

OBITUARIES

Mr. I. H. Burkill

MR. ISAAC HENRY BURKILL, distinguished for his work on the useful plants of the tropics, died on March 8, after a short illness, in his ninety-fifth year. He was born near Leeds and educated at Repton School and the University of Cambridge. On graduating in 1891 he was awarded a scholarship by his College (Gonville and Caius) and appointed assistant curator of the University Herbarium, remaining at Cambridge until the end of 1896, during which period he and J. C. Willis collaborated in extensive field work.

Their earliest investigations concerned the epiphytic vegetation of pollard willows by the River Cam; their main work was in Glen Clova, where they carried out an elaborate investigation of pollination, recording more than 17,000 insect visits to flowers. Burkill's herbarium work introduced him to the floras of France and Switzerland, and then a collection of specimens from the Pacific, which resources at Cambridge did not enable him to name, led him to visit Kew, where his interest in tropical plants began. He was appointed to the Herbarium staff at the Royal Botanic Garden, Kew, from 1897, and two years later transferred to the Director's office, where he was introduced to the many aspects of tropical economic botany with which Kew was concerned.

Burkill left Kew at the end of 1900 on appointment as assistant to Dr. G. Watt, reporter on economic products to the Government of India. Watt had written his *Dictionary of the Economic Products of India*, and had been requested to write a shorter version, on *Commercial Products*; he had also in hand the arrangement of a new wing of the Indian Museum devoted in part to economic products. Burkill took over the Museum work, and also travelled extensively, visiting markets where local produce was on sale and making reports for use in the new *Dictionary*, and during these travels he pursued his own work on floral biology. At Calcutta he met Dr. D. Prain, superintendent of the Botanic Garden (later director at Kew), and became interested in the economic plants which were in cultivation there at Watt's request; these included a large number of yams. Thus began the collaboration of Prain and Burkill in an investigation of the wild and cultivated species of *Dioscorea* in Asia, which resulted in a large monograph much later (1936, 1938).

After the publication of Watt's second *Dictionary*, Burkill's status was changed, and he felt unsettled, not seeing a prospect of doing the work he wished to do. However, he did have a major opportunity for botanical exploration when he accompanied the Abor Expedition (November 1911–March 1912) to the outer range of the Himalayas near the junction of the Dihang River with the Brahmaputra. On his return from the expedition he was offered the post of director of Gardens, Straits Settlements, in succession to H. N. Ridley.

At Singapore he found much reorganization necessary, and little skilled assistance. Ridley had left nine months previously: his methods had always been haphazard; he never understood Burkill's methodical and scholarly nature. The First World War brought continuous staffing difficulties, and an assistant director with botanical qualifications, appointed in 1914, did not arrive until 1919. Burkill had duties in Penang and Malacca, which necessitated travel, and this he used to collect specimens and enlarge his knowledge of native plants. He collated the records of plants introduced to the economic garden (where the *Hevea* trees, source of most of Malaya's rubber plantations, had been planted) and made new introductions, including local yams. He made contact with

F. W. Foxworthy, forest research officer at Kuala Lumpur, with whom he collaborated in investigations of forest trees. The Governor of the Straits Settlements (Sir Laurence Guillemard), hearing of Burkill's growing files on useful plants, proposed that he should write a *Dictionary of the Economic Products of Malaya* after his retirement. With this in view, Burkill spent much time in travel during his last three years in Malaya, collecting specimens in local markets, with notes on local names and uses; he also made a special effort to collect data on plants believed to be of medicinal value. His most important publication during these years was a survey of some 1,500 oriental vernacular names of yams, with comments on the origins of the cultivated species and on the wanderings of man.

After his retirement in 1925 he settled at Leatherhead, and went regularly to Kew, where he elaborated his card index of references. In three years he accumulated 36,000 of these, and only then began writing. The *Dictionary* was published, in two volumes, in 1935. It is the most important single work of the present century on useful tropical plants. It is particularly noteworthy for the scholarly fullness and accuracy of the information on the origins and the history of human exploitation of the various species; and it contains the largest and most critical collection of Malay plant names ever recorded. It also contains contributions on animal produce, fish and minerals, but these occupy only a small fraction of the whole.

After completing this great task, Burkill returned to the family Dioscoreaceae. He cultivated *Tamus* in his garden and investigated its morphology and anatomy in comparison with *Dioscoreas* in cultivation at Kew. His help was asked for by Belgian and French botanists concerned with *Dioscorea* species in Africa, and his investigations of these led to new ideas about the evolution and spread of the family, to which his last paper (1960) was devoted.

Burkill accepted appointment as botanical secretary of the Linnean Society in 1937, and continued through the difficult years to 1944. In 1951 he delivered the Hooker Lecture to the Society on "Habits of Man and the Origins of the Cultivated Plants of the Old World". The Society awarded him the Linnean Gold Medal in 1952.

His last work was entitled *Chapters on the History of Botany in India*, published by the Bombay Natural History Society during 1953–63, to be issued shortly in book form by the Botanical Survey of India. He went to great trouble to collect and verify biographical data of the many persons concerned, and his last visit to Kew was in connexion with this work. His failing eyesight in his last years was a trial to him, though his mind remained alert and active; his wife helped most faithfully by writing much of the last chapter at his dictation.

R. E. HOLTUM

Prof. L. H. May

THE sudden death on April 3 of Prof. Lancelot Harris May, professor of plant physiology, Waite Agricultural Research Institute of the University of Adelaide, means that botanical science has suffered a great loss. After serving in the Royal Australian Air Force, Prof. May graduated from the University of Adelaide in 1949 with first-class honours in botany. He held a Services Canteens Trust Fund overseas scholarship during the early fifties at the Imperial College of Science and Technology, London, where he worked on sugar metabolism in plants with Dr. H. K. Porter and the late Prof. F. G. Gregory. He was awarded a Ph.D. degree by the University of

London and a diploma of membership of the Imperial College of Science and Technology in 1954.

He returned to Adelaide to assume the leadership of the Department of Plant Pathology at the Waite Institute. He built up an active research and teaching unit which now has wide international recognition, particularly in the fields of mineral nutrition and root growth, carbohydrate metabolism and plant-water relations. He was appointed to the chair of plant physiology in 1964.

Prof. May visited the United Kingdom and the United States in 1961 under the auspices of the Carnegie Corporation and spent six weeks at the Grassland Research Institute and the International Botanical Congress in 1964 under a grant from the Agricultural Research Council.

His numerous colleagues and friends in Australia and the United Kingdom, who have enjoyed his cheerful amiability, his quiet charm, his honesty, his sharp and penetrating observations and the keenness and perception which he has brought to a range of problems in plant physiology, will all feel his loss deeply. Behind a quiet and unassuming manner lay an alert mind which quickly arrived at sound, reasoned and humane judgments. Coolness, dexterity and precision were equally evident in the laboratory, on a cricket ground or on the tennis court. It was while playing tennis that Prof. May died at the early age of forty-two. He leaves a widow and two children.

F. L. MILFORD
H. K. PORTER

NEWS and VIEWS

Organic Chemistry in the University of Bristol :

Prof. W. Baker, F.R.S.

PROF. W. BAKER is due to retire at the end of July from the Alfred Capper Pass chair of organic chemistry in the University of Bristol, which he has occupied since 1945. As a student, Baker studied at the University of Manchester where he carried out research work first under A. Lapworth, then under Robert Robinson. In 1932 Robinson moved to the Dyson Perrins Laboratory in Oxford and invited Baker to join him there, where he was appointed University lecturer and later became a Fellow and Praelector of The Queen's College. He was elected to a fellowship of the Royal Society in 1945. Prof. Baker's early research work was concerned mainly with the synthesis of isoflavones, flavones and chromones. In 1933 he and, independently, K. Venkataraman, discovered the rearrangement of *ortho*-acyloxyacetophenones, a reaction now known by their joint names. Baker's interests then extended to studies on the effect of chelation on the chemical and physical properties of molecules, the synthesis of derivatives of 1,2,3,4-tetrahydroxybenzene, and of naturally occurring allyl- and propenylphenols and -phenol ethers, also to investigations of the structure of the condensation products of phenols with ketones. During the Second World War, Baker played an important part in the Oxford team studying the chemistry of penicillin. At the University of Bristol much of Baker's research work has been carried out in collaboration with Dr. J. F. W. McOmie and Dr. (now Prof.) W. D. Ollis. Some of the earlier lines were continued but many new topics were also investigated. These included studies on the synthesis of large-ring compounds utilizing the 'rigid-group' principle (first enunciated by Baker), inclusion compounds (especially 'Dianin's compound' and tri-*ortho*thymotide), and the examination of a new class of natural products, the biflavonols. Baker's Tilden Lecture in 1944-45 entitled "Non-benzenoid Aromatic Hydrocarbons" stimulated world-wide interest in this class of compound and the rapid progress in this field made at Bristol (especially with mesoionic compounds and biphenylene) and elsewhere has been fittingly summarized in Baker's Poddar Lecture 1964-65 entitled "The Widening Outlook in Aromatic Chemistry". Apart from his own wide interests he encouraged his colleagues to develop their own lines of research work, with notable success. In recent years Baker has been closely concerned with the design and building of new laboratories at Bristol, which will provide his successors with a lasting heritage from his term of professorship.

Prof. M. C. Whiting

DR. M. C. WHITING, University lecturer at Oxford, has been appointed to the Alfred Capper Pass chair of organic

chemistry at Bristol, in succession to Prof. Baker. Dr. Whiting was educated at Jarrow Grammar School, Co. Durham, and is yet another of those who won Royal scholarships in chemistry to the Imperial College of Science and Technology, to be appointed to a professorship. He was awarded the B.Sc. degree with first-class honours in 1945 and the Governors Prize for practical chemistry and obtained his Ph.D. degree in 1948 for work on unsaturated lactones with Sir Ewart Jones. He joined the chemistry staff at the University of Manchester in 1948 and during 1951-52 he worked in collaboration with Prof. R. B. Woodward at Harvard on ferrocene. In 1955 he was appointed to the staff of the Dyson Perrins Laboratory and was elected to a fellowship at Pembroke College in 1959. He was a visiting lecturer at the Chemistry Department of the University of California at Los Angeles in 1958. An outstanding experimentalist, but with a deep appreciation of underlying theory, Dr. Whiting has made notable contributions to acetylene chemistry, especially to synthesis of the novel polyacetylenes, for example $\text{Me}_3\text{C}(\text{C}\equiv\text{C})_{10}\text{CMe}_3$. In 1958 he effected the synthesis of the vital natural hydrocarbon, squalene and, in an elegant degradative study on lagosin, he was the first to establish the correct structure of a polyene antibiotic. His interests are now directed mainly towards the elucidation of the course of organic reactions; to this end he has developed highly sophisticated methods of analysing the complex isomer-mixtures obtained in solvolysis reactions and is investigating Hammett acidity functions, using electronic computation to improve the handling of the experimental data.

Sir George Beilby Memorial Fund Gold Medal and Prize : Mr. J. A. Charles

THE Administrators of the Sir George Beilby Memorial Fund, representing the Royal Institute of Chemistry, the Society of Chemical Industry and the Institute of Metals, have decided to make an award from the Fund in 1965, consisting of the Gold Medal with a Prize of 100 guineas, to Mr. J. A. Charles, lecturer in metallurgy in the University of Cambridge, in recognition of his work in process and reaction metallurgy. Mr. Charles graduated in metallurgy at the Royal School of Mines (Imperial College of Science and Technology) in 1947. His first appointment was with the Metallurgical Research Department of J. Stone and Co., Ltd., where he worked mainly on the metallurgy of tin-base bearing metals, but with already an interest in process aspects of metallurgy in the context of such investigations as the preparation of spectrographic standards subject to segregation, the effects of vibration at various frequencies on the cast structure of tin base alloys and the tinning of cast iron. In 1950 he moved to the research laboratories of the British Oxygen