# Obituaries

**Drummond Hoyle Matthews**, an Antarctic geologist who became one of the leaders in the understanding of plate tectonics, died in Taunton, Somerset, on 20 July 1997 at the age of 66. Matthews began research as a field geologist in the Falkland Islands Dependencies Survey (FIDS, now the British Antarctic Survey). He made the main contribution to the current geological understanding of the South Orkney Islands, but his Antarctic work was overshadowed by later accomplishments.

In the weeks after his death, there were obituaries in *The Independent* (1 August), *The Times* (12 August), *The Guardian* (14 August), and *Nature* (7 August). Bob White, his former student and now professor of geophysics at the University of Cambridge, described him as one of the chief architects of the plate tectonics revolution. This accolade was earned for the recognition of patterns in magnetic anomalies and bathymetric features on either side of mid-ocean ridges and the sustained follow-up of those discoveries. In the five years from 1967 to 1972, the Cambridge marine geophysical group led by Matthews made 33 seagoing expeditions, and in the following decade another 39 voyages were made to all oceans of the world. The ésprit among that small group of scientists and technicians is reflected in Matthews' own memory of the time as the 'heroic' period of ocean exploration.

Matthews was born on 5 February 1931 and grew up by the sea in Porlock, Somerset, an only child whose father died when he was young. He soon developed a passion for sailing. At Bryanston School, he did well and was greatly respected by staff. In September 1949, he became a midshipman in the Royal Navy, and he served in the Mediterranean Fleet before completing national service with the rank of Lieutenant.

At King's College, Cambridge, he soon seemed destined for postgraduate studies, but in 1955 he graduated with only an average degree in geology and petrology. His mentor, Maurice Hill, still wanted him in the Department of Geology and Geophysics, but Matthews decided to try something else first. Cambridge had many Antarctic contacts, so it is hardly surprising that he was attracted to FIDS, although he committed himself to only one winter south.

In 1955 a new hut had been built at Signy Island, and the following years were to be devoted to topographical and geological surveys of the South Orkney Islands. Only a week before sailing, Matthews learned that Derek Maling had already done two years of geology at Signy and Coronation islands. A last-minute attempt to meet failed, and Matthews did not benefit from Maling's experience until he had been in the South Orkneys a year and had almost completed his own fieldwork.

Most fieldwork on Signy Island could be undertaken alone in days out from base. Coronation Island was a more serious undertaking, and throughout his time on the island Matthews was accompanied by the late Douglas Bridger (surveyor) and other members of Base H. Access to Coronation Island from Signy depended upon the state of the sea and/or ice. There were two dog teams at base, but 1956 was one of those rare winters when no fast ice formed between the islands. Two small clinker-built boats were in constant use as long as there was open water and in loose pack whenever it seemed feasible. Matthews was in his element, and his skill in handling boats rubbed off on everyone. He was adept at sculling over the stern with one oar 'fishwife fashion,' which was the ideal way of pushing a boat through brash.

During the winter of 1956, the highlands of Coronation Island remained shrouded in orographic cloud for weeks at a time, making surveying impossible and glacier travel hazardous. During prolonged lie-ups, books became as important as rations. Short spells of good weather eventually allowed the main objectives to be achieved.

In the summer of 1955/56, a party was landed by ship at Meier Point to survey the west end of Coronation Island. The following summer another party led by Matthews was landed by ship at the eastern end of the island and worked from a base camp at Rayner Point. Towards the end of their time there, Matthews attempted to extend the geological survey eastwards by taking their one boat across the Lewthwaite Strait to Powell Island. This endeavour was thwarted by lack of a beach, so Matthews leapt onto the rocky coast for a few hours while Sandy Hall cruised about offshore. They landed briefly at Whale Skerries on the way back, then some days later returned to map these islets, camping on one of them. After RRS *Shackleton* had picked up the party from Rayner Point, Matthews and Hall landed briefly at two sites on Fredriksen Island and then had one last encounter with Coronation Island, an hour or so at Palmer Bay on one of the north coast promontories. Altogether Matthews had been on Coronation Island for 263 days.

In the summer of 1957, Matthews returned to the FIDS Geology Group, recently set up under R.J. Adie at the University of Birmingham. *The geology of the South Orkney Islands* was to appear in three parts, each one published as a separate *FIDS Scientific Report*. Matthews and Maling submitted their contribution to 'Part I. Signy Island' in January 1959; it was eight years before it was published (Matthews and Maling 1967). By December 1959, Matthews had submitted 'Part II. Coronation Island,' but that significant work never appeared in his name (Matthews 1959b). He published two other papers: a technical note (Matthews 1958) and a review of the Scotia Arc incorporating marine interests that were to dominate

the rest of his career (Matthews 1959a).

Matthews received his PhD from Cambridge in 1961. He then served as a senior assistant in research in Cambridge's Department of Geodesy and Geophysics, where his investigations of the sea-floor helped him become one of the first scientists to understand plate tectonics. He later was promoted to assistant director of research (1966) and then to reader in marine geology (1971).

With later colleagues, Matthews was apt to dismiss his early career with hints that those years were not all they might have been. Nevertheless, he was much moved by the Antarctic, and those who shared the experience remember him as a friend with a subtle sense of fun, and as a reliable, thoughtful companion deeply committed to science, who always went the extra mile.

*W.L.N. Tickell*

## References

Matthews, D.H. 1958. Dimensions of asymmetrical folds. *Geological Magazine* 95: 311–313.

Matthews, D.H. 1959a. Aspects of the geology of the Scotia Arc. *Geological Magazine* 96: 425–441.

Matthews, D.H. 1959b. The geology of the South Orkney Islands: II. Coronation Island. Unpublished paper. Cambridge: British Antarctic Survey Archives E53/GY14/6/1: 1–66.

Matthews, D.H., and D.H. Maling. 1967. The geology of the South Orkney Islands: I. Signy Island. *FIDS Scientific Reports* 25: 1–32.

**Anne-Stine Ingstad**, the Norwegian archaeologist, died at her home in Oslo on 6 November 1997, aged 79. By her excavations, she authenticated the first undoubted Norse ruins in North America, discovered by her husband Helge, scholar, sailor, and writer.

Her husband, whom as Anne-Stine Moe she married in 1941, became interested in the Norse voyages after a visit to a Norse excavation in Greenland in the early 1950s. A study of the Icelandic sagas guided him on a long quest in the wake of Eric the Red and other Norse explorers. The climax of his quest came in 1960, when he sailed his ship from Greenland across to Labrador and southwards in search of Norse settlement sites. At L'Anse aux Meadows, his attention was drawn by a local man, George Decker, to some grassy mounds that Ingstad recognized as possible remnants of Scandinavian sod houses. The seven subsequent summers of archaeological work directed by Anne-Stine were to prove his hunch correct.

Anne-Stine enhanced the educational value of the project by using several local workers as part of her team, all of whom remember her with warm affection. During the excavations, the foundations of eight buildings were gradually uncovered, including a large house almost identical to Leif Ericsson's 'great hall' in Greenland. An area used for smelting bog iron was also discovered, and artefacts such as a small stone spindle-whorl and a bronze tunic pin of Norse design were found. The Ingstads thought it more than probable that L'Anse aux Meadows was the place referred to in the sagas as 'Leifsbudir,' which had been the site of several winterings in Vinland. The radiocarbon ($C^{14}$) method showed AD 1000 ± 100 years as the date for the site, which accorded well with those indicated in the sagas.

The Ingstads left further excavations to Parks Canada after 1968, but maintained a close interest in L'Anse aux Meadows, which, in 1980, to their delight, was declared by UNESCO an official World Heritage Site. Historical tourism at this site has since provided a valuable boost to the economy of a region hard hit by the ban on cod-fishing in Newfoundland's coastal waters, imposed by the Canadian government in 1992.

After her work in Newfoundland, Anne-Stine Ingstad returned to the University of Oslo, where she had her book published in 1977: *The discovery of a Norse settlement in America: excavations at L'Anse aux Meadows, 1961–1968.* In 1979, she received an honorary doctorate from Memorial University, St John's, Newfoundland. She and her husband set the seal on their work in Newfoundland with the publication by the Oslo University Press of *The Norse discovery of America* (1986) in two volumes.

In 1991, the Royal Geographical Society honoured the Ingstads by awarding them jointly the Patron's Gold Medal. In their quiet and modest way, they took a wry pleasure in receiving it in the year before the quincentennial celebrations of the *official* discovery of North America by Christopher Columbus.

Anne-Stine Ingstad is survived by her husband (now 98), their daughter Benedicta, and their grandchildren.

*Selma Barkham*

*Geoffrey Hattersley-Smith*