



Obituaries

Bruce Rutherford Morton **11 April 1926 – 15 September 2012**



Bruce Morton is remembered not only as a scholar who contributed significantly to the field of fluid mechanics, but also as a person who understood that science is fundamentally a social activity. He was born in 1926 in Wellington, New Zealand. He was the second child of Eleanor and Harold Morton. Eleanor was a schoolteacher, and it was from her that he inherited his love of learning. He did a double degree in mathematics and physics at the University of Auckland. One of his pleasures at University was as a member of the mountaineering club. A notable trekking companion at the time was Edmund Hilary, who Bruce later accompanied on expeditions in Europe in the lead up to Hilary's famous assault on Everest. It was in the mountaineering club that Morton met his wife-to-be, Alison.

In 1949, Bruce was awarded a Rutherford fellowship to study for the mathematics tripos at St John's College Cambridge. He later completed his PhD in the Department of Applied Mathematics and Theoretical Physics, supervised by George Batchelor and Sir Geoffrey Taylor. His PhD culminated in the now classic paper, 'Turbulent gravitational convection from maintained and instantaneous sources' (Morton, Taylor and Turner, 1956, *Proc. R. Soc. Lond. A* **234**, 1–23), which remains one of the most referenced papers in fluid dynamics.

Bruce's first academic appointment was at University College London. He did not stay there long as shortly afterwards he accepted an offer of a lectureship from Professor (later Sir) James Lighthill at Manchester University. In 1967, he was appointed to a chair in Applied Mathematics at Monash University. There he established a strong group in geophysical fluid dynamics within the Department of Mathematics. He believed that laboratory work played an important role in teaching and research and so established a fluid dynamics laboratory in the department. The group was extremely active with many students and post-doctoral fellows subsequently moving on to significant positions in Australia and overseas. A distinguishing feature of the group was that the tea-time talk was about science rather than sport.

For more than two decades, Bruce built up his group involving staff, students and post-doctoral fellows involved in both research and teaching. He recognised the relative isolation of Australia and so he understood the need to promote exchange visits with groups from other parts of the world. Funds were found to support a steady flow of visitors to the group.

Bruce was much more than a supervisor to students and a colleague to staff. Members of the group were taken into his family for meals and outings. Discussion extended well beyond science, including art, music and literature. Visitors all had the experience of outings to Healesville with the group, independent of the Melbourne weather.

Bruce's research covered a number of areas in fluid mechanics, such as flow from smoke stacks, the flow around fires, and the flow around bridges and aircraft. He had a special understanding of the importance of vorticity in flows, and his research on vorticity and convection profoundly altered the field. The relevance of vorticity to a range of phenomena (such as smoke rings and water going down a plug hole, but also dust devils, water spouts, tornadoes and tropical cyclones) provide many opportunities for practical as well as mathematical demonstrations by Bruce. Through one of these demonstrations of 'fire devils', he famously set off the fire alarms during a conference in Melbourne.

Although Bruce never considered himself to be a meteorologist, the group he built was to have a very strong influence on meteorology in Australia and overseas. For Bruce, meteorology and oceanography were two fascinating and highly relevant applications of fluid mechanics. He retired at the end of 1991, but continued to be involved in science for many years after his retirement.

Bruce was personally involved in the establishment of new institutions, such as the Australian Institute of Marine Science in Townsville. He was involved with the establishment of the Applied Mathematics Division of Aust MS, now ANZIAM. He put a lot of effort into the development of professional meteorology in Australia through the Australian Meteorological and Oceanographic Society (AMOS). He especially promoted the establishment of AMOS centres in each State, and so he ensured that AMOS became a truly national organisation.

While at Cambridge, Bruce married Alison, whom he had first met while still at the University of Auckland. He was devoted to Alison and she to him. Sadly, Alison died three months before Bruce and he felt her loss very deeply. Until the later part of his life when he was increasingly troubled by ill health, Bruce had unlimited energy and enthusiasm for everything he undertook. He was an inspiration to all who knew him well, an outstanding role model for his students and colleagues. He and Alison are survived by their daughters, Clare, Janne and Anna, and seven grandchildren.

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Michael Reeder, Monash University, Australia
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