

Anne Warner FRS

1940–2012

Anne Warner, who has died aged 71 of a cerebral haemorrhage after a long illness, combined many careers as cell electrophysiologist, science politician and founder of the UCL centre CoMPLEX. Born Anne Brooks and educated in the West country she became a student at University College London where she graduated with a degree in Physiology. Working for her PhD with Otto Hutter at the National Institute for Medical Research she was appointed at the early age of 23 to a staff position at Mill Hill; there she carried out some of the classic studies on the pH dependence of the chloride conductance in skeletal muscle.

Her research subsequently turned towards understanding the role of gap junctions for intercellular communication in vertebrate embryonic development. Anne was at the right place to benefit from the improved electrophysiological techniques which had been developing during the 1960s, and she used these to study many of the electrical events occurring in amphibian and mouse embryogenesis. Her collaborators included some of the major developmental biologists of the '70s and '80s. With her students and colleagues Christine Slack, Susanna Blackshaw, Luca Turin and Sarah Guthrie, her laboratory published a series of papers in the *Journal of Physiology*, *Nature* and *Cell* which mapped out the early electrical events occurring during normal embryo development. This was a period before effective calcium signalling, imaging and molecular methods became sufficiently powerful to study development and, although she had worked with Peter Baker on some of the earliest projects which made the link between calcium and cell organisation, she only published a brief Letter to *Nature*, co-authored with Roger Tsien and Tim Rink, that gave any hint of the subsequent momentous developments in the field of calcium sensing.

Appointed first at the Middlesex Hospital in Lewis Wolpert's Department and then as a Lecturer at the Royal Free Hospital School of Medicine when it was still in Hunter Street in Bloomsbury, Anne took up an appointment at UCL in 1976. Rising to the position of Reader in Geoff Burnstock's Department of Anatomy and Developmental Biology, she became the Royal Society Foulerton Professor in 1986 at UCL in succession to Ricardo Miledi, a position which she held for 15 years. She had been elected a Fellow of the Royal Society the previous year.

Although her scientific work on the role of gap junctions in the developing embryo continued for the rest of her working life, there can be little doubt that much of her subsequent energy went into committee work and scientific policy. The number of councils on which she sat is remarkable: they included the NERC, the MBA, the Lister Institute and the Roslin Institute as well as several MRC boards and policy committees. She was clearly much in demand; many can remember the speed that, after an apparently brief glance, she could deal with any grant or job application. She was also a member of the editorial board of the *Journal of Physiology* from 1979 and of the Committee of Physiological Society from 1975–79.

During the last decade of her career she was Director of CoMPLEX (the Centre for Mathematics, Physics and the Life Sciences) at UCL. The inspiration came from the realization that biology emerging in the post-genomic era required collaborations of scientists from the physical sciences, computer sciences as well as from biomedical sciences. This centre, ahead of its time in the UK, focussed on multiple aspects of systems biology and became a model for many other centres in the country. Through Anne's tireless efforts, it attracted excellent funding to start up a multidisciplinary and novel graduate programme, and also attracted grants to study the systems biology of the liver, along the lines of the Physiome Project organised by Denis Noble to model the heart. Anne was never fully equipped with the mathematical tools to really develop the systems biology ideas fully, but she always listened and was responsible for encouraging many others to dip their toes in the deeper waters outside their own specialities.

Anne was a strong supporter of the Marine Biological Association in Plymouth. She sat on the council of the MBA and as a Vice President of the Council she undoubtedly steered the MBA through particularly difficult financial times in the 1990s when even its future fell into doubt. She had strong views on the role of the MBA and many of her ideas were taken up over the years. With David Ogden and Colin Brownlee she started the Cell Physiology workshop in 1984 (originally known as the Microelectrode Techniques workshop), a course that has created many cohorts of cell physiologists in the UK and abroad. She clearly saw this course as a major part of her legacy. And it is thanks to likes of Anne that the MBA still survives as an organisation.

Anne had a penchant for academic gossip, whisky and cigarettes, probably in that order. She very much saw herself as part of a UCL family and was extremely loyal to it, to her Department and to her friends. When not to be seen engaging in conversation with her academic colleagues in UCL's senior common room, often with a bottle of white wine on the table, she could usually be spotted in the UCL quad pacing up and down in deep in thought with a cigarette held jauntily in one hand. A friend recalls that as a student he made the mistake of joining her in the bar after a Physiological Society dinner and offered her to buy her a drink, thinking that she'd settle for a half of beer. 'I'll have a Laphroig' said Anne, somewhat to the detriment of his budget. Anne was formidable and, once her gaze fixed on you through her carriage-lamp spectacles, it was quite hard to refuse to do what she asked.

Anne's illness started with a heart valve replacement that did not resolve well and lead to her premature disengagement from COMPLEX. She also never smoked again, seeming to give it up remarkably easily. None of this really stopped her firing off emails of advice and requests for information, often on an hourly basis, but physically her ability to be involved was impaired. Her husband Michael, a marine engineer whom she met when both were students in the UCL Dramatic Society, predeceased her by several months.

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