

pathogenicity to different hosts, investigation of the responsible mechanisms of variation and the background genetics of these organisms is essential.

The vigorous discussions during the symposium will undoubtedly influence programmes of work already in progress and shape the framework of much of the future planning. This was its purpose and the indications are that it was eminently successful. Equally, certainly it encouraged our hope for significant extension of the already successful biological control of plant diseases.

The benefit and encouragement from this symposium was expressed in a resolution, endorsed unanimously by the participants: "that a second symposium, along somewhat similar lines, should be held possibly in Britain, in five years time". A steering committee was selected at the symposium to investigate this possibility.

The proceedings of the symposium, including papers, session reviews and general discussion will be published in full. The volume should serve as a valuable reference text in this field.

N. T. FLENTJE

## TEACHING OF BIOLOGY

**A**N interim report of the Royal Society—Institute of Biology Joint Committee on the Teaching of Biology has recently been issued.

The Committee has made itself acquainted with a large amount of work being carried out by numerous bodies at present interesting themselves in the improvement of biological teaching.

It feels strongly that biology should not be taught solely as a vocational training, but should take its proper place as a powerful instrument of education for life in the modern world. It has taken particular note of the Biology Section of the Nuffield Foundation's Science Teaching project and its work in devising teaching aids for the age-range 11–16.

*Biology in the Sixth Form: University Entrance.* The Committee has been informed of the views of professors of botany and zoology on desirable qualifications for entrance to university biology departments. A majority of each expresses a preference for a combination of biology and chemistry at the Advanced Level of the General Certificate of Education with supporting qualifications in physics and mathematics. A willingness to accept other combinations has been indicated, and the more traditional one of botany, zoology and chemistry is preferred by a minority. The Committee agrees that means should be devised to secure the maintenance of a minority stream of 'natural history' biologists through the universities.

*Biology Syllabuses.* In accordance with the trend already noted many examining bodies are at present producing or revising syllabuses for biology as a single subject at advanced level. The Committee notes with regret that no co-ordination has been attempted between the different examining bodies and that needlessly wide divergencies are arising which will create serious difficulties for sixth-form biology teaching.

*Relations between Sixth Form and University Biology Teaching.* The connexion between school and university teaching is the weakest link in the present chain. It requires careful study with a close co-ordination of the views of those engaged on both school and university aspects of the problem. The Committee proposes to set up a small study-group to obtain the necessary data which should enable it to make proposals within a reasonable time for a rational solution of this critical problem.

*Teachers' Refresher Courses.* Individual university biology departments, usually with the co-operation of departments of education, have provided valuable help to school teachers in the form of vacation courses of about a week's duration. These have been well supported and much appreciated; but it is thought that not more than 10 per cent of the demand is at present met. To satisfy the demand fully would place an unmanageable burden on the university departments. It has been suggested that university and technical college departments should be asked to provide short (one-day or week-end) courses for teachers from schools in their own neighbourhoods. A sampling inquiry to about a dozen departments has shown much willingness on their part to co-operate. The Committee therefore proposes to circularize biology departments in universities and technical colleges throughout the country with the hope of promoting a nation-wide network of such help for teachers.

*Curriculum Studies.* A panel of the Joint Committee met and discussed the American Biological Sciences Curriculum Study courses with a number of educationists who have recently visited American schools.

As a result of their discussions it is not felt possible to adapt these courses to British conditions, both because of the considerable differences of suitable biological material, and because of the great divergences of the American and British educational systems into which the biology has to be fitted. The publications associated with the courses are being sent to Britain, and may have their uses as teachers' source books (see *Nature*, 197, 4; 1963). It does not seem necessary either to encourage or to discourage their entry.

A pamphlet setting out the aims of the Biological Sciences Curriculum Study project and its relevance to British conditions is being prepared and will be published in the Institute of Biology Journal.

*Pamphlets on Current Topics.* The Committee has welcomed a proposal from the Institute of Biology to publish on a subscription basis a series of booklets on subjects of biological interest yet falling outside the normal text-book range or up-to-dateness. It has undertaken to advise on the choice of topics and a number of titles are under consideration.

## OBITUARIES

### Prof. F. W. Jane

THE sudden death of Prof. Frank W. Jane on May 6 in Ibadan where, with the permission of the Council of Royal Holloway College, he was acting as temporary professor and head of the Department of Botany in the University of Ibadan, leaves a gap which is going to be very hard to fill. Indeed, because he was such a modest man, it is only now that one realizes in how many different

spheres he had achieved distinction and how widely he will be missed.

First and foremost he was a botanist and naturalist. Much of his early research work, while he was at University College as assistant lecturer, lecturer and then reader, dealt with freshwater algae. The results were published between 1937 and 1944 in such journals as the *Transactions of the Hertfordshire Natural History Society* (1937, 1938,

1939), the *New Phytologist* (1941, 1944) and the *Journal of the Royal Microscopical Society* (1944). These include detailed descriptions of *Pteromonas varians*, *Cyclonexis erinus* and *Chlororhabdion diogenes* (all new species) and a revision of the genus *Harpochytrium*. They are a tribute to his excellent microscopy and meticulous technique and brought him the award of a D.Sc. in 1944. Although recently he had little time for active research on algae, his interest in it remained. There was generally at least one research student in the Department of Botany at Royal Holloway College working on an algal topic under his supervision, most recently in relation to the growth of algae in reservoirs. This led to a grant from the Department of Scientific and Industrial Research to promote such research and a close connexion with the Metropolitan Water Board.

From 1949, when he was appointed to the chair of botany at Royal Holloway College (University of London), much of his time and energy went on administration and in work on timber and trees. His book, *The Structure of Wood*, published by Black in 1955 and which he had almost finished revising, is the most authoritative treatment of the subject. It is used not only by academic students but also by students of timber technology. Indeed, he was one of the country's leading authorities on trees. Coupled with his fair-mindedness and impartial judgment this gave him the standing of an expert in lawsuits involving trees and timber and brought him much advisory work on tree management in estates and towns. He had a close connexion with the Institute of Wood Science and the Timber Research and Development Association.

The Botanical Supply Unit of the University of London, started in 1950 at Englefield Green, owes a great deal to his vision and drive. Under his wise chairmanship it has expanded from three to twenty acres and is now a Botanic Garden in which he will long be remembered and one of which the University may justly feel proud.

It was as a naturalist, ornithologist and photographer that Jane spent any leisure he allowed himself, and to his students and colleagues he was a delightful and inspiring companion on any field excursion. It is characteristic of him that here too he made himself an expert. Among other things, he served on the Field Studies Council, had been president of the School Nature Union and the Essex Field Club and was chairman of the local Committee of management of Blakeney Point for the National Trust. In the new booklet of Blakeney and Scolt Head, about to be issued, he was responsible for the sections on Birds, Flowering Plants and Ecology. He was a perfectionist in his photography and used his own coloured slides to illustrate the many stimulating talks he gave to biological and natural history societies throughout the country.

From the age of fifteen, when he left school, he had to work to earn his academic education and he took his degree as a part-time student at Birkbeck College. It was perhaps the memory of these early days that made him so sympathetic to anyone who wanted to learn and gave him such a practical interest in education at all levels. As chief examiner and later moderator in the advanced level of the General Certificate of Education in botany he was able to influence the teaching of botany and biology in schools. He was similarly involved in biological education at training colleges and was particularly interested in the problems raised by the expansion of their course from two to three years. He did invaluable work in planning the training of science laboratory technicians, among whom he numbered some of his personal friends. He was a vice-president and former president of the Institute of Science Technology as well as chairman of the University of London Committee on the Training of Technicians. Unlike some professors, he was always ready to encourage and supervise part-time research students. He will be remembered in Africa particularly for his services to the Departments of Botany of those overseas colleges in

special relation with the University of London to which he paid many visits and gave much advice. Their appreciation is summed up by one of them in a letter which says his loss will be felt in no fewer than six of the developing countries, and that it is perhaps symbolic that he should have died in Africa.

His untimely death at the age of sixty-two, at the height of his powers, will be mourned by the many people who have benefited from his help and encouragement. We extend our sympathy to his wife and daughter.

MARGARET A. P. MADGE

#### Dr. H. S. Holden, C.B.E.

AFTER graduating with honours in botany from the University of Manchester, H. S. Holden was appointed a lecturer and demonstrator in botany in University College, Nottingham, in 1909. At that time the College occupied buildings in Shakespeare Street. Even in those early days, Harry Holden was a stimulating personality. He initiated and directed vigorous research work in the Department. He was a gifted exponent and, looking back, it seems quite natural that he should have taken an active part in the Workers' Educational Association Extension courses run by and from the College.

He always had a deep interest in micro-organisms and during the First World War served as bacteriologist at the Plymouth Naval Hospital. On his return to University College, Nottingham, he took up his general teaching duties and the advancement of research work. His own particular interests lay in the field of plant anatomy and in microbiology, and this dual interest is reflected in the range of work on the anatomy of plants, on fungi, and on bacteria which came from the Department in subsequent years.

About 1921 he was awarded the degree of D.Sc. of the University of Manchester for work on seedling structure. In 1927 he was appointed senior lecturer in botany and head of the Sub-Department of Industrial Bacteriology. In the years preceding 1928 plans were made to build at Highfields a new University College, and Holden assumed much of the responsibility for the planning of the Department of Biology. On the retirement of Prof. Carr, Holden was appointed head of the Department of Biology in 1928. The growth of this Department in subsequent years and increases in the staff resulted in the re-alignment of Holden's duties, and in 1932 he became professor of botany and head of the Biology Department, and finally in 1934 professor of botany and head of the Botany Department.

His early anatomical studies led him to an interest in palaeobotany, particularly of Coal Measure plants, and he collaborated with Dr. D. H. Scott in a series of anatomical studies of fossil plants. He was responsible for the purchase by the University College of the D. H. Scott collection of reprints, which consists of a wide range of pamphlets dealing with all branches of botany.

Holden was a man of great enthusiasm, blessed with an enquiring mind which led him into paths not at that time recognized as the precincts of botanists or biologists. Thus, he was consulted on various occasions by local police authorities in connexion with cases of water pollution. His wide knowledge of microscopy and of plant structure, even in its most minute details, led quite naturally it seems now to the development of applied microscopy and of scientific methods in the solution of crime. His early teaching experience in Nottingham was in the old College in Shakespeare Street. This may have been a portent of the future, because when the East Midland Forensic Science Laboratory was established in 1936 he became its first director. This Laboratory finally occupied well-planned and well-equipped premises in Shakespeare Street, not far from the old College. I believe this Laboratory was the first of its kind in the country, and it is not surprising that some ten years