

OBITUARY

Simon Hugh Piper Maddrell, ScD, FRS, 1937–2020

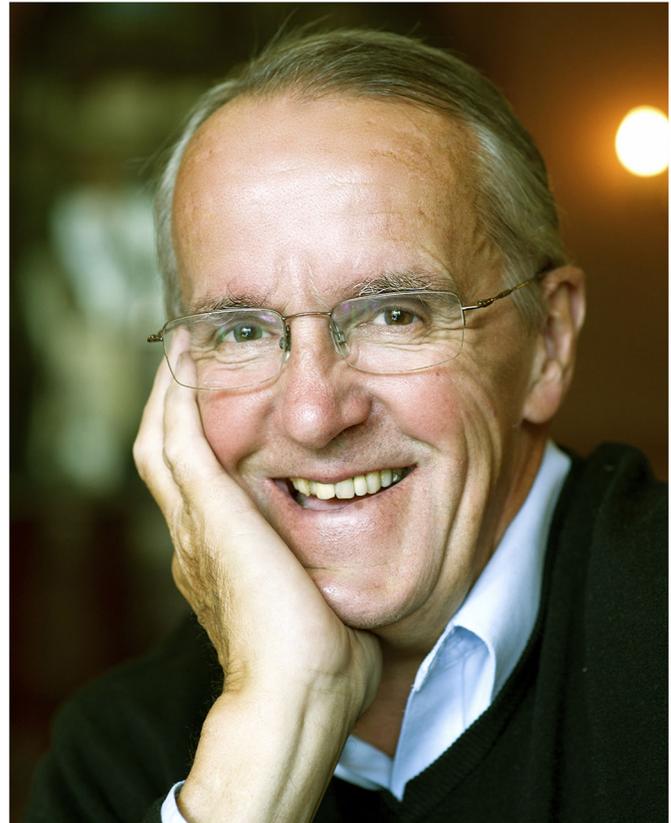
Helen Skaer¹, Michael J. O'Donnell² and Julian A. T. Dow^{3,*}

Simon Hugh Piper Maddrell – Hugh after his father and Piper, of which he was very proud, after the sandpipers his parents heard on their camping honeymoon – was born in 1937, the oldest of five siblings. His upbringing on his parents' farm meant that nature ran deep in his makeup, a seam he never lost and which must have steered him towards studying biological sciences. Biology wasn't a given, because Simon was a very successful schoolboy and could have taken a variety of subjects to university level. He was a scholar at St Catharine's College in Cambridge and took the top first in Part II Zoology in the Natural Sciences Tripos. But don't think of him as a cloistered swot. He was an energetic and very successful sportsman. He was the Cambridge table tennis champion and was awarded a Half Blue for representing the university twice. He was a serious swimmer and keen squash player, and he was for a brief period on the UK shot put top 20 list.

Simon stayed on in the Zoology Department for a PhD entitled 'The regulation of excretion in *Rhodnius prolixus* Stål' under the supervision of Sir Vincent Wigglesworth. This was not in fact his first association with Sir Vincent, who had stayed with his parents in about 1940, when Simon, aged 3, had been thrust unceremoniously into Dr Wigglesworth's arms by Simon's mother, who was busy trying to cook their dinner. Simon's thesis was ground-breaking, with two single-author letters in *Nature* and his first JEB paper, which as Simon himself said 'identified a new class of hormones in insects, which opened up a new field and revived work on Malpighian tubules that is still active now in many labs round the world'.

After a postdoctoral spell in Dalhousie University, Canada, he returned to the UK to take up a research fellowship at Gonville and Caius College, Cambridge, and in 1968 joined John Treherne's ARC Unit of Invertebrate Chemistry and Physiology, also associated with the Cambridge University Zoology Department. This was a happy and productive time, with his one-man lab supported in turn by assistants Brian Gardner and John Overton, and Simon was awarded the Scientific Medal of the Zoological Society of London in its centenary year (1976) and became a Fellow of the Royal Society in 1981. After Treherne's death in 1990, the unit was dissolved, and Simon became an Honorary Reader in Comparative Physiology and an Honorary Professor of Integrative Physiology in 2003.

Simon's research output was centred on the Malpighian tubules of the remarkable blood-sucking bug *Rhodnius prolixus*; but his interests in insects were much more general. He was fascinated by the neurohormonal control of diuresis and indeed wrote a small textbook on insect endocrinology, as well as influential reviews on



the design of the insect neurosecretory system. His very last paper – in 2018, appropriately enough in this journal – theorized that endopterygote insects were more successful than the more 'primitive' exopterygotes, because their softer larval cuticle conferred selective advantages for growth, oxygenation and moulting. In the mid to late 1990s, he switched his interests to work on the Malpighian tubules of the fruit fly *Drosophila melanogaster*, in collaboration with several other researchers in North America and the UK. This productive period greatly influenced the subsequent careers of many of his collaborators and the resulting papers gave us a detailed picture of the complex endocrine and intracellular second messenger control of multiple membrane ion transporters that are essential for insect ionoregulation and haemolymph homeostasis. He was also known for a ground-breaking series of papers that detailed how the tubules play a cardinal role in the excretion of toxins, including insecticide metabolites, and elimination of nitrogenous wastes, and how these excretory mechanisms are regulated by the insect's nutritional status.

For Part II undergraduates, Simon's lectures stood out. He had an irrepressible zest for his subject, and – unlike many of his peers – worked hard to capture his audience's interest and attention. He would distribute grainy photocopies (remember those?) of pictures

¹Department of Zoology, University of Cambridge, Downing Street, Cambridge CB2 3EJ, UK. ²McMaster University. Department of Biology, McMaster University, 1280 Main Street West, Hamilton, ON, Canada L8S 4K1. ³University of Glasgow, Davidson Building, Glasgow G12 8QQ, UK.

*Author for correspondence (julian.dow@glasgow.ac.uk)

 J.A.T.D., 0000-0002-9595-5146



from the literature that had caught his attention. A memorable example was a cross-section of microvilli, each packed with a mitochondrion, in a semi-crystalline ordered array. His enthusiasm and interests far beyond the immediate topic of discussion would extend to his tutorials. Simon was a wonderful PhD supervisor, in the old school tradition; he must have been of the last generation that did not expect to be on their students' papers. A PhD was for the student to execute, and he was available for guidance and support as needed. He met his students every few months, and he would be witty, enthusiastic and always have some new piece of biology that fascinated him. As a result, the progressively more urgent messages to get a move on could be overlooked. And so, when the inevitable happened and money ran out before the experiments, Simon came to the rescue again. He had discovered that reprints from the publisher were ferociously expensive, so set up a cottage industry of impecunious graduate students to pick out the articles from unbound stacks of journals, push them into a pair of electric staplers, and sort them into piles ready to box up and send out to the authors. These 'reprint evenings' became a great party in their own right, and will be remembered fondly by many graduates of the seventies and eighties.

Simon also was extraordinarily fond of words, languages and etymology. The Times crossword was ticked off, usually in just a few minutes, upon his early arrival in his lab each morning. Discussions of the day's experiments with collaborators and visitors would often result in a phrase or a couple of sentences copied on to a clipboard, and these would gradually form the scaffolding for a

manuscript that took shape months before the experiments were completed.

Simon was a numbers man. He delighted in the greatest and 'mostest' and his favoured method of measuring or demonstrating a trend was through a graph. His weight as he bulked up to become a UK top 20 shot putter, his cycle times during his road racing days, his impressive golf handicap – all were carefully quantified. He believed that the key to understanding was in measurement. This precision extended to his use of time. If a visitor were to surprise him, he could polish off a supervision or an experiment, force march them to his Audi Quattro, drive them at high speed to a rustic gastro pub, and arrive back with seconds to spare for a meeting with his great friend, Bob Prior, the groundsman at Caius.

It should therefore be no surprise that he was a brilliant financier. He took on and developed the finances of the Company of Biologists from the 1970s for over 40 years, a period over which their assets blossomed many thousand-fold. Visitors to his lab over those years became used to the TV screen displaying by turn the currency exchange data and the stock market levels, and would know that Simon always had half an eye on them so that he could act fast when the propitious moment came. Occasionally, he was persuaded to change the channel so that Wimbledon tennis or the cricket test match could provide the background as they worked in the lab. He continued to give valued financial advice to the Company and also to his college Caius until just weeks before his death.

If one word had to be found to sum Simon up it would have to be enthusiasm. Whatever he did, thought or engaged with, it was with tremendous liveliness and enthusiasm, whether his latest favourite daffodil variety, the wondrously cheap but delicious Spanish champagne that he would (and did) make a fortune on, his most recent novel theory to explain why bees pee when they fly or a picture by Veneziano that he had just unearthed in a museum catalogue. It was this enthusiasm, along with his ability to communicate it and the sharpness of his mind that made him such a superb teacher. For generations of students, his supervisions were mind changing. Summer faculty visitors from other universities could not only collaborate on projects but also recharge their creative energies through discussions of science with Simon that took place not just in the lab but on a walk in the nearby Gog Magog hills, during a game of darts or of par 3 golf in the long July evenings. With Simon, science was exciting, but most importantly, it was fun! He embraced life to the full, with many interests beyond the academic, which he shared often by organising others to participate with him in their enjoyment. He hugely enjoyed taking his family, friends and students for joy rides in his bronze Aston Martin, inherited from his father, who bought it on the back of a successful season of white clover. Simon ran a play reading club for many years at Caius, he set up a group of students who became expert at wine tasting (and buying), and he remained the president of the University table tennis club until very recently. As he became a more frequent resident of the Isle of Man, he started to win the daffodil section of the annual show so regularly that he was asked to become a judge; and he also helped to found and became the Chairman of the Isle of Man Woodland Trust.

Simon married Anna in 1961, with whom he had four children, and after their marriage ended in the 1980s, he married Kate, with whom he lived on the Maddrell estate, Ballamaddrell, on the Isle of Man. He is survived by Kate, his children Penny, Robin, Joe and Sam, and his grandson Harold.