Morrell Henry Draper

Morrell Draper was born in Adelaide, Australia, on the 10th July 1921. He was educated at St Peter's College in Adelaide. Here he discovered science and one of the loves of his life, running. He ran for South Australia and I believe became the South Australia Champion at 440 yards. In 1944, he graduated M.B., B.S. from the University of Adelaide, where he married Mary who survives him and where his eldest daughter, Genevieve, was born. He spent his residency as house surgeon at the Royal Adelaide Hospital. He was called up in 1945 and gazetted as Captain R.A.A.M.C., serving until 1946 when he was transferred to the reserve of officers. From 1946 to 1949, Morrell was a Research Fellow of the National Health and Medical Research Council of Australia.

In 1949, he won an Australian National University Scholarship to study for a PhD in neurophysiology at Cambridge. There he joined the laboratory of Drs. Alan Hodgkin, Andrew Huxley, Richard Keynes, and Peter Lewis who were developing new techniques in their pioneering studies of the physiology of single axons. While in Cambridge, Morrell worked with Silvio Weidmann in exploiting the use of microelectrodes to open a new chapter in heart electrophysiology by intracellular recording of ionic fluxes. At Cambridge he continued with his running and was awarded a Blue in athletics. In the 1951 Oxford/Cambridge Match all the events were equal - this meant that everything hinged on the relay. Morrell was the last Cambridge man to take the baton. There was an extremely good Oxford man as his opposite number but Morrell overtook him and thereby won the Trophy that year for Cambridge. In 1955, he graduated PhD.

From Cambridge, he moved as a Lecturer to the Department of Physiology at the University of Edinburgh where he continued his work on electrophysiology combined with electron microscopy, and was promoted to Senior Lecturer. He left the University to take up the post of Senior Principal Scientific Officer, and subsequently Deputy Director, at the Agricultural Research Council Poultry Research Centre on the King's Buildings Campus of the University of Edinburgh. While there, he carried out innovative research on the function of the hen oviduct. During this period, Morrell served on the Farm Animal Welfare Committee with concerns about the maltreatment of the animals being bred for the food industry. He was awarded the O.B.E. in 1971 and elected as a Fellow of the Royal Society of Edinburgh in 1973.

In 1976 he moved to the British Council in London where, as Assistant Director of the Medical Department, he was responsible for postgraduate medical education of students from overseas. From here, he transferred as Medical Officer/Senior Medical Officer to the Division of Toxicology and Environmental Protection at the Department of Health and Social Security (DHSS) where, among other things, he was largely responsible for compiling the draft guidelines on mutagenicity testing of new drugs issued by the Committee on Proprietory Medicinal Products (CPMP) of which he was the scientific secretary. This involvement was paralleled by activities in the development of guidelines for the testing of therapeutic substances for mutagenicity for the Commission of the European Community, and in the development of guidelines for toxicity testing by the Organization for Economic Cooperation and Development (OECD). The guidelines for mutagenicity testing outlined a philosophy which led to the CPMP working party's recommendation of a "four-test screen" comprising a bacterial test, an *in vitro* test to determine chromosome breakage in mammalian cells, a test to demonstrate gene damage *in vitro* in mammalian cells, and finally a mammalian *in vivo* test to demonstrate chromosomal damage in proliferating tissue (bone marrow). The guidelines were published in 1980 and still set the pattern for mutagenicity testing.

From the U.K. Division of Toxicology and Environmental Protection at the DHSS, it was a logical progression for Morrell to go to the World Health Organization (WHO) to work with the International Programme on Chemical Safety (IPCS) of the ILO/UNEP/WHO, first in Copenhagen and then in Geneva. In Copenhagen, he started the IPCS manpower development programme to introduce more education in the science of toxicology which underlies all chemical safety. In Geneva, he worked closely with Michel Mercier, the Director of IPCS, especially in the production of a number of Environmental Health Criteria Documents, regarded as among the most reliable sources of toxicological information and now freely available on the IPCS website (INCHEM). He was an organizer or participant in a variety of international symposia and expert committees, and was responsible for the organization of the International Programme on the Evaluation of Short-Term Tests for Carcinogens. In collaboration with the Health and Safety Directorate (DGV/E/1) of the CEC, he was responsible for the organization of the International Seminar on "Immunotoxicology: the Immune System as a Target for Toxic Damage - Present Status, Open Problems and Future prospects". This was one of the first meetings to focus on what is now recognised as a key area in toxicology. The subsequent book of the proceedings of this seminar, for which he did the final editing, is still an important part of the relevant scientific literature.

After leaving IPCS on formal retirement in 1984, Morrell was asked to act as a consultant in toxicology to the Health and Safety Directorate (DGV/E/1) of the European Commission. This brought him in contact with the

problems associated with the carcinogenicity of industrial chemicals, and especially of metals and their compounds. His major commitment became his involvement with the general scientific editing of monographs in the CEC's Industrial Health and Safety series on the “Toxicology of Chemicals, series 1: Carcinogenicity, summary reviews of the scientific evidence”. These were prepared by the DGV/E/1 Ad Hoc Group on Dangerous Chemicals - Carcinogens - with the participation of members of the toxicology section of the scientific committee to examine the toxicity and ecotoxicology of chemicals. For Volume 1, Morrell acted as scientific and press editor. For Volume 2, he undertook, under contract, the responsibility of organizing the entire production of the volume, from the subcontracting of the expert authors for the various specialized sections of the reviews, through the compilation of these into chapters for the consideration of the Ad Hoc Committee, to the processing of their agreed text for publication in 1990. For Volumes 3, 4 and 5, he acted as chief consultant to the Edinburgh Centre for Toxicology which organized the entire production of these volumes along the lines Morrell had established for Volume 2.

Following attendance at meetings at the International Association for Research on Cancer (IARC), he became convinced that the scientific data being used for classification of metals and their compounds were inadequate, and even wrong, and that the IARC classifications for many such substances lacked adequate justification. He was particularly concerned about the classification of nickel compounds on the basis of the cancer epidemic at the Clydach nickel refinery, because the relevant epidemiology was based on guesses about the extent and nature of the exposures, in the complete absence of measured data. Obtaining sound data and identifying the real cause of the Clydach epidemic became the main objective of his latter years. In spite of many setbacks because of his health, he completed most of this final study and even invented a new approach to epidemiology which he called ‘metademography’. The manuscripts which he has left are being prepared for publication in book form.

Morrell leaves behind him his devoted wife Mary, who gave him boundless support in sickness and health, four children, and seven grandchildren (two adopted). He is also mourned by many friends around the world. There can be few people who have contributed continuously throughout their lives so much, at such a high scientific and personal level, to the progress of science and medicine. His scientific work is recorded in his publications. His personal support and help for other people is not, but it will always be remembered by those of us who have been fortunate enough to know him.

John Duffus

Morrell Henry Draper, MB, BS (Adelaide), PhD (Cantab), OBE. Born 10 July 1921, elected FRSE 5 March 1973, Died 1 October 2005.