UNIVERSITY OF GLASGOW

NEW BIOCHEMISTRY BUILDING

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UNTIL recently it has been the custom in most British universities for Departments of Biochemistry to be housed in rather make-shift accommodation, usually the laboratories of some other Department which had moved to better quarters. With a few notable exceptions, buildings specifically designed for biochemistry have been conspicuous by their absence. Within the past few years, however, a few such buildings have been in course of construction, and one of these, the building to accommodate the Department of Biochemistry of the University of Glasgow, has recently come into use.

The opening ceremony was performed by Sir Rudolph Peters on January 6. He recalled that Glasgow was one of the first universities in the United Kingdom to engage in the teaching of biochemistry as the result of the foundation of the Grieve Lectureship in Physiological Chemistry which was endowed by the bequest of Dr. John Grieve in 1905. The first incumbent was E. P. Cathcart, who had studied with Voit, Liebig's most illustrious pupil. Cathcart later became the first occupant of the Gardiner chair of physiological chemistry when it was founded in 1919 and endowed by William Guthrie Gardiner and Sir Frederick Crombie Gardiner, shipowners in Glasgow. An honours course was established as early as 1921 and for many years the subject was taught in the Institute of Physiology, but in 1948 the Department became autonomous and its name was changed from physiological chemistry to biochemistry by a decision of the University Court. In 1958 the title of the chair was amended by substitution of biochemistry for physiological chemistry in accordance with the provisions of a new ordinance. The Department, however, continued to be accommodated in the West Medical Building of the University. The construction of a new building to house the Biochemistry Department began in 1960 and was completed in 1963. The architects were Messrs. Keppie, Henderson and Partners of Glasgow.

The new building is situated on the south-west front of the University overlooking Kelvingrove Park. It is con-

structed on three main floors with an additional basement floor at the east end. The building is steel framed with *in situ* hollow-ribbed concrete floors. Externally, it is clad with a light-weight timber 'curtain wall' fixed to vertical steel T sections on a 5-ft. module. There are no opening windows since the building is air-conditioned. A certain amount of brick, stone and pre-cast facing material has also been used; the area of stone facing has been limited by considerations of cost mainly to the service tower at the east end of the building. Fire-proofing of the structure has been achieved by the use of a continuous patent tile suspended ceiling and a fire-proof sheet cladding to the steel columns. The light timber partitions are constructed of a basic timber framing clad each side with plaster-board and finished with V-jointed hardboard panels. These partitions, which extend to the under side of the suspended ceiling, are held rigid on top by means of metal brackets fixed to the underside of the concrete floor, thereby leaving the space above the ceiling free from obstruction for the horizontal distribution of service elements. Floors in the laboratory areas are finished with hardwood fixed to timber bearers, and in all other areas a vinyl sheet covering has been used.

The centre corridors in the main laboratory wing have flush plywood wall finishings behind which are housed the main vertically rising ducts for services and ventilation ducting. Recessed locker units have been fitted in the areas not required by service ducts. Ceilings in the corridors are low and demountable, the space above them being used for the main horizontal service runs.

All laboratory benches and fittings have been specifically designed for the job and are constructed on a unit principle. Bench and duct framing is demountable and all cupboard and drawer units are interchangeable.

Services are carried so far as possible on the service rack principle in order to achieve maximum flexibility and accessibility. Except in the large teaching laboratories which have island benches, they do not emerge through the floor but run horizontally along the outer walls of

Fig. 1. The new biochemistry building, University of Glasgow

the building and branch inwards along the peninsular benches.

The front door and entrance hall are located on the middle floor of the three main floors of the building. A central corridor lined with built-in coat lockers runs westward from the main east staircase to the smaller staircase at the west end. On the south side of the corridor is the large elementary teaching laboratory with associated preparation room. On the north side are students' locker rooms and lavatories, a photographic suite, tutorial and balance rooms, the main stores and the goods entrance with unloading bay.

The south-west corner of the upper floor houses the library. Next to it is the departmental office and beyond that the professor's room and laboratory. This floor contains a number of rooms for research and postgraduate instruction, including those for macromolecular biochemistry and molecular biology, cellular biochemistry and the radiochemical laboratory. A cold room, a centrifuge bay and a staff common room are also on this floor. Above it, at the east end, is the tower which contains ventilation machinery, lift machinery and a large water deionizer. The upper level of the tower houses large water storage tanks.

On the south side of the lower floor are the advanced laboratory and the honours laboratory separated by a common preparation room and instrument room. This floor also houses various groups of rooms for research and postgraduate instruction, including those for nutritional biochemistry, plant biochemistry, microbiological biochemistry and veterinary biochemistry, and at the east end, roughly underneath the front hall, are a large cold room with inner freezing compartment, an autoclave room, incubator rooms and a centrifuge bay.

At the west end of this floor a bridge communicates with the animal house in an adjacent building. On this floor also is the lecture theatre with retiring rooms and cloak rooms.

The basement floor is confined to the east end of the building. It contains a large chromatography room, an electrophoresis room, a Kjeldahl room, an isotope assay room, a mechanical workshop, an electronic workshop, a large-scale preparation room, a glass wash-up room and a shower bath.

The Department has heavy teaching responsibilities in the Faculty of Medicine and in the Faculty of Science, and is believed to be the largest in Britain in terms of student numbers. Instruction is given each year to some 800 students made up approximately as follows:

Postgraduate research students	25
Postgraduate students attending lecture courses only (Ed.B., D.P.H., etc.)	110
Final honours science students	15
Advanced science students	40
Elementary science students	90
Medical students (2nd year)	170
Medical students (4th year)	170
Dental students	55
Veterinary students (2nd year)	50
Veterinary students (3rd year)	50
Pharmacy students	60

On the research side, the Department concerns itself with several different aspects of biochemistry. One topic which has been under active investigation for more than 15 years is the study of the components of the mammalian cell, particularly the nucleic acids (RNA and DNA), their distribution and biosynthesis, and the part they play in the economy of the cell. For this purpose both normal and cancer cells are used as well as cells infected with viruses. For certain purposes it is desirable to study pure strains of mammalian cells, and a special unit has been set up for the large-scale production and examination of cells in culture. The chemical changes associated with cell growth and division are the subject of extensive investigation.

Biochemistry has an important bearing on the subject of human and animal nutrition, and that aspect of nutrition which is under special examination in the Department deals with protein metabolism, structure and biosynthesis.

In the investigation of plant biochemistry special attention is being directed to nitrogen fixation and amino-acid metabolism. The investigation of the chemical processes in micro-organisms includes an examination of the mode of action of antibiotics and of the way in which new enzymes are formed in bacterial cells.

Work on the biochemistry of the domestic animals in health and disease is undertaken in association with the veterinary departments of the University. Among the investigations in progress is a comparative study of immunological response in the horse, cow, sheep, pig, dog and cat.

THE CARNEGIE INSTITUTION OF WASHINGTON

YEAR BOOK No. 62 of the Carnegie Institution of Washington*, covering the year ended June 30, 1963, includes the report of the President, reports of the departments and special studies, with bibliographies of publications during the year, and the auditors' report.

In his review of the year, the President refers particularly to the work of the Institution on the structure and content of the cosmos, on the origin, evolution and comparative physiology of life forms, the characteristics of natural systems and on the particulate character of energy and matter to illustrate the extent to which the Institution is concerned with four of the overriding problems of to-day. At the Mount Wilson and Palomar Observatories the advances achieved during the year include the discovery of a galaxy, 3C273, radiating about 100 times as much energy as the Milky Way Galaxy, as well as another powerful radiating galaxy, 3C48, which may be the second most distant galaxy observed optically so far. Evidence was obtained that gigantic explosions occurring in such galaxies may be the source of the intense radiation, and the age of the Milky Way Galaxy

is now estimated as being about 12 billion years. Much new information has also been obtained about the circulation of the atmosphere on Venus, and the amount of water vapour in the atmosphere of Mars has been measured with high accuracy. Since this is about one two-hundredth of the amount of water in the air over desert areas like the Sahara, and about one-fourth of that in the antarctic atmosphere, it is thought that the existence of life on Mars in any form resembling that on the Earth is unlikely.

Investigations in the Geophysical Laboratory have thrown new light on the origin of petroleum. Slow decomposition, by mild heating, of kerogen—an insoluble bituminous substance resulting from the slow decay of plant and vegetable material, which is widely distributed in rocks and clays—yields saturated straight-chain hydrocarbons of a type abundant in natural petroleum. The yields of hydrocarbons from organic materials in the older rocks differ from those obtained from the kerogens of recent formations, and it is believed that the original composition of organic matter in the older rocks differed significantly from that in later formations. The major effort of the Laboratory in geochronology continued to be evaluation of the reliability of mineral ages.

* Carnegie Institution of Washington. Year Book 62, 1962-1963. Pp. xi+551+13 plates. (Washington, D.C.: Carnegie Institution of Washington, 1963.) See also p. 533 of this issue of *Nature*.