

Geological Society of London. In these the patient examination of the strata and the marshalling of the palaeontological evidence linked up the geology of North Wales and the Irish coast. The first of the series dealt with the faunal zones of the Rush-Skerries Carboniferous Section, Co. Dublin, and further papers considered the strata at Malahide and at Ballycastle, Co. Antrim. The fine paper on the geology of Great Orme's Head (1925) led to the award of the Sc.D. degree. The Irish Academy published a similar contribution on the Carboniferous Rocks of Hook Head, Co. Wexford (1930). His papers gave detailed descriptions of fossils, notably of corals.

In 1934 Smyth succeeded Joly in the University chair of geology, which he occupied until his death. He devoted himself, unremittingly, to his teaching, and to the improvement of the Geological Museum and Department. He was never happier than when taking his students and overseas colleagues on geological expeditions—and few university cities have more varied geological interest close at hand than has Dublin. After a gap, occasioned by his teaching duties and illnesses, came "The Carboniferous System of North County Dublin" (Geol. Soc., 1950) and "A Viséan Cephalopod Fauna in the Rush Slates" (Roy. Irish Acad., 1951). A clear lecturer, a sympathetic teacher, loyally devoted to his University, a true friend—there are many who mourn his loss.

W. R. G. ATKINS

Mr. C. E. N. Bromehead

CYRIL EDWARD NOWILL BROMEHEAD, formerly of the Geological Survey, died on December 4. He was born at York on January 8, 1885, and was educated at Marlborough and at Merton College, Oxford. He joined the Geological Survey of Great Britain in 1909 and was assigned as his first major task the 6-inch survey of a large part of the London area. With Henry Dewey he devised the present nomenclature of the gravel-terraces of the Thames Valley, and he became an authority on the geology and early history of London and particularly on the buried tributaries of the Thames such as the Fleet and Ty Bourne.

In the First World War he served in Flanders and was severely wounded. He returned to the Geological Survey in time to take part in explorations in Derbyshire which led in 1919 to the drilling of Britain's first oil-well at Hardstoft.

In 1922 he was appointed district geologist in charge of Yorkshire. Employing techniques of stratigraphical palaeontology then being devised by W. S. Bisat, Sir Arthur Trueman and W. B. Wright, he and his staff became experts on the Upper Carboniferous rocks. In fifteen years his unit made a detailed revision of most of the coalfield and its borders—an area of nearly 1,000 square miles—and sent to the press the relevant maps and memoirs as well as a new edition of the memoir on the "Concealed Coalfield of Yorkshire and Nottinghamshire". These publications have proved invaluable in subsequent developments of the coalfield.

In 1935 Bromehead took charge of geological work in Southern England, where mapping was proceeding in Kent. For much of the next ten years, however, his duties were connected with the Second World War, and throughout this time his knowledge and experience were always at his colleagues' service. He relinquished some of his responsibilities in 1945 and retired in 1949.

During this last period his interest in the origins of geology and related arts (he was a founder-member of the Society for History of Science) was revealed in two presidential addresses to the Geologists' Association on the early history of practical geology and mining in Britain, and in papers on antiquarian subjects—'eagle-stones', loadstones, 'murrhine', early water-supply and museums—in which a high order of classical scholarship was delightfully blended with geology. He also wrote on oil, reservoir-dams and fluorosis.

Profoundly influenced in his youth by what was then known as the 'Oxford Movement', Bromehead practised religion with characteristic thoroughness. He is remembered with affection by the many who experienced his kindness and culture, his wisdom and, not least, his firmness in moments of crisis.

WILFRID EDWARDS

Mr. R. S. Styles and Mr. F. W. Campbell

RONALD STEPHEN STYLES and Frederick William Campbell, who were attached to the Division of Radiophysics of the Commonwealth Scientific and Industrial Research Organization, Australia, were killed in an aircraft accident near Sydney on October 27 while engaged on research in cloud physics and natural rain formation.

Styles and Campbell were on a routine flight in an R.A.A.F. Dakota fitted for cloud 'probing' using microwave radar and special instruments designed in the Division of Radiophysics for observing cloud temperature, liquid-water content and cloud droplet spectra. The aircraft had been investigating clouds over the sea and reported that it was descending from 6,000 ft. to 2,000 ft. through low cloud and heavy rain preparatory to returning to base. It failed to report at the next check-point, and an intensive emergency search was immediately organized. Oil, wreckage and a half-inflated rubber dinghy were found a short distance out to sea, and some items recovered were identified as belonging to personnel on the aircraft; all on board, including an R.A.A.F. crew of four, were killed.

Mr. Styles was born in Sydney, New South Wales, in 1926. At the University of Sydney he took a course combining physics and electrical engineering. He graduated with the double degree of B.Sc. and B.E. and joined the Radiophysics Division as a research officer in March 1948. His initial work concerned radio aids to aircraft navigation, to which he made valuable contributions. He was then transferred to work on rain and cloud physics, and his obvious ability and enthusiasm soon led to his taking a major part in airborne observations of natural rain. His observations of the development of non-freezing clouds to give rain are of particular interest. He also contributed significantly to the development of instruments in this field and displayed a marked ability for organizing, implementing and analysing results in this difficult field of research. He leaves a widow and an infant son.

Mr. Campbell was born in 1915, at Norseman, Western Australia. After successfully completing a radio course at Perth Technical College in 1934, he spent the pre-war years as a radio engineer in Perth. During the Second World War he served with the Royal Air Force, rising to the rank of squadron leader. He undertook specialized radio and radar courses at Prestwick, Great Malvern and elsewhere,

was mentioned in dispatches for meritorious technical services and was finally senior radar officer to No. 38 Group, R.A.F. After the War he was appointed to the Department of Civil Aviation in Sydney. He joined the staff of the Commonwealth Scientific and Industrial Research Organization in August 1947 as a technical officer, and was an active member of the team carrying out flight trials and experiments on radio aids to navigation. He had a first-class knowledge of aircraft radio equipment. He later joined the Rain and Cloud Physics team and for several years worked in partnership with Mr. Styles. Mr. Campbell was married and had two young children.

The death of these two young men is a tragic loss to Australia. Their work in the field of rain physics was just beginning to bear fruit, and their loss means a serious setback to the research in cloud physics which has progressed so well in Australia.

Dr. E. H. Hunt

DR. EDMUND HENDERSON HUNT was educated at Harrow and Balliol College, Oxford, where he took a first in physiology under J. B. S. Haldane, and went on to St. Bartholomew's Hospital, London, where he added the F.R.C.S. to his M.Ch.(Oxon.). He then accepted the appointment of chief medical officer to

the Nizam's State Railway, Hyderabad, more or less as a temporary measure, but he found his life's work there. Apart from the constant pressure of his medical and surgical work at the Lallaguda Hospital, he developed a large private practice, which took him into all parts of the great city. The wide first-hand knowledge of the country he so gained led him to interest himself in anthropology and archaeology. He was a fellow of long standing of the Royal Anthropological Institute, and published the results of important excavations of the Hyderabad urn-burials, and other papers, including a remarkable contribution on black magic, from the clinical point of view. His incomparable photographs of Ellora and Ajanta were widely known and did much to encourage the growing interest in Indian art. He was, also, a collector of Celadon. On retirement, he became interested in scientific bee-keeping, and was chairman of the Farnham Association and a member of the National Honey Show committee. To these activities must be added the many research activities in India, from geology to archaeology, which would have been impossible without his helping hand. He was a true colleague to any research worker who approached him, a real friend of India, and an unforgettable personality.

K. DE B. CODRINGTON

NEWS and VIEWS

Queen Elizabeth College

THE granting of a Royal Charter to Queen Elizabeth College, University of London, marks the beginning of a new phase in the work of what has hitherto been known as King's College of Household and Social Science. Beginning as a department of King's College for Women in 1908, it gradually developed research and teaching in the scientific aspects of household and social work, until in 1920 there was introduced the first degree in these subjects—B.Sc. (Household and Social Science). By 1928, the department became an independent school in the University of London under the title of King's College of Household and Social Science. It played a prominent part in the development of dietetics as a specialized study, and began, in 1933, the first courses leading to a diploma in dietetics. Now, with its Royal Charter and its new name, Queen Elizabeth College (after Queen Elizabeth, the Queen Mother) is breaking new ground. From October 1953 it will be training men and women undergraduates in the science of nutrition, leading to the new degree of B.Sc. (Nutrition). So far as we know, there is no other university in Britain which gives an undergraduate course for a first degree in this subject. A brief account of this degree and of the new degree of B.Sc. (Household Science) was given in *Nature* of August 9, 1952, p. 226.

'Krilium'

IN December 1951 publicity was given to the discovery of a new way of improving soil structure by the use of certain synthetic polyelectrolytes produced by Monsanto Chemicals, Ltd., under the trade name 'Krilium' (see *Nature*, 171, 7; 1953). Other conditioners were afterwards announced by other manufacturers. During 1952 experiments have been made with 'Krilium' by several agricultural research institutes in Britain and by the National Agricultural

Advisory Service under the auspices of the Agricultural Research Council. The substance used was supplied by Monsanto Chemicals, Ltd., as 'Krilium' (CRD. 189) and described as a sodium salt of polyacrylic acid. This was the earliest available soil conditioner and in its original form proved somewhat difficult to incorporate in moist British soils. The results of the 1952 experiments have now been examined. They were not expected to be more than preliminary, and no definite conclusions, therefore, can be drawn at this stage of investigation. The initial findings can be summarized as follows. (1) Improvement in structure after treatment was apparent in many of the soils tested. (2) The uptake by plants of major and minor nutrients was not adversely affected. (3) The activity of soil microorganisms was normal. (4) No conclusive evidence was obtained that the application of 'Krilium' caused any significant increases in crop yields of field or of glasshouse crops, though in certain cases increased yields were recorded. Much more experimental evidence on the best method of incorporation, degree of aggregation and persistence of structure of treated soils, and the relation of these to crop yields is required before any definite conclusion can be reached. Towards the end of the year Monsanto Chemicals, Ltd., made available a new soil conditioner, described as a calcium salt of vinyl acetate-maleic acid copolymer. This was found to be more easily incorporated in soil and is stated to have better soil aggregating properties than CRD. 189. Experiments will be continued in 1953 and the results, when complete, will be published in the usual reports and journals.

Associate Directorship of the U.S. National Science Foundation

THE new post of associate director of the United States National Science Foundation has been filled