval between the M.B. and M.D. degrees, but as most students are obliged to begin earning their own living as soon as they are qualified this plan would probably be often defeated.

5. *Special research hospitals.*—It is more satisfactory to combine research and the teaching and training of University students by whole-time professors and their skilled assistants than to make special arrangements for original work alone, because the scientific spirit is thus more widely diffused. Instead of the establishment of whole-time professors in conditions favourable alike for research and scientific instruction, endowment has already been provided for scholarships, and in a few instances for research hospitals. At Cambridge, which led the way in this study of special diseases, though only in a private house containing four beds, a small hospital was opened on May 24th of this year. Some 4000 cases of rheumatoid arthritis have been carefully recorded and investigated. The hospital attached to the Rockefeller Institute for Medical Research, New York, contains 70 beds which are utilised for selected cases bearing on a limited number of subjects chosen for investigation. In the first year the selected subjects were acute lobar pneumonia, acute poliomyelitis, syphilis, some disorders of metabolism, and certain forms of cardiac disease; in the second year a limited study of scarlet fever was also carried on.

UNIVERSITIES AND THE ONE-PORTAL SYSTEM.

It has been urged at intervals since 1869 that there should be a one-portal qualifying examination, corresponding to the State examination of other countries, so as to protect the public by ensuring a uniform standard of professional efficiency. The function of maintaining the standard of the qualifying bodies of the United Kingdom at a proper or "sufficient" level is at present entrusted to the General Medical Council. But the recent increase in the number of Universities has made this task less manageable. It is hoped that the State examination would simplify and diminish the number of examinations, as it would relieve the Universities of the responsibility of testing the fitness of candidates to practise. The final examination by the State Board in medicine, surgery, and obstetrics would admit men and women to the Register with the clear understanding that they should be entitled to be called "doctor,"⁹ the results of earlier professional examinations carried out by the Universities being accepted. In their evidence before the Royal Commission on University Education in London the representatives of the two Royal Colleges advocated that the admirable machinery of the existing Conjoint Examining Board should be utilised for the one-portal examination in England. As a result of the establishment of a one-portal system University degrees would become honorary instead of qualifying, and incidentally examining bodies which now grant ordinary diplomas to practise would die of inanition. For the University degree some further requirements in the way of an examination—not a repetition of that carried out by the State board—would be necessary. What exact form this test should take remains to be determined; but in order to make the medical degrees of Universities mean more than superior qualifications alterations in, or rather additions to, the curriculum, such as one of the following, might be made:—

(1) Six or 12 months' residence as a medical officer in a hospital might be demanded before the degree is conferred. In existing circumstances this would entail a qualification to practise from some licensing body and would therefore add to the trials of the already over-burdened student. It is true that 67 per cent. of men who reach the final examinations for the M.B. degree of Universities in England at present take the Conjoint Board examinations, but they do so for their own convenience, probably to hold such resident appointments before they are able to obtain the higher qualification; and it should be added that this 67 per cent. is made up in the following way: Of those taking the degrees of Oxford, Cambridge, and London Universities, 82 per cent. enter for the final Conjoint Board examination,

while from the Northern Universities not more than 40 per cent. do so. In the event of the establishment of a compulsory one-portal examination the necessary resident appointment would be held between the two examinations and any hardship involved under present conditions would disappear. In the past, when there was often considerable competition for such appointments, it would not have been fair to insist on this obligation for a University degree, but now that resident posts are often difficult to fill the objection that opportunities for fulfilling the necessary regulations are not available could not be upheld. (2) Instead of the M.B. degree being the natural outcome of passing the necessary examinations, a thesis might be demanded so as to show how far the mind has been trained rather than crammed, and to bring out evidence of the ability to think and report logically and intelligently on what has been observed. This exercise for the M.B. degree, which is at present demanded only in the University of Cambridge, might with due precautions be protected from abuse and evasion. (3) The students might pass for a period of 12 months or so into the hands of the whole-time professors of medicine, surgery, and obstetrics and gynaecology.

There are, however, difficulties in the way of adopting a one-portal system of qualification. In the first place, the Universities would have to give up their right to qualify their graduates to practise, an act of self-sacrifice which might not appear to them to be fully counterbalanced by the advantages secured. The examination, in order to be uniform, must be conducted by one board of examiners which would be made up of representatives of the various teaching Universities in England, just as now holds good to a certain extent in the constitution of the Conjoint Examining Board in England. It is doubtful if the provincial Universities would consent to the examination being conducted exclusively in London on account of the inconvenience both to their students and their representatives on the examining board. The written examination could be held in various centres, but if the clinical part were also decentralised it would be difficult to utilise the same examining board as in London, and if any extensive change in the *personnel* of the board occurred, the result might not be materially different from that at the present time

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