

## OBITUARY

LEONARD JOHNSTON WILLS (1884-1979)

Honorary Member of the East Midlands Geological Society

When the Council of the East Midlands Geological Society inaugurated its Honorary Memberships, the principal criterion for selection for this honour was that the person concerned should have contributed significantly to knowledge of the geology of midland England. As this notice will demonstrate, Professor L.J. Wills was virtually an automatic choice; at the Annual Meeting on the 4th of February 1967, he became one of our first two Honorary Members. Much later, in 1976, the Geological Society of London followed our excellent example and he became its only British Honorary Fellow. The paragraphs that follow can only give a partial picture of a life so long and so full of scientific achievement.

Leonard Johnston Wills, known to personal friends as "Jack" and to the scientific world at large as "LJ", was a man of the Midlands throughout his life. His paternal grandfather had founded a manufacture of edge tools at Nechells, near Birmingham; his father continued this business; and he was born in affluent circumstances in the Birmingham suburb of Erdington on the 27th February, 1884.

His interest in geology may have in part stemmed from the enthusiasms of his great uncle, Sir Alfred Wills (1828-1912). Sir Alfred was a barrister (and later a Queens Bench judge) by profession, but he was also one of the great Victorian mountaineers, making many first ascents in the Alps and helping to found the Alpine Club, of which he became third President. Sir Alfred was the author of a number of zestful accounts of his adventures (*Summer Months among the Alps*, *Wanderings in the High Alps*, etc.), all of which were to occupy honoured places in "LJ"'s library; but he was also interested in the origin and shaping of those mountains and had translated into English one of the classic early works on their geomorphology and glaciology, Canon Rendu's *Théorie des Glaciers de la Savoie* (1840). These interests may well have been transmitted, directly or indirectly, to his great-nephew.

"LJ"'s scholastic abilities were never in doubt. He did well at his school, Uppingham, winning a scholarship to King's College, Cambridge; and his academic bent was made clear by his selection of courses, for he read Part I Natural Sciences with Part II in Geology. By the middle of 1907 he had attained a Double First, being awarded the Walsingham Medal and the Hackness Research Scholarship. Nevertheless, his comments on his education were scathing. "I learned nothing worthwhile at school," he told me. "Too much emphasis on classics. And I learned nothing worthwhile at University, either. It was only after I'd taken my degree that my education really began."

The researches that were begun in 1907, and continued for the next two years under tenure of the Harkness Scholarship, essentially determined the future course of Wills' geological career. Characteristically, they were focused close to home, on the plant and animal fossils of the Keuper sediments exposed in the building-stone quarries of the Bromsgrove district. His first paper (1907) announced these discoveries; and he was to retain interest in the continental deposits and fossils of the Upper Palaeozoic and Triassic throughout his life. Though he also wrote accounts of new ostracoderm fishes from the Downtonian, it was on terrestrial arthropods, notably the eurypterids, scorpions and pseudo-scorpions, that he became a specialist. He

developed ingenious techniques for the dissection of these fossils, discovering thereby many hitherto unknown anatomical details. such as the structure of the respiratory and reproductive organs. He was concerned also with stratigraphy, in particular that of the Triassic continental sediments. He tried different methods of correlating these deposits and reconstructing the environments they represented: indeed, one of his latest papers (1976) set forth the concept of rhythmic sedimentary deposition in the West Midlands Triassic. Unfortunately the most effective tool he might have used, palynology, was developed too late to be of much service to him.

In 1909 "LJ" was elected a Fellow of King's College, an appointment he held for six years. In the same year he was appointed to the Geological Survey of Great Britain, spending four years in mapping the rocks of the Llangollen area of north Wales. Those were happy years, for in 1910 he married Maud Janet Ewing, daughter of the distinguished scientist Sir Alfred Ewing. Their son Leonard was born on the 13th October, 1911 and their daughter Penissa in 1913. In that year also, "LJ" was appointed Lecturer in Geology and Geomorphology at the University of his home town, Birmingham, under the new Head of the Department of Geology, Professor William S. Boulton.

Thus established again in the Midlands, Wills' interests progressively enlarged. He had begun with studies of the Midlands Triassic, over the next four years he had developed an interest in the Welsh Palaeozoic, and now his concerns came to embrace more recent episodes in geological history - the Pleistocene deposits of the Midlands, the advances and retreats of the glaciers across the area and the position and extent of ice-dammed meltwater lakes. One of the latter, he found, had been truly extensive, covering much of the northwest Midlands; he named it Lake Lapworth, after Birmingham's most distinguished geologist. In 1932, when Boulton retired, Wills succeeded him as Professor and Head of Department, thus becoming Charles Lapworth's direct successor.

By this time "LJ" had begun on the work which, in particular, was to earn him lasting fame - the putting-together of all available information on subsurface and surface structure with the aim of producing a sequential picture of the geological evolution of the British Isles. A series of important books resulted; *Physiographical Evolution of Great Britain* (1929), *The Palaeogeography of the Midlands* (1948), *A Palaeogeographical Atlas of the British Isles* (1951) and *Concealed Coalfields* (1956). The economic importance of this research can scarcely be overstated. The *Atlas*, with its 49 maps of Britain from the Lower Palaeozoic to the Quaternary in which tectonics, palaeogeography, sedimentary facies and glaciations were all shown, was to make Wills, as Sir Peter Kent has noted, a "household name" among petroleum geologists; and *Concealed Coalfields* was to become the bible of National Coal Board geologists. All these works included information previously unpublished; Wills was an indefatigable correspondent, adept at extracting useful information from other geologists and endearingly meticulous in acknowledging his sources in his publications.

Such research brought for him a number of honours; an Sc.D. in 1928, the award of the Wollaston Fund by the Geological Society of London in 1922, its Lyell Medal in 1936 and finally, in 1954, its highest honour, the Wollaston Medal. It is puzzling, and sad, however, that he was never elected a Fellow of the Royal Society of London - surely a deserved honour, in view of his geological achievements.

As an academic teacher, he was not always so successful. F.W. Shotton, who was a junior member of his staff from 1928 to 1936, has noted that:

"He never had the reputation of being a good lecturer except to the brightest of his students who appreciated the quality of what he was saying. On field excursions his lean body was a bundle of energy and most students had difficulty keeping up with him. His pungent and witty aphorisms and anecdotes, so gently uttered in lecture or conversation that they could pass over the head of a listener, only became pointed when he wished to cut an obstructive student down to size - something which he rarely had to do." (1980b, p.38).

As an academic administrator, however, he was more successful: and in the four years after the war--the beginning of a happy but, alas, all too brief phase of expansion in British Universities--he established a school of geophysics at Birmingham and laid the foundation for other developments that would be carried out by his successors.

In 1949 came retirement to his home near Romsley, in the attractive area of the Clent and Lickey Hills. Within a year, he suffered a severe coronary thrombosis; yet, though this inevitably reduced his physical activity, Wills was to have another 29 years of active geological research. This was supported first by his wife and, after their happy partnership had been ended by her death in 1952, by his daughter Penissa, who kept house for her father and took care of him for 27 years. (His son Leonard died in 1976). During this time, Wills moved into a smaller house; his original home and 45 acres of beautiful land below Farley Wood, Romsley, were presented to the National Trust, for use or disposal as that authority saw fit. The Trust decided not to retain this property; but his inevitable disappointment at this decision was greatly lessened when the money from its sale brought into being the Leonard Wills Field Studies Centre in Somerset.

His research had now to be basically of an "arm-chair" sort; it was facilitated by the maintaining of strong contacts with the University of Birmingham, which had honoured him by naming him Emeritus Professor. Nevertheless he continued to do a little field work, and it was whilst examining specimens from boreholes put down by the East Worcestershire Waterworks Company that he discovered the first vertebrate footprints ever to be found in the Bunter Series of the English Midlands.

This led to my first contact with him. After reading a paper of mine on vertebrate footprints from the Nottinghamshire Triassic, he wrote to me on the 9th June, 1968, to see whether I would be interested in examining his finds. I was then spending a year at the University of Oklahoma; and it was not until some months after my return to England that I was able to respond properly to his letters. He and his daughter were involved in a car accident in November, 1968; and only in January of the following year was I eventually able to visit him and examine the footprints.

When I saw his specimens, I was not much impressed. Yes, there did appear to be imprints on a few of the slabs, but their quality seemed poor; and, in some specimens on which he claimed to see footprints, I could see nothing at all. It was more as a courtesy to a venerable geologist than from any other motive that my technician and I took the specimens back to the University of Nottingham for fuller examination. When we examined them under oblique illumination in a dark room, my astonishment was great; in every instance, the slabs did indeed bear footprints, many so extremely shallowly imprinted that I still marvel at his having perceived them in the field... A joint paper in *The Mercian Geologist* resulted (1970); and we were thereafter correspondents until 1975, when my work on English Midlands footprints came to an end.

This was only a small part of his work in these later years, however. His principal endeavours continued to be concentrated on the stratigraphy of the Triassic of the Midlands in particular and the subsurface geology of England and Wales in general. When in 1973, at the age of 89, he published a map of the buried pre-Permian formations of England and Wales, many felt this must be his last geological achievement. His heart condition was increasingly serious and he had lost the sight of one eye; surely he would spend the time remaining to him relaxing in his beautiful Worcestershire garden?

But not so; there was always something new to be learned! More and more valuable geological information was coming to light as, in the increasingly frenzied search for new British mineral resources, more and more boreholes were put down. Though, to be sure, he could no longer work for many hours a day, "LJ" continued patiently to compile data and reconstruct past topographies. Successively he published two further maps showing yet deeper levels. The first showed how the surface would appear with Upper Devonian and later formations removed (1975) and the second depicted the pre-Devonian formations. His work came to culmination when, in 1978, the Geological Society of London published a *Memoir* setting forth his interpretations of the data provided by these maps. By then, Wills was 94!

There was a last celebration when, on his 95th birthday, "LJ" was presented by the University of Birmingham with a special medal recognising his services to that University and to science. He died eleven weeks before his 96th birthday could be celebrated, on December 12th, 1979.

#### Acknowledgements

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W.A.S. Sarjeant



Emeritus Professor Leonard J. Wills in the garden of his home near Romsley, Worcestershire, Tuesday 7th January 1969.

(Photo: W.A.S. Sarjeant)