THE NEW ANATOMY BUILDING AT UNIVERSITY COLLEGE, LONDON.

BY

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THE erection of the new building for the Department of Anatomy, which also provides an extension for the Department of Physiology, completes the scheme for the development of the building for the Faculty of Medical Sciences which had long been contemplated. The proposal was first definitely formulated on the initiative of Professor Starling in 1907, and on July 24th of that year the scheme was approved by the Senate of the University and "a committee was appointed to co-operate with the architect, Professor Simpson, F.R.I.B.A., in preparing plans for an Institute of Medical Sciences (including Anatomy, Physiology, and Pharmacology), with a view to the immediate erection of a portion thereof for the Department of Physiology."

The necessary funds for this portion having become available through the generosity of a number of donors, amongst whom may be mentioned Sir W. Gwynne Evans, Professor H. R. Pimmer, the late Dr. L. Mond, and Mr. Thomas Webb, the work on the new institute was begun in March, 1908. The building was completed by May 1st, 1909, and on June 18th it was formally opened by the Right Hon. R. B. (now Lord) Haldane, Secretary of State for War, in the presence of a distinguished company. From the outset the new institute, under the inspiring guidance of Professor Starling, ably seconded by Professor (now Sir William) Bayliss, attracted students and research workers from all over the world, and to such an extent that it soon became apparent that the available accommodation was not equal to the demand made upon it. The erection of the second portion of the projected Institute of Medical Sciences—namely, that to accommodate the department of pharmacology—was rendered possible by the generosity of the late Mr. Andrew Carnegie.

The pharmacology building, which adjoins the Institute of Physiology on the east side, was completed in the summer of 1912, in accordance with plans drawn up by Professor A. R. Cushny, at that time Professor of Pharmacology in the college, and was formally opened on December 4th of that year by Sir Thomas Barlow, President of the Royal College of Physicians.

A site facing Gower Street, adjoining the western end of the Institute of Physiology, was allocated for the third portion of the institute, that to accommodate the department of anatomy, hitherto most inadequately housed, partly in the north wing of the main building of the college, and partly in low buildings at the back of the Birkbeck block. Before funds were forthcoming for the completion of the scheme the great war intervened and seemed to destroy all prospect of immediate fulfilment of this aim. But the college did not abandon hope, for when a new Professor of Anatomy was appointed in 1919 reference was made in the terms of his appointment to the intention of the college to provide a new building for anatomy as soon as the means for doing so became available. Nevertheless, not even the most sanguine member of the college could have anticipated that this confidence was destined to be justified so soon as it was.

If the war seemed to have destroyed any chance of the immediate fulfilment of our plans, it was also responsible for bringing us into closer and more sympathetic relations with the academic institutions and medical men of the United States of America. The Rockefeller Foundation was eager to give some striking expression of American friendship to the British Empire, and was also anxious to enlist the help of British medicine in its great schemes for "the promotion of the well-being of mankind throughout the world."

The Rockefeller Foundation has long recognized how much the well-being of mankind is dependent on the advancement of medical knowledge and on the training of men who can spread the benefits of this knowledge among their fellow creatures, and to this end has spent large sums, not only in the United States, but also in South America and in China, for the establishment of medical schools in which research and the education of medical men should go hand in hand.

At the end of 1919 two representatives of the Rockefeller Foundation—Dr. Wickliffe Rose, general director of the International Health Board, and Dr. Richard M. Pearce, adviser in

medical education to the Foundation—came to Europe to inquire into the methods, problems, and needs of medical education in this country and on the Continent. While in London they were informed of the new developments in medical education which had taken place in this city under the stimulus and with the financial help of the Board of Education. This development consisted in the establishment at several of the medical schools of clinical "units" in medicine, surgery, and gynaecology, which were staffed by whole-time teachers, so that these subjects could be treated like the cognate scientific subjects, the professor being able to devote all his working hours to teaching and research without being obliged to undertake private practice. This innovation especially excited the interest of the representatives of the Rockefeller Foundation since the Foundation had already played a large part in the encouragement and endowment of this system of medical education in America.

The essential feature in this system is the close co-operation between all departments concerned in the medical curriculum. It is recognized that medicine and surgery cannot advance except in association with and assisted by the other departments hitherto regarded as more purely scientific—in particular, pathology, anatomy, physiology, and biochemistry.

At University College Drs. Rose and Pearce found a hospital which had been founded for the express purpose of medical education. They found also active and well equipped institutes for the study of some branches of medical science and definite plans for the completion of a whole scheme of medical education as soon as the necessary funds were available. Thus in the college there was fair provision for physiology, pharmacology, and biochemistry, but no proper facilities for teaching and research in anatomy, embryology, and histology. In the clinical subjects of the curriculum, while medicine and surgery were represented by whole-time professors at University College Hospital Medical School, there was a lack of beds devoted entirely to the work of these units, and the accommodation for research into the chemistry of disease was deficient; there was no adequate provision for scientific investigation and teaching of midwifery and the diseases of women. Plans for the remedying of these gaps in the scheme were ready; the only thing necessary for the realization of the scheme was money. The representatives of the Rockefeller Foundation were impressed with the possibilities of the scheme for the creation of a complete and scientifically equipped school of medicine which had been worked out by the college and hospital medical school and reported favourably thereon to the Rockefeller Foundation. As a result of their report the Foundation decided not only to place at the disposal of University College sufficient funds for the realization of the scheme that was formulated in 1907, but also to provide the additional endowment required to maintain the increase in staff which the scheme entailed. At the same time the Rockefeller Foundation made an even larger gift to University College Hospital Medical School for the promotion of the work of the clinical units.

It is singularly appropriate that the attempt to institute radical reforms in the teaching of anatomy and in the provision of facilities for real research should be made in University College. Paradoxical as it may appear, the reforming zeal of Professor Sharpey at this college seventy years ago had as one of its ultimate results the crippling of anatomical effort in England, and it is proper that the college which created a physiology so vigorous as to take to itself the more vital and progressive parts of anatomy should be the institution to right this ancient wrong by restoring to anatomy the opportunities for teaching and research in histology and practical embryology, and for the experimental study of the factors that influence growth and development.

The structure of the nervous system, its developmental history and the connexions displayed by degeneration and experiment, are all subjects which should be studied as one connected whole in the department of anatomy; and if the complexities of the nervous system are to have any meaning or make any intelligent impression upon the students, the functional significance of the arrangements must be discussed and the effects of damage to the nervous system must be used, not with any pretence of teaching the student clinical medicine but in order to give him some satisfying explanation of a complex and otherwise unintelligible mechanism. It is necessary, then, in any properly equipped institute of anatomy, to provide a neurological department fully equipped

with sets of slides of adult human and embryonic material and of the brains of other vertebrates, and with laboratories for the experimental study of the results of degeneration.

It is an essential part of the work of a department of anatomy that it should carry on experimental investigations of the factors which influence growth and development and of the causation of anomalies and monstrosities. Such researches have led to results of very great importance from the insight they afford into the underlying principles of development as well as in explaining the causation of pathological conditions. The equipment of laboratories for such experimental work is therefore a necessary part of the scheme.

The knowledge of the structure of the living body that can be acquired by the use of the x rays is becoming increasingly important in the study of anatomy. At present a student is called upon to interpret radiograms long after he has left the department of anatomy, and when his practical familiarity with the arrangement of the structures he is endeavouring to disentangle has grown dim. Obviously the proper time to acquire an understanding of x -ray appearances is when the student is actually studying the things of which the x rays cast shadows. But such studies also teach him his anatomy, and are a valuable means of instruction. Moreover, the equipment of a department of radiology opens up a most promising field of anatomical research, which is bound to become increasingly fruitful year by year as the technique of radiography is improved.

The completion of the building for the three closely allied sciences of anatomy, physiology, and pharmacology represents far more than the mere provision of accommodation and equipment for teaching and research in anatomy and of an extension of the physiological laboratories. It is the expression of a far-reaching scheme of co-operation—involving on the one hand the closer correlation of teaching and research in anatomy, physiology, and pharmacology, and on the other the linking up of the work done in the Faculty of Medical Sciences in the college with that done in the Medical School of University College Hospital. Moreover, the new building is a permanent symbol of the bond of sympathy that unites us in a common aim with the medical schools of America and with the Rockefeller Foundation, our great benefactor.

By housing the departments of anatomy (with histology and embryology), physiology, biochemistry, and pharmacology in one institute, with a library and staff room in common, the way has been prepared for a closer co-operation between teaching and research in these subjects than has been possible hitherto. The new anatomy building is linked by means of a tunnel passing under Gower Street with the medical school of University College Hospital, and it is anticipated that this physical avenue of communication will facilitate a freer intercourse between the workers upon the two sides of Gower Street, to their mutual benefit.

The extension of the department of physiology affords ampler provision for teaching and research in experimental physiology, and makes it possible for Professor Starling to remain in the college as Foulerton Research Professor of the Royal Society, even though he relinquishes the Jodrell Chair of Physiology and the directorship of the institute which he created.

The Rockefeller endowment has made it possible not only to create a University Chair of Biochemistry but also to increase the accommodation allotted to this subject. It has thus become feasible to effect a reorganization in the teaching of this new and important branch of chemistry, and to provide for the needs, not only of the students of medicine, but also for the training of biochemists, for whom there is a constant demand in research and industry. For these a definite curriculum has been devised based on the fact that a biochemist should be above all a well trained chemist, as well as possessing a scientific knowledge of general biology or of biological subjects. On this foundation is built one or two years' work in the biochemistry department, selected students being given facilities to carry out original investigations during the latter part of the course.

As announced last week, their Majesties the King and Queen have graciously consented to visit the buildings on May 31st, when the foundation stones of the new obstetric block and of the nurses' home connected with University College Hospital will be laid and the new Institute of Anatomy formally opened.

RECENT ADVANCES IN MEDICAL EDUCATION IN ENGLAND.

SECOND MEMORANDUM BY SIR GEORGE NEWMAN.

[FIRST NOTICE.]

IN 1918 the Board of Education published a Memorandum entitled "Some Notes on Medical Education in England," by Sir George Newman, K.C.B., M.D., Chief Medical Officer of the Board. He is now also Chief Medical Officer of the Ministry of Health, and it is that Ministry which has issued a new Memorandum.¹ It is a document of much importance, and no phase of education in medicine seems to have been omitted. We propose this week to begin an account of its scope and contents, leaving comment to a subsequent occasion.

The Memorandum follows broadly the subjects of the medical curriculum in the sequence in which they are ordinarily taken at the schools, but it has a brief historical introduction dealing especially with the work of the General Medical Council in its developments from 1858 to 1922, and with the institution in 1908 of Treasury grants to universities and medical schools, through the Board of Education in England, and directly by Parliament for Scotland and Ireland. The seven points to which special attention is given in assessing grants are: (1) the number of students, (2) the content and scope of each subject taught, (3) the educational staff, (4) equipment and clinical facilities, (5) the standard and character of teaching, (6) the correlation of subjects and interrelation of laboratory and clinical work, and (7) research work. A University Grants Committee was appointed to take the place of the Board of Education as from 1919, and grants are paid to practically all the fifteen universities in Great Britain.

In dealing with the preliminary sciences the opinion is expressed that chemistry, physics, and biology are fundamental. The centre of knowledge is for ever shifting and "we are in need of a closer association between physics and chemistry on the one hand and biology and medicine on the other." The author expounds the General Medical Council's policy, which is that the elements of these subjects should be taught at the secondary or public schools to the standard of the preliminary examination. Their applications to medicine are to be taught during the medical curriculum, which is so far lightened. Many excellent courses of this nature are now, it is said, established under the regulations, but Sir George Newman urges: "In such advanced courses one primary consideration should be paramount—namely, that proper provision should be made for the concurrent study of English language, literature, and history." More than 250 secondary schools now give advanced courses, but not nearly so many in biology as in chemistry and physics. Six examples of the courses of instruction are quoted from reports by H.M. inspectors. The medical schools will have to supplement any insufficiencies of the secondary schools. Biology is regarded as of special importance—"it is the basis of sociology." The author holds that zoology and botany must continue to be taught separately. It is urged, again, that the teaching of the principles of chemistry should not be allowed to suffer by giving the student too much inorganic chemistry. Finally, as to the preliminary sciences: "When the student enters upon the professional part of his course these subjects must be deeply integrated into physiology, pharmacology, and pathology, and practically applied in his clinical studies."

Anatomy.

"Anatomy is the foundation of the Science and Art of Medicine": so begins the chapter on that subject. But it became a restricted subject "neither biological in setting nor physiological in purpose." The student was overburdened with detail and could pass examinations only by "cramming." The anatomy was that of the dead and not of the living body—not like that of the Greeks, who learned from athletes in action; it was divorced alike from biology and clinical study. But there was a renaissance in both respects; Harvey was a biologist and John Hunter and the Monroes were surgeons or teachers of surgery. The purpose and meaning of anatomy can only be learned at the same time as its structure.

¹ *Recent Advances in Medical Education in England*. A Memorandum addressed to the Minister of Health by Sir George Newman, K.C.B., M.D., Hon. D.C.L., F.R.C.P., Chief Medical Officer of the Ministry of Health and of the Board of Education, Crown Nominee to the General Medical Council. London: H.M. Stationery Office, Imperial House, Kingsway, W.C.2. 1923. 1s. 3d. net.