

obituary

Ivor Isaac

IVOR ISAAC, Professor of Botany in the University College of Swansea and Vice-Principal of the College from 1973 to 1977 died on 4 August 1978 at the age of 63.

He was a Swansea man born, bred and educated in the City. From Dynevor School he entered the University College of Swansea in 1934 and graduated with first class honours in botany. Isaac then trained as a teacher and taught for a short time afterwards but in 1940 he was awarded an A.R.C. Scholarship to work at Cambridge on plant pathology under the supervision of Professor F. T. Brooks. Two years later, Isaac moved to East Malling Research Station as a plant pathologist where he continued his studies for a Cambridge PhD on the plant wilt diseases caused by the fungus *Verticillium*: these studies determined Isaac's subsequent career.

After three years at East Malling, Isaac returned to school teaching at Cheltenham but in 1947 he was appointed Senior Lecturer in Biology at Acton Technical College which was later developed into Brunel University. While there, Isaac was responsible for the planning of the new Department of Biology at Brunel. However, in 1950 the opportunity came to return to Swansea first as lecturer in botany and subsequently as reader and professor in the University College. There Isaac played his full part in the development of a rapidly growing department and he pursued his researches on *Verticillium* wilt diseases so successfully that he soon became recognised internationally as one of the leading experts on this important pathogen.

Isaac's early work centred on clarification of the taxonomy of *Verticillium* isolates. At that time, there was considerable confusion because it was not clear whether the two most destructive pathogens in the genus viz. *V. albo-atrum* and *V. dahliae*, were forms of the same organism or were two distinct species. By using morphological, physiological and pathological criteria, Isaac established convincingly that these organisms are distinct species. A distinguished fellow worker wrote subsequently that this work brought order out of chaos.

Isaac continued, with the help of research students, to study many

different aspects of the vascular wilt diseases caused by *Verticillium* both in the United Kingdom and overseas. The studies were extended to a wide range of host plants often of great economic importance, such as lucerne and potato. The studies resulted in a continuing series of papers covering the ecology and survival of the fungus in the soil, the etiology of the disease, methods of control and the prevention of dissemination.

Isaac's reputation as a plant pathologist led to invitations to visit and advise in several countries including Italy, Malaya, India and the United States. Shortly before his death he was collaborating closely with the U.S. Department of Agriculture on an outbreak of *Verticillium* wilt on American lucerne crops. He served on several committees concerned with plant pathology and he played a leading part in the establishment of the first International Conference on *Verticillium*.

Isaac was no narrow academic. In his early years he was a very considerable soccer player and he captained both the Cambridge University team and the war-time combined Oxford and Cambridge XI. In later years in Swansea he was always deeply concerned with adult education and he frequently taught extra-mural courses himself. He was a man with many friends. His warm sympathetic personality was combined with high academic ability and clarity of thought; these qualities were much appreciated by colleagues and by students at all levels. He is survived by his wife Catherine, by three sons and a daughter.

J. M. Milton

D. W. Kent-Jones

DR DOUGLAS WILLIAM KENT-JONES, O.B.E., F.R.I.C., died peacefully in Ealing on 31 August 1978, aged 87. He was one of the pioneers of the application of science to cereal technology and was recognised internationally as an authority on cereal chemistry. Indeed his book *Modern Cereal Chemistry* testifies to his immense knowledge of his subject.

In the 1914-18 war he served in the Royal Fusiliers, the Special Brigade of

the Royal Engineers and the Royal Flying Corps. It was during this time he claimed he learned his great capacity for getting on with others, and it was this capacity that spurred him throughout his long and active life to give generously of his time to many professional bodies. Thus he was honorary Treasurer of the Royal Institute of Chemistry (1946-53) and its President from 1955-57. He was honorary secretary of the food division of the Chemistry Section of the International Union of Pure and Applied Chemistry, Chairman of the Council of the British Industrial Biological Research Association (1966-70) and its President from 1970-72. In 1971 he was awarded the biannual Gold Medal of the Society of Chemical Industry and in 1974 he received the O.B.E. for his services to the food industry.

During the greater part of this time he was (until he reached the age of 75) the senior partner of the highly successful analytical and consulting chemists, D. W. Kent-Jones and A. J. Amos. After the 1914-18 war he had been chemist, and later director, of a firm in Dover associated with the milling and baking industries and in 1931 he formed the practice, specialising in cereals, first from laboratories in Dover, later in Ealing, and finally the spacious and well-equipped premises in Dudden Hill Lane, London.

He learned his baking by working in small bakeries after his days work, and in 1935 published *The Practice and Science of Breadmaking*. From 1926-45 he was the Chief Examiner of Breadmaking to the City and Guilds of London Institute. During 1930-39 he travelled and lectured extensively, becoming involved in Procea Products Ltd. when in the Antipodes and when the Company was formed in the UK he became a director, and finally Chairman, retiring in 1965. In 1938 he was awarded the Belgian Affront medal, and was made Professor *honoris causa* of the Institut des Industries de Fermentation. In 1947, at the request of the Bread Manufacturers of New South Wales, he advised on the setting up of the Bread Research Institute of Australia.

Wherever he went he was interested in measuring the qualities of flour and their relation to bread, cake and biscuit baking characteristics and he pub-

lished many papers on this subject. In 1949 he gave the Cantor Lectures of the Royal Society of Arts. He is well known for the development, with his colleague W. Martin, of the Flour Colour Grader, and the instrumental techniques now used in determining flour quality owe much to him, and his partner's enthusiasm for technological innovations.

Kay-Jay (as he was mainly known) and his wife had no children, but within the family he gave great affection and loyalty; so too did he to his many professional and close friends. He found great joy in the companionship of the Savage Club and after retirement, through being given honorary memberships of the Flour Milling and Baking Industries Research Association, the British Industrial Biological Research Association, the American Association of Cereal Chemists and the Bread Research Institute of Australia, as well as the honorary Fellowship of the Institute of Food Science and Technology.

J. B. M. Coppock

D. M. Dring

DR D. M. DRING, Mycologist, Plant Pathologist and Quarantine Officer at the Royal Botanic Gardens, Kew, died suddenly after a brain haemorrhage on 26 July 1978 at the age of 46.

Born in Peterborough he went to Exeter University and obtained an external London B.Sc. (1953). From 1953 to 1956 he was an Andrew Simons Scholar at the same University where he worked on *Mycosphaerella* disease of cauliflower for which he was awarded a Ph.D. (1958).

This led to a wider interest in plant pathology and from 1956 to 1960 he was plant pathologist to the government of Ghana with an additional duty to act as Director of the Botanic Garden at Aburi. From 1960 to 1961 he was Agricultural Officer to the United Nations Food and Agricultural Organisation in West Africa working on Kaincope disease, spending much time in the Camerouns and Togo. During his travels he became interested in the larger tropical fungi, especially those bizarre and brilliantly coloured Gasteromycetes belonging to the Phallales.

On return to the United Kingdom he was awarded a Senior Research Fellowship to work for three years at the Royal Botanic Gardens, Kew, on the fungi he had collected in West Africa. Later in 1965, he joined the Scientific Civil Service as a Senior Scientific Officer and became a per-

manent member of the staff at Kew, where his unique knowledge of plant pathology combined with an interest in taxonomy of higher fungi were invaluable. Indeed his experience of tropical plant pathology ideally fitted him for the job of Officer-in-Charge of quarantine in a rapidly expanding unit, and in 1973 he was seconded briefly to the Government of Fiji to advise on the setting up of a quarantine station.

Donald Dring will be remembered for his publications on Gasteromycete taxonomy which established him as one of the world authorities on this difficult group of fungi. These contributions included floristic studies of the species occurring in tropical Africa and Israel. He also published, with Dr H. Kreisel, a monograph of the genus *Morganella*. However, his chief interest lay in the elucidation of the complex structure, inter-relationships and taxonomy of the phalloids, especially of the family Clathraceae. His magnum opus *Towards a natural re-arrangement of the family Clathraceae* was in an advanced stage of preparation at the time of his death and it is hoped to publish this in due course.

Another of his many scientific activities involved giving a stimulating annual course of lectures on mycology to the student gardeners at Kew. He also took a keen interest in the affairs of the British Mycological Society and served as a co-editor of their Transactions from 1978-1971, and for part of that time as senior editor. His editorial expertise also led to his serving on the editorial board of the *Kew Bulletin*. He also served on the Council of the Systematics Association.

Donald Dring was a congenial colleague who was always happy to take part in and contribute to social occasions. He had a great interest in antiques and enjoyed restoration of period furniture. He leaves a widow, Vivienne, and two daughters.

Derek A. Reid

A. S. Jack

ANTHONY JACK, member of staff of the MRC Laboratory of Molecular Biology, Cambridge, died of a heart attack on 14 July 1978 at the age of 30.

Born in Newcastle, he was educated at Leeds Grammar School and at Peterhouse, Cambridge, which he entered as an Exhibitioner in 1966. After getting a First in Part II of the Natural Sciences Tripos (Crystallography), he went on to the MRC Laboratory of Molecular Biology to work for a PhD which he received in 1972. He spent two years on a Jane Coffin Childs Re-

search Fellowship at the Gibbs Laboratory, Harvard University, and returned to the MRC Laboratory in 1974 as a junior member of staff.

Tony Jack's research work centred on the structures of large biological molecules and methods of solving them by X-ray analysis. Although a skilful experimenter when the occasion demanded, he was, by temperament and aptitude, more of the analytical type of macromolecular crystallographer, more intrigued by the way to the solution than by the results of the solution itself. Thus it was no coincidence that he was attracted to problems which were non-orthodox at the time. His PhD thesis, following work initiated by Blow, Rossmann and Crowther, deals with the problem of how to use for phase determination the redundant information present in the X-ray intensities of structures made up of many subunits. He solved a practical problem, namely a two-dimensional projection of the structure of the protein disk of tobacco mosaic virus, thereby pointing the way to the full solution of three-dimensional virus structures.

In the laboratory of S. C. Harrison at Harvard, he played a key role in the earlier stages of the X-ray work on tomato bushy stunt virus, among other things, using the low resolution structure reconstructed from electron micrographs to locate the heavy atoms used in the isomorphous replacement analysis.

On his return to Cambridge, Jack turned to the problem of refining the structure of the monoclinic form of tRNA, solved there earlier. This analysis, as well as settling the details of the tertiary interactions, led to the discovery of certain new correlations in nucleotide conformation and showed up the magnesium and spermine binding positions in the molecule. In an extension of this work on tRNA, Jack, together with M. Levitt, developed a particularly rapid and powerful method of refinement, which combines X-ray results and energy analysis. The method has been applied successfully to a number of proteins as well, and bids to become widely accepted.

Almost none of his friends or colleagues knew of Tony Jack's heart condition. Though quiet by nature, he was ever energetic and worked with astonishing rapidity. He was a man of varied interests. As an undergraduate he played in the 'Pineapple Truck' pop group, having built his own bass guitar. He was widely read in 18th century English literature, he collected its authors and was a stout Johnsonian. He is survived by his wife, Sharon Bellard, a chemical crystallographer, whom he met at Harvard. *A. Klug*