In memoriam: Andrew Spencer

Steven Buckingham

Received: 1 October 2010 / Accepted: 1 October 2010 / Published online: 17 October 2010
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It is with great regret that we hear of the death on Sunday June 20th of Andy Spencer, whose work on Cnidarian nervous systems will be familiar to many readers of *Invertebrate Neuroscience*. Andrew N Spencer was born on February 13th 1945 in England and read for his first degree at Queen Mary College in London, where his referees (notably G. E. Newell, coauthor “Animal Biology”, a standard UK textbook) were impressed with his research potential manifested in his undergraduate project. At the age of 22, he emigrated to Canada with his first wife, Rita, to study for a PhD at the University of Alberta with Professor George Mackie. In 1968, George took Andy and two other PhD students to Canada’s west coast, the first doctoral candidates to join the Biology Department at the University of Victoria, where Andy was the first UVic

biology graduate student to be awarded the PhD degree. Andy’s undergraduate referees were right about his research potential: George recalls how quickly Andy grasped the basic techniques for electrophysiology recording. On top of his academic abilities, Andy also showed he had the qualities of a natural leader, with the other graduate students electing him as their representative on the department executive committee. George recalls “He was one of the few students with the confidence to speak up and ask questions of visiting seminar speakers. His thesis work was very good and produced two papers, and there were no problems getting the thesis accepted. On top of that, he and I also worked on a variety of other topics at the University of Washington laboratories at Friday Harbor, two of which were significant enough to get published in *Nature*”.

For some 30 years, Andy’s research brought him into close contact with the Bamfield Marine Station (now the Bamfield Marine Sciences Centre), and in 1993, Andy became its director, a post he was to maintain for 11 years. In that time, he instigated many improvements to BMSC, including the foreshore Ecophysiology laboratory. If the remote location of BMSC is an asset for ecologists, its remoteness has been a major challenge to molecular biologists and physiologists requiring state-of-the-art facilities. The Ecophysiology Laboratory solved this problem, greatly enhancing the utility of the station, not to mention providing an unparalleled view from the laboratory windows. Throughout his tenure as Director, Andy’s untiring efforts to upgrade the facilities resulted in yet further, more significant changes, with the recent construction of the hydrodynamic laboratory along with new docks, boats, and buildings, including the impressive Rix building and Buchanan lodge, with funding from the Canada Foundation for Innovation (CFI) initiative. It would not be an

S. Buckingham (✉)
Department of Physiology Anatomy and Genetics,
MRC Functional Genomics Unit, University of Oxford,
Le Gros Clark Building, South Parks Road,
Oxford OX1 3QX, UK
e-mail: steven.buckingham@dpag.ox.ac.uk

exaggeration to say, that by the time Andy left in 2004 to take up a post with Vancouver Island University, BMSC had undergone the greatest change in infrastructure since its initial conversion from the Pacific Cable Board (PCB) Cable Station (the eastern terminus of the transpacific telegraph cable).

What was Andy's impact on invertebrate neuroscience? Along with George Mackie and Bob Meech, Andy challenged the contemporary idea that Cnidarian nervous systems were little more than simple nerve nets and excitable epithelia. He applied rigorous quantitative analysis, in the style of Hodgkin and Huxley, to the conduction of nerve impulses around the umbrellar ring. These studies threw up several surprises. For instance, he showed how in *Polyorchis penicillatus* the inactivation properties of jellyfish potassium channels dynamically change the shape of the action potential as it progresses around the nerve ring, and that this, coupled with some unusual properties of excitation–contraction coupling, also discovered by Andy, ensures simultaneity of contraction around the bell, which is essential for efficient jet propulsion. This set of discoveries was typical of Andy's approach, which encompassed not only physiology but also mechanics and environment. Andy maintained that Cnidarian nervous systems were not just a curiosity in themselves but also had a lot to offer the study of nerve and synapse more generally.

People working with Andy were often struck by his penetrating observation. I remember him looking at some

cells I had cultured from flatworm brains, cells I had looked at day after day for months. "What do you think those tiny projections at the head of most of the cell bodies are?" he asked. I was tempted to disguise the fact that I had not noticed them.

Andy's impact on neuroscience, however, does not only consist of his formal publications. There is also his immense impact upon all those who had contact with him, from the hundreds of undergraduate students who had the wonderful experience of field trips to BMSC, to the many post docs and faculty colleagues who worked for or with him. I speak from experience—having come in 1998 with my then young family, fresh from the spires of Cambridge University to the rains of the "wet coast". Andy took us under his care from the day we arrived until the day we left, 4 years later. Indeed, Andy took his personal responsibilities to those working with him very seriously, from helping overseas students with their visas to taking disorientated English families on bear-hunting expeditions around the Vancouver Island coast.

It is fitting that Andy's professional life and his contribution to neuroscience should be remembered in a forthcoming symposium as a part of the Canadian Society of Zoologists 50th Anniversary Meeting in Ottawa in 2011 (details to be announced). He exemplifies the individualistic and imaginative spirit that has always marked neuroscience and will be missed by his family and the many scientists whom he has influenced.