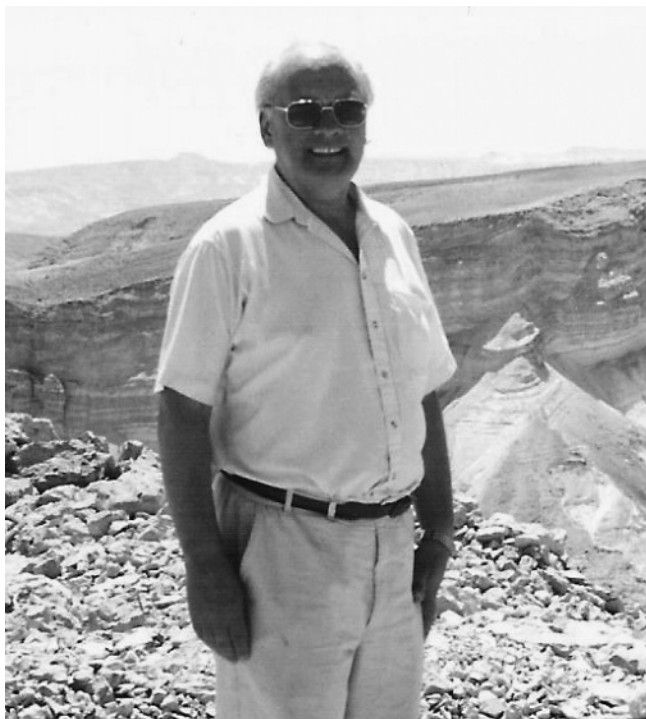


## OBITUARY

### Alan Charles Higgins (1936–2004)



Alan Higgins was born in Hanley, Staffordshire on 16 December 1936, the youngest of three children. Throughout his childhood he was fascinated by the natural history of the nearby Peak District and it was not surprising that sciences played an important part in his education at Hanley High School. In 1955, he went to the University of Sheffield to study Geology and obtained a 2(1) degree in 1958. During those early years in Sheffield, he came under the influence of the late Professor Leslie Moore and, on graduation, was encouraged by him to undertake research on Namurian conodonts. At that time, little was known of the true potential of conodonts and, indeed, almost nothing of their occurrence in Upper Carboniferous rocks. Alan collected samples extensively throughout the southern Pennine region, often working closely with the staff of the Geological Survey and generated the first Namurian conodont zonation for the British Isles. He exploited every opportunity to prove the value of conodont studies outside the Carboniferous Period and, in 1962, published the results of an investigation on the microfaunas found in the Durness Limestone of northwest Scotland. His PhD was completed in 1961.

In late 1961, he was awarded a DSIR (Government) Fellowship which allowed him to work in Brussels at the offices of the Belgian Geological Survey whilst investigating the stratigraphic distribution of conodonts in the Namurian type sections of the Namur Basin. These studies, carried out in close collaboration with Jos Bouckaert, established detailed correlations with the

British sequences and highlighted the difficulties of using the Belgian sequences as the basis for global correlations. Alan returned to Sheffield in 1963 and was appointed to a lectureship in Geology. Although carrying a significant teaching commitment in stratigraphy, palaeontology and sedimentology, he embarked on the most research-productive phase of his career. In collaboration with Robert Wagner, he initiated work on the Carboniferous conodont faunas from the Cantabrian Mountains of northern Spain, providing important links with the macrofloral evidence and ammonoid associations. Alan's research ability and potential were recognized in 1964 with the award of the Daniel Pidgeon Fund of the Geological Society of London for his contributions to conodont biostratigraphy.

His involvements in broader-scale geological projects are exemplified by his participation in the University of Sheffield field projects in East Greenland in 1974 to establish the age of the Tertiary basalts of the Kangerdlungssuaq area and the implications for the timing of the opening of the North Atlantic. Alan was responsible for the organization of the biostratigraphy and documentation of the sedimentary sequences. His work on the Pennine Carboniferous successions continued with further revisions to the conodont biozonation of the Namurian rocks, which he applied widely to the interpretation of successions throughout Europe. His achievements were recognized by the University of Sheffield in 1982 with the award of his DSc. and a Readership in Geology.

During a sabbatical visit in 1978, Alan spent some time working in the oil industry in Canada and returned in 1981 to spend a short period working at the GSC Institute of Sedimentary & Petroleum Geology in Calgary. In 1983, he resigned from his Sheffield post and returned as Chief Palaeontologist of the Geological Survey of Canada in Calgary where, in addition to his administrative duties, he made important contributions to the regional studies in the Beaufort Sea area and undertook further conodont and maturation studies on the Devonian and Lower Carboniferous subsurface basins of the Rocky Mountains. He was responsible for negotiating significant commercial funding for the Survey's biostratigraphic activities.

In 1986 he returned to the UK to join BP Research in Sunbury on Thames as a Research Associate in Stratigraphy. His new research included the development (with Peter Swaby) of expert systems for the identification of microfossils, in particular, digitizing the outlines of conodonts. He was also involved in various chemostratigraphy projects, including, in particular, the development of a strontium isotope database for use in operational projects.

At the time of the review of the future of Geology as a discipline in the UK sector of higher education in the mid-1980s, Alan was influential nationally, in highlighting the importance of biostratigraphy and micropalaeontology.

With the contraction of the oil exploration business in the early 1990s, Alan, together with other former Sunbury colleagues, John Athersuch and Paul Britton, established the

consultancy firm StrataData in which he played a major role as both bio- and chemostratigrapher. His achievements here included the development of new  $^{87}\text{Sr}/^{86}\text{Sr}$  isotope databases for the Phanerozoic, which were applied successfully throughout Southeast Asia and the North Sea.

Alan always remained committed to playing a significant corporate role in the development of biostratigraphy. He was a founder member of the British Micropalaeontological Society, going on to serve as its Secretary between 1977 and 1980 and its Chairperson between 1986 and 1989, in addition to being the first Chairman of the Conodont Group. The Society recognized his contribution to their activities with the award of Honorary Membership in 2002. Alan was also an active long-term member of the international Pander Society of conodont researchers.

Alan also had a significant role in the activities of the IUGS Subcommission on Carboniferous Stratigraphy, including acting as Secretary to the Mid-Carboniferous Working Group during its critical appraisal of stratotype sections around the world, prior to the selection of a Global Stratotype. He had field visits to prospective candidate sections in Russia, China, USA and the UK, establishing relationships with specialists in many fields. His methodical handling of the Group's business and his ability to maintain good personal relationships with all participants contributed to the successful outcome. The Geological Society of London appointed him as an Honorary Secretary in 1995.

Despite having major heart surgery in the early 1990s, Alan always remained active in geology. He was found to be suffering from cancer two years ago and appeared to have responded well to surgery. He was admitted to hospital for routine follow-up treatment in late March 2004 and died suddenly on 2 April.

#### SELECTED REFERENCES

- Austin, R.L. & Higgins, A.C. 1985. Introduction. In: Higgins, A.C. & Austin, R.L. (Eds), *A stratigraphical index of conodonts*. Ellis Horwood Ltd, Chichester, 13–31.
- Bouckaert, J. & Higgins, A.C. 1970a. La base du Namurien dans le Bassin de Dinant. *Bulletin de la Société Belge de Géologie, Paléontologie, Hydrologie*, **72**: 1–17.
- Bouckaert, J. & Higgins, A.C. 1970b. The position of the Mississippian–Pennsylvanian boundary in the Namurian of Belgium. *Congres et Colloques l'Université de Liege*, **55**: 197–204.
- Burnett, R.D., Higgins, A.C. & Austin, R.L. 1994. Carboniferous–Devonian conodont CIA in England, Wales and Scotland. The pattern and its interpretation: a synoptic review. In: Konigshof, P. & Werner, R. (Eds), *Willi Ziegler Festschrift I*. Courier Forschungsinstitut Senckenberg, **168**: 267–280.
- Ebdon, C.C., Fraser, A.J., Higgins, A.C., Mitchener, B.C. & Strank, A.R.E. 1990. The Dinantian stratigraphy of the East Midlands: a seismographic approach. *Journal of the Geological Society, London*, **147**: 519–536.
- Higgins, A.C. 1961. Some Namurian conodonts from North Staffordshire. *Geological Magazine*, **98**: 210–224.
- Higgins, A.C. 1962a. Conodonts from the Griotte Limestone of NW Spain. *Notas y Comunicaciones del Instituto Geológico y Minero, Espana*, **65**: 5–22.
- Higgins, A.C. 1962b. *An investigation of the distribution of conodont faunas in the Namurian of the South Pennines*. Unpublished PhD Thesis. University of Sheffield.
- Higgins, A.C. 1965. The significance of conodonts in the Carboniferous of Europe. *Proceedings of Subcommission of Carboniferous Stratigraphy, Sheffield*, **1965**: 69–75.
- Higgins, A.C. 1967a. The age of the Durine Member of the Durness Limestone Formation at Durness. *Scottish Journal of Geology*, **3**: 382–388.
- Higgins, A.C. 1971. Conodont biostratigraphy of the late Devonian–early Carboniferous rocks of the south central Cantabrian Cordillera. *Trabajos de Geología Universidad de Oviedo*, **3**: 179–192.
- Higgins, A.C. 1974. Conodont zonation of the Lower Carboniferous of Spain and Portugal. *Belgian Geological Survey, International Symposium on Belgian Micropalaeontological Limits (Namur, 1974)*, **4**: 1–17.
- Higgins, A.C. 1975. Conodont zonation of the Late Viséan–Early Westphalian strata of the south and central Pennines of northern England. *Bulletin of the Geological Survey Great Britain*, **53**: 1–90.
- Higgins, A.C. 1981a. The distribution of conodonts in relation to the palaeogeography of the late Viséan–Namurian time. In: Neale, J.W. & Brasier, M.D. (Eds), *Microfossils from recent and shelf seas*. Ellis Horwood Ltd, Chichester, 37–51.
- Higgins, A.C. 1981b. Coprolitic conodont assemblages from the Lower Westphalian of North Staffordshire. *Palaentology*, **24**: 437–441.
- Higgins, A.C. 1981c. The position and correlation of the boundary between the proposed Mississippian and Pennsylvanian Subsystems. *Newsletters in Stratigraphy*, **9**: 176–182.
- Higgins, A.C. 1982. Mid-Carboniferous boundary in the Western Europe conodont sequence. In: Ramsbottom, W.H.C., Saunders, W.B. & Owens, B. (Eds), *Biostratigraphic data for a Mid Carboniferous Boundary; IUGS Subcommission on Carboniferous Stratigraphy, Leeds*, 13–14.
- Higgins, A.C. 1985. The Carboniferous System: Part 2 Conodonts of the Silesian Subsystem from Great Britain and Ireland. In: Higgins, A.C. & Austin, R.L. (Eds), *A Stratigraphic Index of Conodonts*. Ellis Horwood, Chichester, 210–227.
- Higgins, A.C. & Bouckaert, J. 1968. Conodont stratigraphy and palaeontology of the Namurian of Belgium. *Memoires du Service Géologique de Belgique*, **10**: 1–51.
- Higgins, A.C. & Varker, W.J. 1982. Lower Carboniferous conodont faunas from Ravenstonedale, Cumbria. *Palaentology*, **25**: 145–166.
- Higgins, A.C. & Wagner-Gentis, C.H.T. 1982. Conodonts, goniatites and biostratigraphy of the early Carboniferous from the Cantabrian Mountains, Spain. *Palaentology*, **25**: 313–350.
- Higgins, A.C., Wagner-Gentis, C.H.T. & Wagner, R.H. 1964. Basal Carboniferous strata in part of northern Leon, NW Spain: stratigraphy, conodont and goniatite faunas. *Bulletin de la Société Belge de Géologie, Paléontologie, Hydrologie*, **72**: 205–248.
- Higgins, A.C., Richards, B.C. & Henderson, C.M. 1991. Conodont biostratigraphy and paleoecology of the uppermost Devonian and Carboniferous of the Western Canada Sedimentary Basin. In: Orchard, M. & McCracken, A.D. (Eds), *Ordovician to Triassic conodont paleontology of the Canadian Cordilera*. Geological Survey of Canada, Bulletin, **417**: 215–251.
- Ramsbottom, W.H.C., Higgins, A.C. & Owens, B. 1979. Palaeontological characterisation of the Namurian of the stratotype area (A report of the Namurian Working Group). *Compte Rendu 8eme Congres International de Stratigraphie et de Géologie Carbonifere (Moscow 1975)*, **3**: 85–99.
- Soper, N.J., Downie, C., Higgins, A.C. & Costa, L. 1976. Biostratigraphic ages of the Tertiary basalts on the East Greenland continentalmargin and their relationship to plate separation in the North Atlantic. *Earth and Planetary Sciences Letters*, **32**: 149–157.
- Soper, N.J., Higgins, A.C., Downie, C., Matthews, D. & Brown, P.E. 1976. Late Cretaceous–early Tertiary stratigraphy of the Kangerdlungssuaq area, East Greenland and the opening of the northeast Atlantic. *Journal of the Geological Society of London*, **132**: 85–104.
- Varker, W.J. & Higgins, A.C. 1979. Conodont evidence for the age of the Pinsky Gill Beds of Ravenstonedale, northwest England. *Proceedings of the Yorkshire Geological Society*, **42**: 357–369.
- Wagner, R.H. & Higgins, A.C. 1979. The Carboniferous of the USSR: its stratigraphic significance and outstanding problems of world-wide correlation. In: Wagner, R.H., Higgins, A.C. & Meyen, S.V. (Eds), *The Carboniferous of the USSR*. Yorkshire Geological Society. Occasional Publication, **4**: 5–22.

**Ronald L. Austin  
Bernard Owens  
Edwin G. Spinner**