

THE DEPARTMENT OF PHYSIOLOGY, UNIVERSITY COLLEGE OF THE WEST INDIES

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THE University College of the West Indies was founded as the result of a Commission on Higher Education in the Colonies. The West Indies Committee of this Commission published a report in June 1945 and it was on the basis of this that the University College of the West Indies was planned.

For the first time in the British Caribbean, in October 1949, medical students were accepted for physiological studies. The Department of Physiology was then housed in temporary wooden buildings, where it remained until March 1952, when all the divisions of the Department were moved into new buildings. The new buildings are well lighted and ventilated and, although of simple construction, comfortable and adequate for research and teaching (Fig. 1). The detailed interior planning of the buildings and the design of the furniture and fixtures were carried out by the staff. The University has a magnificent setting of 700 acres in a valley surrounded by delightful mountain scenery.

The Department has three divisions: physiology (Prof. I. F. S. Mackay), pharmacology (Dr. P. C. Feng, lecturer in charge) and biochemistry (Dr. S. J. Patrick, senior lecturer in charge). There is a close integration both in teaching and research. The facilities of the Department, such as the animal house and workshop, are available for the three divisions. Fig. 2 shows the layout of the buildings. There is a block set aside for physiology with an extension for pharmacology, and a separate block for biochemistry. The animal house is separated from the main buildings. The lecture theatre shown in the plan is shared by the other science departments of the College, which adjoin the physiology buildings.

The Physiology Division contains a laboratory with adequate facilities for teaching forty medical students and is used both for physiology and pharmacology teaching. The usual services are provided. Each pair of students is allocated a space on the bench, which is furnished with a set of outlets for A.C., D.C., 'time', and taps for compressed air and gas (propane). There are two main research laboratories, one especially equipped for human work and one for animal work. All the necessary electrical supplies and compressed air are laid on throughout the whole Department. The extension for pharmacology houses an office and a research laboratory. There is a special dark room set aside for optical registration as well as a photographic dark room. In

addition, there are the usual offices for staff which in themselves are equipped as small laboratories. The workshop is equipped to make the usual physiological equipment. The animal house, besides housing dogs and small animals, has a special research laboratory equipped for animal surgery.

The Biochemistry Division houses the departmental seminar room, which is adequate for the teaching of forty students and contains the usual projection equipment and will contain the departmental library. In this building is situated a glass and chemical store. Research facilities are provided in three main laboratories and there is a teaching laboratory to accommodate forty students.

Students are prepared for the degrees of the University of London on a "special relationship scheme". The course follows the requirements of the University of London, but as a period of six terms of study has been adhered to instead of the usual five, it has been possible to organize a more extensive practical course. The emphasis of teaching in the practical classes has been on the human aspects of physiology and biochemistry. The basic pharmacology is taught with animal experiments. The teaching of the three divisions of the Department is closely integrated, and a tutorial system where students are divided into groups of four or five is in operation. Each term these groups are re-allocated to different teachers in the Department. As the number of students in each year is small (approximately twenty) it has been possible to maintain close individual contact and supervision of their work. Science students have not yet been accepted; but teaching for applied pharmacology has already commenced.

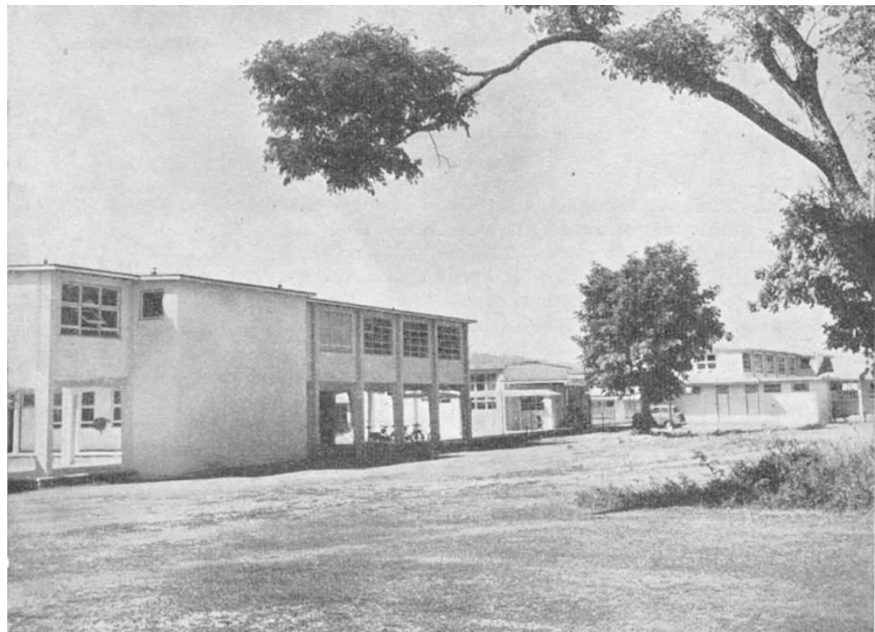


Fig. 1. Foreground left, part of the Biochemistry Division; middle distance right, part of the Physiology Division

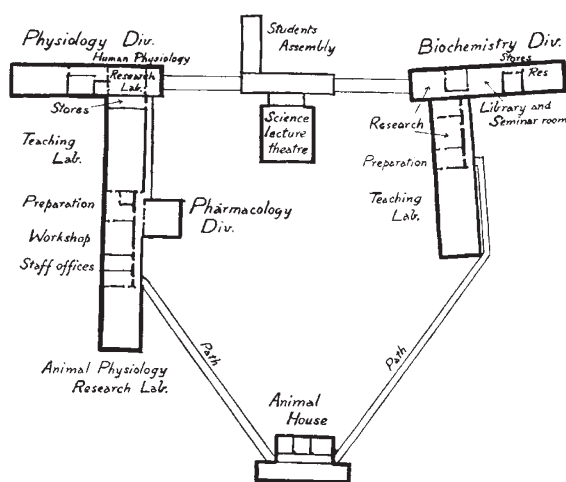


Fig. 2

The teaching of applied physiology will be undertaken when the staffing establishment has been completed.

Because of the location of the new Department in the Caribbean, it was natural that the research interests of its staff would develop in a direction where these territories offer special opportunities. Thus the over-all plan in departmental research has tended largely towards nutritional studies. Several members of the staff, in co-operation with a group from the Department of Pædiatrics from the University of Pennsylvania, are carrying out a basic nutritional survey on children and studying factors influencing nutritional status. We are pleased to report very generous assistance from the American Cyanamid Corporation, Merck and Co. and the Medical Research Council. The nutritional studies have meant an extension of the activities of the Department into relatively inaccessible parts of the island, where villages and communities are only reached after covering long distances, bad roads and surmounting such obstacles as mountain streams, etc. Those of us who have spent most of our time working in the laboratory find this field-work an interesting change. This work has provided material for biochemical studies involving an examination of the metabolism of vitamin B₁₂ and a study of the relationship between various enzyme systems and malnutrition. A member of the staff seconded by the Medical Research Council has been studying the intracellular enzymes of the liver and their relation to nutritional deficiencies. Another member of the staff with biochemical interests is now studying the metabolism of the coral reef and carrying out a survey of the zooplankton distribution in these tropical waters.

Jamaica is well supplied with material for the pharmacological and toxicological studies of natural products. Some work has been done on the pharmacological principles in the 'parotid' glands of the local toad (*Bufo marinus*). Studies have also been carried out on the toxicological principles of a local fruit called the ackee (*Blighia sapida*), which is a very common item in the Jamaican diet, and is supposed to be responsible for a seasonal disease called 'vomiting sickness'. This problem is under investigation with the financial assistance of the Government of Jamaica and in co-ordination with other Departments in the University. Apart from these 'Caribbean'

interests, work is continuing on more fundamental physiological problems such as cardiovascular, endocrinological and intra-cellular enzyme studies. One of the pleasing factors of the University College as a whole has been the intimate and close co-operation that exists between the new Department of Physiology and those of other science and medical departments.

All the members of staff live in a housing community close to the laboratories, and a very valuable form of social life has developed in which the staff of the Department meet one evening a week on one another's verandas to read journals and discuss their current research problems. To this club are invited members from other departments with similar interests and any scientists visiting Jamaica.

In its short history the Department has been through fire and water. About sixteen months ago a fire destroyed the temporary animal house. Fortunately nuclei of the various imported animal colonies were saved and in the new permanent buildings we are returning to normal. Very anxious moments arose when flames were sufficiently close to the temporary biochemistry laboratories to cause charring of the external walls. Valuable equipment was moved to a safe distance by many willing hands. Our passage through water occurred one night when 25 in. of rain were blown horizontally by a hurricane through the laboratories. Although the roof of the biochemistry building was torn off, the damage to equipment was surprisingly small and was soon made good.

THE THYROID GLAND

THE Society for Endocrinology and the Endocrinological Section of the Royal Society of Medicine held a joint symposium on "The Thyroid Gland" in London at the Royal Society of Medicine on February 25. This was well attended and covered a wide range of interests. Among the distinguished foreign visitors were Prof. Jean Roche and colleagues from the Collège de France, Paris.

The morning session was opened by the chairman, Sir Charles Harington, who gave a brief review on the development of thyroid research during the past twenty-five years. He recognized a chemical period dating from the characterization of thyroxine, which was followed by a more biological approach resulting from work on the anterior pituitary and its thyrotropic hormone. He referred briefly to recent work on the nature of the thyroid hormone and its biosynthesis. This has depended on the skilful application of chromatography and auto-radiography, particularly by Leblond, Gross, Pitt Rivers and the French team under Prof. Roche. He also dealt briefly with anti-thyroid substances. Although the goitrogens represent at present the only successful therapeutic application in this field, the theoretical importance of thyroxine analogues was mentioned.

Prof. Roche then described in some detail work carried out in collaboration with S. Lissitzky and R. Michel on the mechanisms involved in the biosynthesis of the thyroid hormone. The view was expressed that the iodination of tyrosine occurs after the incorporation of iodine in the thyroglobulin molecule. The circulating blood contains mainly thyroxine with small amounts of L-triiodothyronine; the absence of mono- and di-iodotyrosine, which occur only in the thyroid, was explained by the operation of a dehalo-