

Obituaries

Professor Sir Kingsley Dunham, 1910–2001



Kingsley Charles Dunham, who died in Durham at the age of 91 on 5 April 2001, was born in the Dorset village of Sturminster Newton on 2 January 1910, the only child of Ernest Pedder Dunham and his wife Edith Agnes. However, when he was three the family moved to Brancepeth, near Durham, where his father managed the estate, successively as Land Agent to Viscount Boyne and the Duke of Westminster.

His early education was at the village school in Brancepeth, followed by the Durham Johnston School. With strong support and encouragement from his parents, he matriculated well and gained entrance to the University of Durham as a Foundation Scholar at Hatfield College in 1927. This scholarship partly related to him being a talented musician (piano, taught by his mother, and organ, with lessons given by Canon Culley at Durham Cathedral) and he was the College chapel organist.

Having gone up to the University to read Honours Chemistry, Dunham became captivated

by the lectures of Arthur Holmes, then Professor in Durham, and transferred to Honours Geology, in which he was the only candidate, receiving individual tuition from Holmes and his lecturer Bill Hopkins. After graduating with a first-class honours BSc degree in 1930, he was offered a postgraduate studentship in Durham to work under Holmes and chose to research the genesis of the lead-zinc-fluorine-barium mineralization in the Northern Pennine Orefield, upon which he continued investigations throughout his life. A PhD degree for his thesis on the subject was awarded in 1932.

Upon gaining a Commonwealth Fund Fellowship in 1932, study was undertaken in the USA at Harvard University, where he graduated MS in 1933 and, based upon a geological survey of the Organ Mountains for the New Mexico Bureau of Mines, SD in 1935. During this period, he also travelled widely in North America and established many important economic geology and scientific contacts, especially concerning Mississippi Valley-type and related mineralization.

Returning to the UK in 1935, Dunham obtained appointment as a Geologist with the Geological Survey of Great Britain, becoming a Principal Geologist and Head of the Petrographic Department in 1946, with designation as Chief Petrographer in 1948. The early part of this period involved field seasons mapping the Old Red Sandstone in the Chepstow district of Gwent and investigating, with Colin Rose, the Furness district hematite field of south Cumbria. He was then assigned during World War II, when he was also a Major in the Home Guard, to work in the Pennines where his particular responsibility was the encouragement of zinc ore, fluorspar and barytes production. An immediate result of this was the establishment of a 1,000 ton/day mill at Nenthead, Cumbria, to recover zinc ore from old mine dumps.

This war-time activity, coupled with previous research, comprised the basis for publication during 1948 of his classic memoir *Geology of the Northern Pennine Orefield*, Volume 1, followed in 1952 by a fourth edition of the *Fluorspar* memoir, both of which gave impetus to sustained mineral development throughout the Pennines, notably with respect to fluorspar, but also barytes, witherite and by-product lead ore. In fact, he firmly established a lifetime as a prolific author and contributor to literature while with the Geological Survey, and the foundations of much of his scientific innovation can be traced to the work he did during this period.

His work centred on economic geology, but with ramifications into a wide variety of fields, including petrology and sedimentology, because the solution of a geological problem for him had not only to be interesting but also useful. This inclination was manifested by him organizing and leading during 1948, with Jim Taylor, the economic geology excursions of the 18th International Geological Congress, at which he also played the music of Jeremiah Clarke and others on the organ for the opening and closing sessions held in the Royal Albert Hall.

In 1950 Dunham returned to Durham as Professor of Geology in succession to Lawrence Wager. Not least since it was a time of university expansion, he greatly enjoyed academic life, particularly the contact with young and fertile minds, with which he practised the philosophy of producing, at the first-degree stage, all-round geologists strongly supported by field studies, rather than specialists. He planned and supervised the construction of a new geology/chemistry

building and, fostered by his commanding leadership, the Geology Department expanded with a steady increase in undergraduate and postgraduate students, while new fields were developed, especially in geophysics and engineering geology respectively headed by Martin Bott and Peter Attewell. An outstanding research project, funded and conducted under his direction, in collaboration with Bott and others, was that involving the Rookhope deep borehole to investigate the source of the mineralization in the Alston Block section of the Northern Pennine Orefield.

Resultant upon an exceptional flair for administration, he was much in demand for University committee work, including serving as Sub-Warden of the Durham Colleges from 1959 to 1961. To the considerable benefit of the Geology Department and its students, his reputation and widespread connections within the minerals industry also resulted in him being retained to act as a consultant. In this capacity, he became a prodigious traveller, advising on mines and prospects widely at home and abroad for various companies, including Consolidated Gold Fields, Consolidated Mining & Smelting Company of Canada, Imperial Chemical Industries, Iraq Petroleum, John Taylor & Sons and Laporte Industries.

His gift for administration additionally led to him being recruited to outside bodies and, in view of its impact on moulding his subsequent career, it is pertinent to note that he was one of the two geologists on the 1963 Brundrett Committee, which considered the future of the Overseas Geological Surveys. This Committee made a proposal which was to have a major impact on the future role and activities of what is now named the British Geological Survey, with this involving amalgamation of the Overseas Geological Surveys, the Geological Survey of Great Britain and the Geological Museum into a new Institute of Geological Sciences within the Natural Environment Research Council.

In 1967, after making the difficult decision on whether or not to remain in Durham, Dunham succeeded Sir James Stubblefield as Director of the Institute. This coincided with a period of major Government support for expansion in environmental science research and, vitally influenced by him, the Institute almost doubled in staff size to just over 1,000, as well as broadening its scope of capabilities in geochemistry, geophysics, economic geology and conti-

mental shelf studies. Such activity embraced a large increase in field investigation programmes, both at home and abroad, and he made a point of visiting his staff, even in the remotest locations. Moreover, the Geological Museum benefited from his guidance, with substantial modernization manifested in the opening of *The Story of the Earth* exhibition during 1972 by Her Majesty The Queen, who had knighted Sir Kingsley earlier in the year.

Expansion of the Institute also required the provision of additional accommodation. This was effected by the development of a new site in Edinburgh, named Murchison House, and he was responsible for initiating the action which resulted in acquisition of the property at Keyworth, near Nottingham, where the extensive headquarters of the British Geological Survey have been subsequently established. Indeed, it was a fitting tribute to his vision and input that in 1990 these headquarters were named the Kingsley Dunham Centre, with the ceremony taking place shortly after appointment as the BGS Director of one of his former Durham students, Peter Cook.

Sir Kingsley retired during 1975 from the BGS and returned to his alma mater, where he pursued an agreeable life as Emeritus Professor, continuing with his research and publication work. Of especial note in this context is production in 1985 of the memoir *Geology of the Northern Pennine Orefield*, Volume 2, in co-authorship with Albert Wilson, another of his former Durham students and a senior BGS staff member. In addition, Volume 1 of the memoir was completely revised by him and a second edition published in 1990. Other pleasures of these years included meeting former colleagues and students, with a highlight event to honour him and celebrate his seventy-fifth birthday being the three-day *Dunham-Durham Reunion 1985*, at which a large gathering presented a galaxy of papers. He also collaborated with the Open University, both as a consultant for the Natural Resources course and as a guide to Durham Cathedral for summer schools resident at the University.

By 1990 his already impaired sight was failing rapidly and he eventually had to give up writing, but other interests continued, including gardening and music. As a fine sight-reader but with a regretted low memory store of music, the latter was salvaged when blind by listening to recordings as well as attending performances in Durham Cathedral and Hatfield College. He also continued to give talks entirely from memory in his

undiminished authoritative and self-assured manner. One unforgettable example of this was in 1996 when, as President of all three Probus clubs in Durham, he unerringly presented their Sir Kingsley Dunham Lecture himself, based on his experiences as Foreign Secretary of the Royal Society and entitled *An Ambassador for Science*, using slides selected and organized with the visual assistance of Tony Johnson, his long-standing neighbour, friend and research collaborator.

He was greatly admired and respected, variously as an educator, administrator and policy-maker, throughout the geological and scientific world. This resulted in him being elected in 1955 as a Fellow of the Royal Society and awarded its Royal Medal in 1970 while, as its Foreign Secretary and a Vice President from 1971 to 1976, he became the first geologist to hold office in the Society since Sir Archibald Geikie during the early 1900s. He took part in or led many Royal Society delegations to foreign countries, including two to the Soviet Union and one to the People's Republic of China, each of which played significant parts in breaching scientific barriers.

Sir Kingsley's unique professional standing was also marked by other awards and honours far too numerous to record in detail here. Nevertheless, it is appropriate to note specifically that, after emphasizing his credentials by a 1933 paper in *American Mineralogist* on a new mineral, tilleyite, in collaboration with Esper Larsen Jr, he became a Member of the Mineralogical Society in 1938 and was President for 1976–78 during its centenary year. This followed successively being President of the Yorkshire Geological Society, the Institution of Mining and Metallurgy, the Geological Society, the International Union of Geological Sciences and the British Association for the Advancement of Science. In addition, he variously chaired the meeting that led to formation of the EEC's European Science Foundation and was Chairman of the Council for Environmental Science and Engineering as well as the Board of the International Geological Correlation Programme.

He married in 1936 Margaret Young, of Choppington, Northumberland, and St Mary's College, Durham, who was a constant companion and tower of strength in all his endeavours. Their only child, Ansel Charles, who was Professor of Geology at Hull and then Leicester, predeceased his parents due to cancer in 1998. This tragedy was followed by further sadness later in the year with the death of Lady Dunham after a long and

progressively debilitating illness, during which, with devoted support, she bravely gave the semblance to most people of a normal life for many years.

As befitted Sir Kingsley, a large congregation commemorated with thanksgiving his remarkably

fulfilled life at a funeral service on 11 April 2001 in Durham Cathedral, followed by a reception in Hatfield College, for both of which establishments he maintained great affection in all their aspects to the very end.

BRIAN L. HODGE

Andrew F. Seager, 1920–2000



Andrew Ford Seager was born in west London in 1920. His mother was a music teacher and his father a solicitor. He attended St Paul's School and, in 1939, went on to read geology at King's College, London. At the outbreak of the second world war, however, King's was evacuated to Bristol University and it was there that he spent his undergraduate years. He suffered from asthma, particularly as a child. One result of this handicap was that in his childhood he spent more than average time in his local library where he found and read L.J. Spencer's *The World's Minerals*. It was this chance discovery which kindled his lasting passion for mineralogy.

On graduation, in 1942, he was drafted into a branch of Operational Research attached to Fighter Command and worked on armaments at Stanmore. After the war, rather than stay in Operational Research, he took up the post of Assistant Lecturer in the geology department at Birkbeck College and remained there happily for the rest of his professional life. He gained his PhD in 1953 for a thesis on 'The relation of habit to structure and growth in crystals', the work for which and the

writing-up were done simultaneously with the preparation of courses and his baptism in teaching undergraduates. Developing the themes of his PhD work, his subsequent publications were concerned mainly with the significance of morphological and especially surface features of minerals, including the baryte group, cerussite, hematite, magnetite, pyrite and galena. In a later series of publications he described and discussed the paragenesis of a suite of zeolites developed in metabasites and serpentinites of the Lizard, Cornwall and, with colleagues at Birkbeck and Cambridge, determined and discussed the age of the suite. He also published work on the space group of tetrahedral diamond and the crystallography of sucrose. He was promoted rapidly, achieving a readership in mineralogy in 1963 and became head of the geology department in 1970. Under his guidance the department moved to new premises and enjoyed a period of sustained prosperity.

He played a full part in the work of the Mineralogical Society which he joined in 1943: he became a member of the Applied Mineralogy, Clay Minerals, and Geochemistry Groups; he was