

scientists each, for chemistry and chemical engineering, for building research, for road research and for metallurgical work: the first, with the directorate, and the second would be in Nairobi, the third in Tanganyika and the fourth in Uganda.

Reviewing inter-territorial research in health and medicine, which is organized in several independent units or institutes, each separately responsible to the Administrator of the High Commission, with the East African Bureau of Research in Medicine and Hygiene as co-ordinating agency, Dr. Worthington suggests that the East Africa Medical Survey may in the future either turn its primary concern from investigation to the application of the results, or hand over application to the territorial departments and extend its investigations to other African areas for comparison with work now being conducted in Sukumaland. If the Filariasis Research Unit terminates in 1954, its facilities will presumably be absorbed into those of the Medical Survey, but the Malaria Unit should continue, if not expand, and the Virus Research Unit at Entebbe likewise has a great field of research open to it. Future planning, however, while depending on the results of the Medical Survey, should be designed particularly towards the development of preventive techniques, but should include provision for fuller investigation on an inter-territorial basis of such problems as nutrition, schistosomiasis, snail vectors, silicosis, tuberculosis and plague, and especially the effect upon the numbers, activity and output of a population of large-scale measures for control of disease. This matter is closely related to the demographic studies of the East African Statistical Department, and Dr. Worthington suggests that the possibility of creating an "operational research unit" to assess the interaction of all factors on the general economy of East Africa should be kept in mind. The East African Institute of Social Research and research workers connected with it are at present devoting special attention to the study of the development of local government in African societies. Dr. Worthington directs attention to the need for good libraries and information services, with which East African science is not yet well equipped; but though he advocates a publicity policy in which due regard is paid to the comparative responsibilities of regional services as compared with territorial departments, he suggests that in East Africa it is better to concentrate on enlarging and improving the existing scientific or technical periodicals than to establish new ones.

Dr. Worthington's most important references to finance are to be found in his final section, which includes a tabular summary forecast of East African Regional Scientific Services in 1956. Recurrent expenditure is put at no more than £868,000, with some 182 professional officers, meteorology (£120,000) and tsetse flies and trypanosomiasis (£118,000) being the largest items, while on four others—agriculture and forestry, animal health, locust survey, and health and medicine—expenditure is a little above or below £100,000. This represents an increase of 17 per cent in four years, in accordance with a period of consolidation, rather than of expansion, and one in which the proportion of total effort devoted to research on the productive services has increased slightly with reduction elsewhere. Moreover, expenditure in East Africa represents about one-third of the Colonial Development and Welfare Research Funds already committed, although the region represents only about one-fifth of the Colonial Empire. Dr.

Worthington recognizes that the solution of major problems during the next five years or so may permit some readjustments, for example, possibly a reduction in the size of the Tsetse Flies and Trypanosomiasis Organization; but although the East African Governments may be expected to increase their expenditure on research, the percentage of expenditure on research in their rapidly expanding budgets is unlikely to exceed the present three per cent. Continuing support from Colonial Development and Welfare Research Funds will be required, and finally Dr. Worthington pleads that, in the future organization and finance of research in East Africa, regard should be had to the academic system of picking really good men and giving them full freedom of action.

## WEIZMANN MEMORIAL CONVOCATION

TO mark the first anniversary of the death of the late President Weizmann, a number of events of scientific interest took place at the Weizmann Institute of Science at Rehovoth, Israel. On November 3, the new building of the Department of Experimental Biology was formally opened (p. 68), and at the same time the corner-stone of the Institute of Physics laid. On the afternoon of the same day, honorary fellowships of the Weizmann Institute were conferred upon the following guests: Prof. Niels Bohr (Copenhagen), Dr. Ernst E. Chain (Rome), Dr. Herman F. Mark (Brooklyn), Prof. Linus C. Pauling (Pasadena) and Dr. F. Peyton Rous (New York). Following this ceremony, Prof. Niels Bohr gave an address on "Modern Physics and Philosophy".

The occasion was taken to hold a number of scientific symposia. In a biological symposium, Dr. Peyton Rous gave a general account of the "Natural History of Cancer", Prof. I. Berenblum (Rehovoth) spoke on the mechanism of carcinogenesis, Dr. M. Shelesnyak (Rehovoth) spoke on recent work on the mechanism of nidation in the mammalian uterus, and Dr. L. Sachs (Rehovoth) presented a genetical analysis of evolution.

In a symposium on polymers and proteins, Prof. Mark described recent developments in the study of block copolymers; Prof. A. Katchalsky (Rehovoth) gave an account of the rheological properties of polyelectrolyte gels and Prof. Pauling spoke on the  $\alpha$ -helix structure of protein.

There was a symposium on microbiology and biochemistry in which Prof. Chain described the role of insulin and other substances in glycogen formation; Prof. E. Katchalsky (Rehovoth) spoke on the polymerization accompanying the action of proteolytic enzymes on poly- $\alpha$ -amino-acids, and Dr. S. Hestrin (Jerusalem) spoke on the synthesis and degradation of polysaccharides.

In the physical symposium, Prof. Niels Bohr gave a general introduction to modern atomic physics (electronic and nuclear) and its relation to molecular structure questions; Dr. A. Bohr (Copenhagen) described recent results, both theoretical and experimental, on nuclear rotational levels; and Prof. G. Racah (Jerusalem) spoke on angular correlation between nuclear radiation. Dr. S. Rozental (Copenhagen) wound up the symposium with an account of the organization and work of the Institute of Theoretical Physics in Copenhagen.

Apart from these symposia, Prof. Pauling gave two separate lectures—one on a new approach to the problem of ferromagnetism and the other on the connexion between various blood-cell diseases and structural changes in the haemoglobin molecule. Prof. Mark also lectured, with interesting demonstrations, on new types of synthetic polymers.

The Memorial Convocation ended in December with a series of lectures by Sir Robert Robinson on "Structural Relations in Natural Compounds"; these constitute the first set of Weizmann Memorial Lectures, which, it is intended, will become an annual event.

## EXPERIMENTAL BIOLOGY AT THE WEIZMANN INSTITUTE OF SCIENCE, REHOVOTH, ISRAEL

THE official opening of the Isaac Wolfson Building for Experimental Biology on November 3 represents the completion of a further stage in the development and expansion programme of the Weizmann Institute of Science in Rehovoth.

The Weizmann Institute of Science, which grew out of the former Daniel Sieff Research Institute of Organic Chemistry and Microbiology, began its first stage of expansion in 1948, with the creation of new departments for applied mathematics, optics, isotope research, biophysics and high-polymer research. At that time, plans were already being made for a further extension towards the ultimate creation of an Institute of Biological and Medical Sciences, of which the present Wolfson Building is a first stage, to accommodate the Department of Experimental Biology.

The new building is an attractive, four-story structure, of about 500 square yards per floor. It is air-conditioned, with a lift, broad corridors and other amenities suitable for animal work. It includes ten laboratories, eight animal rooms, three rooms for cleaning and sterilizing of cages, an operating unit, a library, a seminar room, a photographic unit, and

storage rooms. The internal construction is of a somewhat flexible design, for easy convertibility from laboratory to animal room, etc.

The Department of Experimental Biology is under the direction of Dr. I. Berenblum, formerly of the Sir William Dunn School of Pathology, University of Oxford. The major field of research in the Department is on cancer, with special emphasis on the mechanism of carcinogenesis. Included in the Department are separate units on endocrinology and cellular genetics; it is hoped to include, in time, further units, for example, on pharmacology, experimental embryology, and basic nutritional research. The experimental animals, including several genetically inbred strains of mice, as well as rats, rabbits, guinea pigs and hamsters, are all bred on the premises, and additional facilities are available close by for outdoor breeding of the larger animals, with suitable runways, etc.

The Weizmann Institute of Science is, at the moment, engaged in planning a post-doctoral school, towards which the new developments in biological sciences will have much to contribute.

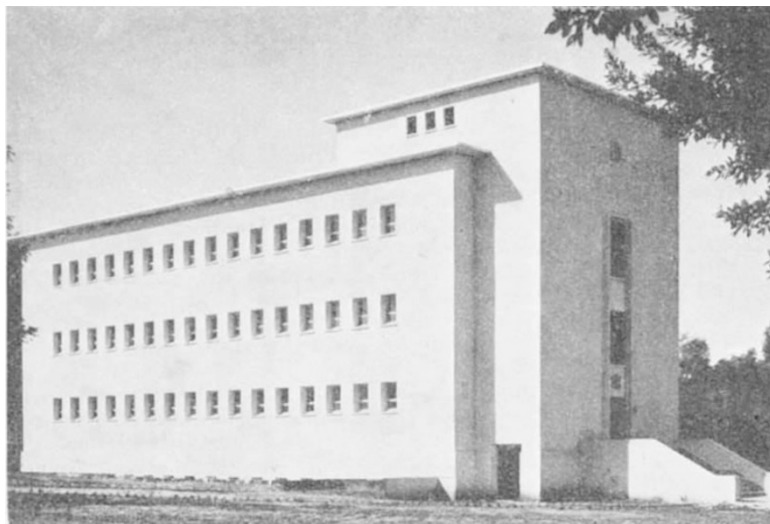
## EFFECT OF FLOODS ON THE OYSTER GROUNDS OF EASTERN BRITAIN

By G. DUNCAN WAUGH

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ALL the oyster-producing grounds of the east coast of Britain were within the area affected by the floods of January 1953, and in many cases the damage done was considerable. In Essex, where the major losses occurred, oyster cultivation is carried on in the estuaries of the Rivers Colne, Blackwater, Crouch and Roach, and in the numerous creeks which enter these rivers. Many of these creeks are in reality embanked inlets in the marshes. Where the banks were broken, immediate and serious damage occurred on the adjacent oyster beds.

There were two main causes of loss: first, the burying of the oysters on the creek bottoms under debris from the land, and, secondly, the choking of the oysters in the rivers and creeks by the great quantities of silt present in suspension in the water. Damage of the first type usually occurred on oyster grounds which adjoined major breaches in the sea wall; for example, a big breach was made in the wall above Old Hall Marshes, near West Mersea, on the north side of the River Blackwater, and the oyster grounds in the upper part adjoining Tollesbury Fleet suffered severely. Surveys made soon after the floods showed that there was a thick layer of debris consisting of mud, turves, stalks and leaves of *Spartina townsendii*, etc., covering the oyster beds. A great deal of this material was putrefying. The work involved



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