

William Mordue BSc, PhD, DSc, FRSE, FRSB

10 February 1940 – 14 February 2020

Pioneering insect physiologist and university administrator

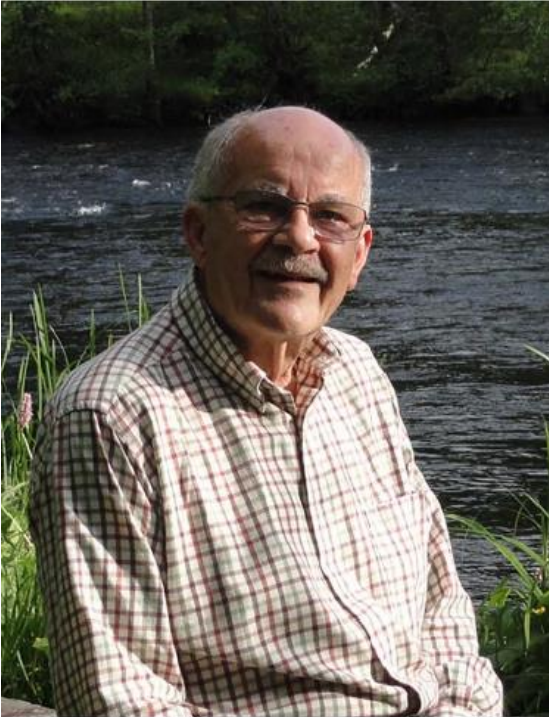


Image courtesy of the Mordue family

William Mordue, better known as Bill by his friends and colleagues, was born in Stanley County Durham. The proud son of a Durham miner, he attended Stanley Grammar School, where he developed his interest in biology. Bill decided to pursue his academic interests at university and became the first member of his family to go on to higher education when he enrolled at the University of Sheffield in 1958. This was something both he and his family were immensely proud of, and as a result Bill had a lifelong empathy with students from working class backgrounds wanting to ensure that they had the same higher education opportunities as those who were more privileged. He read for a BSc in Zoology from 1958 to 1961 and continued his studies for a PhD at the same University from 1961 to 1964, investigating the hormonal control of egg development in the mealworm *Tenebrio molitor* under the supervision of Dr Ken Highnam. This was the beginning of his passion for entomology and insect physiology, which would become the main research thread of his career. He continued to develop his interests in insect physiology during a 3-year post-doctoral Fellowship, which he also held at the University of Sheffield from 1964 to 1967.

In 1967, Bill joined the Department of Zoology, at Imperial College London, as a Lecturer, becoming a Senior lecturer in 1972 then Reader in 1976. This was a particularly fertile period in his scientific career, during which he broadened his research interests to include the hormonal control of fluid balance as well as the regulation of lipid and glucose metabolism. He honed these interests while spending a year as a Ciba-Geigy Senior Research Fellow at the Agricultural University, Wageningen, Netherlands in 1975, with Dr Stan de Kort, investigating the flight metabolism of the Colorado Potato Beetle and also in 1976 and 1977 he spent a sabbatical period at the Zoology Department, University of British Columbia, working with Professor John Phillips studying the regulation of solute and fluid transport in locusts.

The stimulus for this work was the potential to find novel ways of controlling insect pests, by exploiting their distinctive hormone systems. At the time however, whilst there was evidence for robust biological activities, the field lacked chemically identified structures to work with and this hampered progress. Thus, the chemical and structural identification of insect neurohormones became a central focus of Bill's research.

It was his interest in the role of hormones in maintaining flight in locusts that led to one of Bill's most significant scientific contributions, the identification of the structure of adipokinetic hormone (AKH), which is crucial to the mobilisation of lipid reserves during prolonged flight in insects. This was a major achievement and an important discovery, as it was the first neuropeptide hormone to be identified in insects, with no structural mammalian homologue. This was achieved through his collaboration with his post-doc Dr Judy Stone and Professor Howard Morris FRS from the Department of Biochemistry at Imperial College. The identification of the structure of peptide hormones at that time was not a trivial task, given the source of the starting material (the *corpus cardiacum*), a tiny gland that had to be dissected from individual insects. Since each gland contained only nanomole amounts of peptide, it required the dissection of >500 insects. In addition, the N- and C-termini of the decapeptide sequence were blocked, and with the relatively primitive chromatographic techniques available, this made the identification of AKH in 1976 and its publication in *Nature* a considerable achievement. Importantly these studies laid the foundation for much of the work on insect regulatory peptides that followed. Bill's work had established a novel class of insect

hormone which subsequently has been shown to have pleiotropic effects, going beyond just lipid mobilisation to include other functions such as immune regulation. In subsequent years Bill and his research team identified several other important insect peptide hormones, including AKHII and hyperglycaemic hormones I and II.

In 1980, Bill moved to the University of Aberdeen to take up a Chair in Zoology and not long after his arrival he took over as Head of Department succeeding Professor George Dunnet, to whom Bill was a close friend. As department head, Bill exercised a relaxed style of management, which reflected his open and engaging approach to everyone he met and worked with. Whilst adopting a seemingly light touch, his approach to management was nonetheless effective and successful, enabling him to exercise his powers of persuasion without an overt hand of authority. As a result, he advanced the research excellence agenda of the department, so that it grew in size and stature to become one of the largest Zoology Departments in the country, until a little over a decade ago, when such departments were caught up in the widespread restructuring that took place across UK Universities.

After a successful period as head of the Department of Zoology, it was no surprise that Bill was called to the top table of University management. He became a Vice Principal at the University of Aberdeen in 1985 and then Senior Vice Principal in 1988. It was during this particularly difficult period that Bill was the right-hand man to Principal George McNicol, helping to steer the University of Aberdeen through the financially challenging years of the late 1980s.

Bill also took a strong interest in the commercialisation of research and the environmental consequences of the oil industry in the North East of Scotland, being Chairman of the Aberdeen University Marine Studies Ltd (AUMS), a Director of the Aberdeen University Research and Industrial Services (AURIS), and Chairman of Shetland Oil Terminal Environmental Advisory Group (SOTEAG) at different times in the 1980 and 90s.

Having received his DSc from the University of Sheffield in 1979, Bill was elected to the Royal Society of Edinburgh in 1987, in worthy recognition of his scientific contribution to research and academia. Bill's interest in research never waned and so in 1990, in the years leading up to his retirement, he returned to research full-time. During this period, he dedicated much of his research interest towards the Scottish Midge. Joining forces with his wife, Professor Jenny Mordue, also a renown academic with research interests in insect physiology and behaviour, they set up the Scottish Midge research group, with Bill focusing on the role of chemical attractants. Bill retired in 2003 having published in excess of 200 papers and leaving a strong legacy of research advancement in insect physiology.

Beyond academia, Bill was a warm and generous man, who was widely liked and admired for his strong lust for life and natural sense of humour, which made him great company. He was also a devoted family man who made Aberdeen his long-term home, where he brought up his young family and where he developed and enjoyed the company of a wide circle of friends

Bill is sadly missed by all who knew him, but especially by his family whom he leaves behind - his wife Jenny, his three children, Rebecca, Steven and Robin, and his five grandchildren.

**Professor Peter J. Morgan FRSE,
Director of the Rowett Institute, University of Aberdeen**

with grateful acknowledgement of help from family, friends, and colleagues.

William Mordue BSc, PhD, DSc, FRSE, FRSB. Born 10 February 1940. Elected FRSE 1987, died 14 February 2020