

*eugametos* Mitra; the cytology of colonial Volvocales of south-eastern England; the unusual nature of the Dinophycean nucleus; the taxonomy of the Cryptophyceae; etc.

It is clear from this *Bulletin* that notwithstanding, or perhaps even as a result of, the recent emphasis

on other aspects of phycology, work on the morphology and life-histories of the algae is being pursued with undiminished enthusiasm, and there can be no doubt that many stimulating problems in this field will still arouse the interest of future students of the algae.

A. ALLSOPP

## THE INSTITUTE FOR SCIENTIFIC RESEARCH IN CENTRAL AFRICA

THE Institut pour la Recherche Scientifique en Afrique Centrale, founded in 1947, has five main centres in the Congo at Lwiro, Uvira, Astrida, Mabali and Elizabethville, and a number of sub-stations for field studies at Tshibati, Irangi, Uwinka (Ruanda), Bugesera and Mutara.

The twelfth annual report of the Institute\*, written in French, is an impressive document of 253 pages illustrated by an appreciable number of photographs. It is divided into three sections dealing respectively with administration, including the report of the director-general, Prof. L. Van den Berghe, on the work of the Institute; review articles on the work of the Institute in certain broad fields, and abstracts of scientific papers written by the staff or those who have been in some way associated with it, and published in 1959.

The first part of the report gives, in addition to the report of the director-general, details of the constitution of the Institute, membership and activities of the various scientific committees connected with its work, and a financial statement. The report of the director-general includes not only details of the scientific activities but also lists of visitors to the Institute during the course of the year and details of construction work carried out to extend and improve the various centres. One feels that much of the information given in the first forty pages of this administrative section of the report would be more appropriately situated in an appendix, thus leaving the report to deal primarily with the scientific work carried out. The same is true of the financial report, which is placed between the account of research activities and the section of the report devoted to review articles.

The range of scientific work covered by the Institute is vast. The report of the director-general gives details of work being carried out in the following fields: experimental zoology, including the capture, study and breeding of wild animals such as buffalo, chimpanzee and mountain gorilla; entomology;

parasitology, with particular reference to trypanosomiasis; human pathology including kwashiorkor, the effects of vitamin A and the role of different classes of lipids in human nutrition; anthropology, sociology and languages; archaeology; hydrobiology and hydrology; plant geography, ecology and physiology; seismology and vulcanology. An observatory was under construction on Mount Tumbwe.

The four review articles which constitute the second part of the report are concerned with the part played by the Institute in the study of feeding and nutritional problems; hydrobiological research on Lake Tanganyika; physical sciences including seismology, vulcanology, solar-terrestrial phenomena and astrophysics; human sciences including cultural and physical anthropology, economics, African languages, prehistory and history. The list of scientific papers written by the staff and associates of the Institute during 1959, which is given in the final section of the report, covers the whole range of the work of the Institute. Abstracts of varying length are given for more than half the 103 papers listed.

Two main impressions are gained from reading these reviews and abstracts, and indeed from the report as a whole. First, that the Institute was attempting to cover too wide a scientific field for all aspects of its work to be really effective. Secondly, that it is not a pure research institute but is very much applied in its approach. The latter would seem to be very desirable in an institute working in an underdeveloped country where not only are the basic facts about the terrain and habits of the people largely unknown, but where also the applied work can only be carried out in the territory itself.

It is unfortunate that the Institute for Scientific Research in Central Africa, with the present difficulties in the Congo, appears to have more or less ceased operations. It will be a considerable loss both to the Congo and to all underdeveloped territories if it does not continue, and it is to be hoped that the efforts being made at present by the authorities in the Congo to carry on the type of work started by the Institute will prove successful.

S. S. BAMPTON

\* Institut pour la Recherche Scientifique en Afrique Centrale, Bruxelles. Douzieme Rapport Annuel, 1959. Pp. 253. (Bruxelles: Institut pour la Recherche Scientifique en Afrique Centrale, 1961.)

## HORTICULTURAL RESEARCH

HORTICULTURE, either as an art or industry, is far more concerned with the behaviour of individual plants than its more extensive congener agriculture. It is an ideal setting for research on applied botany, and almost all agricultural problems must first be investigated on a horticultural scale. The garden itself poses urgent problems for scientific solution and they can be investigated effectively with either ecological directness or with the full

majesty of basic science. There is, moreover, an immediate outlet for practical results, and the stringent, unsubsidized economics of the industry impose a rather more searching test of significance than even those of the mathematician. Horticulture in fact lies, in the research sense, at the cross-roads of many sciences—crop protection, plant physiology, genetics, and taxonomy—in addition to forestry and agriculture. It is rather surprising that there have

been relatively few journals in which scientific results of such wide application could be published.

The appearance of the first issue of *Horticultural Research*\* is therefore a most welcome addition to the channels for publication of original results. There has, indeed, been an increase over recent years in the number of research institutes concerned with the investigation of horticultural subjects and there is a long waiting period in all relevant journals. The original urge to establish the new journal arose from the Scottish Horticultural Research Institute, Mylnefield, Dundee, and Dr. C. A. Wood, one of the joint editors, is from that Institute. The other, Prof. W. W. Fletcher, is head of the Botany Department of the West of Scotland Agricultural College, Glasgow. Both can be relied on to persuade would-be contributors to produce scholarly papers of high standard without restricting the force of new conceptions. The new publication is designed for world-wide appeal and contribution. Is this, however, a little offset by the stipulation that all papers must be written in English? It is the only shade of criticism and a contributor may, indeed, include a second summary in his own language.

Papers in the first number are all from Mylnefield and this is explained, rather apologetically, by the need to follow the original announcement quickly by an actual publication. C. A. Wood, M. M. Anderson and G. H. Freeman write about planting distances and the winter tipping of raspberry canes. A factorial experiment was made over 7 years on three varieties with width of row varying from 5.5 to 8.5 ft., and spaces between stools from 2 to 3 ft. were combined with winter tipping heights of 4, 4.5 and 5 ft. While individual plant yields were higher with the greater plant spaces, the yield of fruit per acre was greater with the closer spacings. Increase of tipping height produced large increases in yield.

\* *Horticultural Research*, 1, No. 1; November 1961. Pp. 64. Published in May and November. (Edinburgh and London: Oliver and Boyd, Ltd., 1961.) Annual subscription, 25s. or 4 dollars. Single issues, 15s. or 2.50 dollars.

J. P. Sutherland gives the results of trials with twenty-one treatments of the raspberry crop for chemical weed control. Only three—2 lb. 'Simazine', 4 lb. 'Monuron' and a mixture of 3 gal. phenols with 4.05 'Fenuron' (all per acre)—gave adequate weed control for six months without apparent crop injury. There is no indication as to which material might be most economical for a grower to use, and indeed consideration of economic factors is not usual in scientific papers. Such factors nevertheless provide a scientific parameter to ensure that a given result is achieved by the expenditure of a lower total of human resources than is saved as human food supply—a most important matter when dealing with a practical subject like horticulture. Again on the question of chemical control of plant growth, maleic hydrazide offers considerable possibilities when it is required that growth should be inhibited, as in the formation of strawberry runners. Its use for this purpose has, however, not been uniformly effective, but P. A. Thompson finds that if the material is applied to stolons which have emerged but not formed roots they are inhibited along with those which emerge within two weeks of treatment.

Variety trials of brussels sprouts (C. North, L. H. Frith and H. Taylor) showed Irish Elegance to be most suitable for the fresh market, Sanda for quick-freezing, and both these varieties with Cambridge Special and Marché de Berne for private gardens. The trials included assessments of colour, firmness, and proneness to external rotting and internal browning.

"Raspberry Viruses and Virus Diseases in Britain", by C. H. Cadman, is a scholarly stocktaking of a wide subject—a drawing together of existing knowledge to find a pattern. A review should, however, lead to a consultation of the journal itself, and Dr. Cadman's paper provides a most suitable urge.

All will wish this new Scottish venture the success it so richly deserves. J. GRAINGER

## BIOLOGY IN BRITAIN: THE CASE FOR BOTANY

By PROF. R. D. PRESTON, F.R.S.

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THE steady increase in our knowledge of the world around us brings in its wake the need for a steadily changing attitude to the methods whereby the next generation may best be fitted both to take advantage of the new developments and to continue the advance. While this is true both of the physical and of the biological sciences, the problems involved are more severe in biology since biologists are finding it more and more necessary to make use of the principles, the techniques and the discoveries of physics and chemistry, and to make ever-increasing use of mathematical approaches.

Dr. H. V. Wyatt, of the Bacteriology Department of the University of Leeds, clearly under the influence of the spectacular advances made in 'molecular biology' since the end of the Second World War, has commented adversely on the present attitude to modern biology of university departments in Britain in an article<sup>1</sup> which has stimulated Prof. H. E. Street of the Botany Department at Swansea to a

spirited defence of Botany Departments at least<sup>2</sup>. It is Wyatt's thesis that 'molecular biology' has at last created an atmosphere in which there may for the first time be a subject which can be called biology. He contends that departments of biology in Britain are failing to meet this situation as well as are the corresponding institutions in the United States, and conveys the impression that this is in part because British departments are staffed by narrow specialists. In his opinion "only the complete biologist can hope to map the new territories", and clearly by "complete" he means one who has been taught "biology as a unified discipline" ranging from "the latest findings in biochemistry and biophysics" to "a love and understanding of living plants and animals". He suggests, moreover, that by training such complete biologists "we can shed some of the crafts which now occupy so much time in school and university". It is Street's major contention that Wyatt shows himself in all this to be out of touch with the atmosphere of biology