last expedition in 1912 to founding and directing the Scott Polar Research Institute in 1920 and seeing through its transformation and relocation to a new building in 1934. Peter Speak's well researched biography is a fascinating memorial of a bygone age in science and exploration. Whilst it is very much a Cambridge story, since Debenham's professional career started in Cambridge in 1913 and officially finished there with his formal retirement in 1949 and finally with his death in 1956, it does also provide some fascinating insights into Antarctic exploration and the birth pangs of a new discipline in an ancient university.

Debenham's first ordinary degree at the University of Sydney in 1904 was in Classics but after a spell in school teaching he returned to Sydney in 1908 to major in geology and petrology in 1910 with the Welsh-born Tannant William Edgeworth David as professor. David had been with Shackleton's 1907–9 *Nimrod* expedition to Antarctica and when Scott was recruiting for his second Antarctic expedition he asked David to recommend a young geologist. Although Debenham's scientific experience had not extended beyond southeast Australia and included little mountaineering, let alone experience of snow and ice, he was proposed as a likely candidate by David. Interviewed by Scott in a Sydney hotel, Debenham was immediately offered a place on the expedition and was one of the youngest in the scientific party.

At Scott's suggestion, Debenham and some others at least got some brief experience of snow and ice in New Zealand in November 1910. The following month they were 'en route' and crossing the Antarctic circle in *Terra Nova*, making land on January 4th 1911. Debenham's task in Antarctica, the geological re-examination of the Royal Society Range, begun by David on the *Nimrod* expedition, included collecting geological specimens and some plane-table surveying which was to become a feature of his later academic career. Debenham was never likely to have been part of Scott's small party that made the ill-fated assault on the South Pole. By January 1913 it was all over with Debenham and the other survivors on their way home. But home for Debenham was no longer Australia: his immediate task was to write up the geological results of the expedition and that was to take place in Cambridge.

After the luck of being in the right place at the right time that led to his Antarctic experience, Debenham's future trajectory, like that so many young men of the time, took him into active service and the lottery of the First World War. Luck was still on his side and despite being blown up in Salonika in 1916, he survived but did not return to the front lines. From here on it was less luck and more personal determination that drove him. There were still Antarctic reports to be completed and he found a 'home' alongside hoards of unsorted rocks and fossils in the attic rooms of the Sedgwick Museum in Cambridge, loaned by Professor Marr. This was where the Scott Polar Research Institute was effectively born and remained until the University sanctioned a move in 1927 to a permanent home in Lensfield House. Meanwhile in 1919 Debenham joined the Geography Department, first as a lecturer, then reader and finally became the first Professor. So he saw the transformation of that department and indeed the discipline from the first fully-accepted honours degree in 1919. It had taken 31 years for Geography to be formally recognized from when the University had first appointed Francis Henry Hill Guillemard as a lecturer in Geography in 1888.

Peter Speak's biography gives glimpses of many different aspects of Debenham's remarkable career and the important changes that took place in the wider academic environment following the First World War.

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LOYDELL, D. K. 2007. *Graptolites from the Upper Ordovician and Lower Silurian of Jordan*. Special Papers in Palaeontology no. 78. 66 pp. London: The Palaeontological Association. Price £42.00 (paperback). ISBN 9781 4051 7978 2.
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Palaeontology has gone from strength to strength in recent years. The astonishing – and astonishingly well-preserved – caches of fossils that have come to light are providing remarkable new insights into the course of evolution, while reconstruction of the Earth's past climate – a crucial context and prerequisite to understanding present climate – is underpinned and constrained by fossil evidence. This kind of work, however, depends utterly on maintaining and improving the systematic knowledge of 'normal' fossil assemblages: and this kind of work, being time-consuming and unlikely to attract headlines (or large grants), is increasingly hard to do in these demanding and impatient times. Hence it is welcome to see this major study of graptolites from around the Ordovician–Silurian boundary of Jordan.

It seems at first an unlikely subject to devote so much care and attention to. The graptolites had been hit hard by the end-Ordovician extinction associated with the brief but intense glacial phase of that time, and the general view (that I also used to hold) is of low-diversity faunas of bland and unremarkable normalograptid graptolites, largely resistant to detailed examination. Not so: by the kind of patient and careful study on which he has made his reputation, David Loydell has recognized 42 taxa in this apparently unpromising stuff, three of them new. It gives an altogether different picture of the diversity in this interval – and there are almost certainly more species out there, for there are still unsampled intervals in the stratigraphy. The study is made additionally useful because it acts as a bridge between two major graptolite provinces: the familiar graptolites of the European successions, and the endemic taxa of north Africa, previously biostratigraphically enigmatic.

Following relatively brief sections on the geology and biostratigraphy, the bulk of the work is of systematic taxonomic descriptions, concisely written and effectively illustrated, mostly by simple line drawings (the flattened but thankfully untectonized graptolites are not especially photogenic). There are the kind of surprises here that often turn up when type specimens of long-established and time-worn taxa are re-examined: Charles Lapworth's species *normalis*, for instance, formerly known as a *Climacograptus* and now the genotype of *Normalograptus*, is in reality a third larger in breadth than has been thought for a century. And there are nitpicks, too, of course, the taxonomic assignations that one might individually frown at (the wonderfully biform graptolites here assigned to *Neodiplograptus*, a genus that I have looked at askance ever since its genotype species, *magnus*, turned out to have thecae that are as uniform as you please).

No matter: this is a reference work that will continue to be well-thumbed by graptolite workers long after more fashionable scientific papers have faded into obscurity. Ironically, the data within it will be of use both to those extracting petroleum from the ground (the early Silurian transgressive 'anoxic' mudrocks are a major oil source rock) and to those pondering the possible effects of this contemporary global experiment (the marked latest Ordovician post-glacial transgression represents one of the most spectacular ice-sheet collapses of all time). A fine demonstration, then, of the diverse uses to be made of the humble graptolite.

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