

THOMAS STANLEY WESTOLL
BSc, PhD(Dunelm), DSc, LLD(Aberd), FRS, FGS

Stanley Westoll died on 19th September 1995 in Newcastle upon Tyne, the city in which he spent much of his working life.

He was born on the 3rd July 1912 in West Hartlepool. After his early education there at the grammar school, he became a student in Armstrong College (later King's College in the University of Durham and then the University of Newcastle upon Tyne) at the age of 17 as the holder of an Open Entrance Scholarship. Thus began a brilliant academic career. He graduated with First Class Honours in geology (with subsidiary metallurgy and zoology) in 1932 and received his PhD in 1934 for his research on the Permian fishes of England. His immediate post-doctoral studies, supported by a DSIR Senior Research Award, brought him under the influence and guidance of D M S Watson, then the Jodrell Professor of Zoology at University College, London. His Research Award allowed him to travel widely in Europe and North America and was a considerable support to his extensive and impressive flourishing research on fossil fishes, research which was to remain central in his wide range of interests throughout the remainder of his life. He was awarded an 1851 Exhibition Research Fellowship in 1937 which he had to relinquish in the same year on his appointment to a Lectureship in Geology at the University of Aberdeen. In 1948 he was appointed to the J B Simpson Chair of Geology at King's College, Newcastle, where he was to remain as Head of Department for 29 years, a long stint! After his retirement in 1977, his association with the University of Newcastle continued: he became a Leverhulme Emeritus Research Fellow and was Chairman of Convocation for 10 years.

Stanley Westoll's outstanding research on fossil fish could have resulted in him being labelled a palaeoichthyologist, but such a narrow categorisation would have been utterly wrong. Undoubtedly the great weight of his distinguished studies on fossil fish made a deep impression on the geological and zoological communities. His early work on the resorption and redeposition of the dentine-like substance, cosmine, in the covering of the scales and head bones of the fish *Osteolepis* and *Dipterus* led to clarification of taxonomic difficulties in these fish. He published persuasively on the evolution of the lung fishes and the paired fins of placoderms; he provided a major definitive contribution on a family of late Carboniferous fish, the Haplolepididae; and he elucidated the anatomy, taxonomy and evolution of the coelacanth. But his interests were much wider, even in the field of vertebrate palaeontology. Evolution had a dominant place in many of his writings. So, alongside his evolutionary studies on fish, he was simultaneously producing important papers on the evolution of the middle ear, the origin of the primitive tetrapod limb, the ancestry of the tetrapods and captorhinomorph reptiles and the transition of fish to land animals.

This summary of a major component of Stanley Westoll's research perhaps suggests that he would have found the field of zoology more congenial: not so! What should be stressed immediately is that all the academic appointments which Stanley Westoll held were in departments of geology - he was an excellent geologist! His geological background was the essential basis for much of his work in vertebrate palaeontology and was used with considerable effect. How else could papers such as 'Mountain Revolution and Organic Evolution', 'The Vertebrate-Bearing Strata of Scotland' and similar contributions ever have been written? The savagery of some of the discussions between invertebrate and vertebrate palaeontologists, as well as with stratigraphers, on the 'Siluro-Devonian Problem', to which Stanley Westoll contributed forcefully and effectively (as a geologist!), still ring in my ears from the time when I was a student at Newcastle: never a topic to be attempted in examinations, except by the brave or foolhardy, I always felt!

The 'Siluro-Devonian Problem' was only a small part of Stanley Westoll's broader contribution to geology outside of the field of vertebrate palaeontology. The Old Red Sandstone of the United Kingdom but particularly in Scotland, a country which he much enjoyed, was a natural focus for his attention, as were the Triassic rocks of this country to a lesser degree. Besides unravelling the stratigraphy and correlation of the Old Red Sandstone rocks around the Moray Firth and in Caithness, he was involved (with others) in the elucidation of many sedimentological and structural problems in these Palaeozoic rocks. Wider in his spectrum of interests were contributions on Carboniferous cyclothem, continental drift, mineralisation, biological concentration of elements and the training of undergraduate and postgraduate students. Whenever Stanley Westoll wrote, particularly as a single author, (which was usual for his major contributions), the text was lucid with the admirable focus and meticulous attention to detail which characterised all that he did.

The importance of Stanley Westoll's research was recognised and acknowledged early and then continued throughout his life. He was the recipient of many honours, the first of which was election to this Society at the young age of 31 in 1943. Nine years later he was elected to the Royal Society, serving on its Council from 1966 to 1968. During this same period he was President of the Palaeontological Association. In 1967 he was awarded the Murchison Medal by the Geological Society, later becoming its President from 1972 to 1974. The Edinburgh Geological Society presented him with its Clough Medal in 1977. A year later he received the Gold Medal (Zoology) of the Linnean Society which two years earlier had held a major symposium on 'Problems in Vertebrate Evolution' in his honour. He was also an Honorary Life Member of the Society of Vertebrate Palaeontology in the United States. Aberdeen University conferred an LLD on him in 1979. The number, spread and status of these honours are testimony and tribute to his distinction.

A national and international figure in earth science, Stanley Westoll still found time to devote substantial energy to the running and development of his university. Besides his long tenure as Head of the Department of Geology, he also served on all major university bodies, being Dean of the Faculty of Science on two occasions. The Department of Geology at Newcastle was built up under his guidance into one of the more substantial and effective British geology departments whose students were well grounded to enter a wide range of geological occupations. Although he had retired when it happened, he regarded the break-up of the Department, (as a result of the 'Earth Science Review' some years ago), as an act of academic vandalism which made him more angry than I had ever seen him either as his student or as a member of his staff.

He was a constant enthusiast and encourager - and when necessary a severe but constructive critic. His students were well supported and prospered intellectually and academically because of his sound teaching and guidance: many kept contact with him over the years. With his remarkable intellect and memory and his outgoing personality, he was a fluent speaker and persuasive teacher who, in the days before sophisticated visual aids became available, could cover wide blackboards with vast geological information in immaculate readable handwriting. If sometimes he had a failing, it was that he did not always

concede that some in his audiences were not blessed with the rapidity of incisive thought and quickness of assimilation he commanded. Gregarious and full of humour (as on most occasions when he had not overcommitted himself or he felt his students were not performing to the high standards he set), he was an excellent companion, especially in the field. He was most hospitable, especially to students, many of whom will remember enjoyable parties at his home.

Stanley Westoll was a distinguished scientist and he is a major loss to the scientific community, particularly to earth science. The loss is no less to his former friends and colleagues, but must be felt most keenly by his wife Barbara and by his son Neil and his family. He also had a powerful influence on my life.

DUNCAN MURCHISON