



In Memoriam: Lionel Henry Opie (06 May 1933 - 20 February 2020)

Lionel Henry Opie was born in the small town of Hanover in the Karoo in 1933 and was the only son of Dr William Henry Opie and Mrs Marie Opie. Inspired by his father's example to study medicine, Lionel graduated in medicine from the University of Cape Town (UCT) in 1955 with 1st class honours and the final year gold medal. Following his internship at Groote Schuur Hospital, he successfully applied for the Rhodes Scholarship and read for a DPhil at the University of Oxford from 1957, graduating in 1959 with a dissertation entitled The physiology of artificial respiration. Immediately after leaving Oxford, he spent 2 years at Harvard Medical School as the Samuel Levine Fellow in Cardiology doing research on myocardial metabolism. He graduated with an M.D. from UCT in 1961, for his thesis entitled Myocardial intermediary metabolism.

Lionel worked as a resident in medicine at the Toronto General Hospital from 1961 - 1962. He returned home and was a Consultant in Medicine at Karl Bremer Hospital, in Bellville, where he oversaw the diabetic service.

Lionel returned to London to undertake further basic science research under the supervision of Nobel Prize winners, Professor Sir Hans Krebs (of Krebs Cycle fame) and Professor Sir Ernst Chain (who had shared the Nobel prize with Fleming and Florey for the discovery of penicillin).

Following his stint in the laboratory, Lionel was appointed as a Senior Registrar in Cardiology at the Hammersmith Hospital in London, between 1967 and 1969. On completion of his training, he was appointed as a Consultant in Medicine at the Royal Postgraduate Medical School and Hammersmith Hospital in London in 1969. From 1970 - 1986 he was co-founder and co-editor of the Journal of Cellular and Molecular Cardiology with Richard Bing (later, he would establish 2 other new journals with the help of Carol, his wife).

Lionel returned to Cape Town in 1971 and established his laboratory working on basic research in ischaemic heart disease and cardioprotection, establishing the Ischaemic Heart Disease Unit in the Department of Medicine, at UCT. His initial research funding was made possible through the generous donation by Christiaan Barnard from the proceeds of his best-selling book, One life. In 1976, the South African Medical Research Council awarded Lionel a Unit and funded this for 22 years until 1998. At the same time, he was appointed as a Cardiologist in the Department of Medicine at Groote Schuur Hospital, where he worked closely with other colleagues in the

Cardiac Clinic. He also had an extraordinary appointment in 1974 as the “Professeur Invite” in Cardiology at the University of Geneva. In 1978, he was a Visiting Professor in Cardiology at the University of Pisa.

From 1979 - 1999, he was the Director of the Hypertension Clinic at Groote Schuur Hospital. In 1980, he was promoted to Full Professor and had a Chair in Medicine established at UCT. Between 1980 and 1982, he served as the President of the South African Cardiac Society (now South African Heart); and from 1984 - 1986 as the President of the Southern African Hypertension Society. From 1980 - 1986, he was the Founding Chairman of the Council on Cardiac Metabolism of the International Society and Federation of Cardiology. The 1980s were arguably Lionel's busiest decade, including many Visiting and Honorary Professorships to many universities around the world, including Oxford, Stanford and Bologna. In 1988, he gave a Distinguished Lecture series at the Mayo Clinic in Rochester, MN, USA.

As a scientist, Lionel had several key contributions and (1) worked out the key metabolic derangements of carbohydrate and fatty acid metabolism of the ischaemic heart, (2) demonstrated how acute myocardial infarction induces acute adrenergic stimulation, which increases circulating free fatty acids, further damaging of the heart and inhibiting glucose uptake, and (3) demonstrated the role of beta-blockers in treating acute coronary syndromes. These concepts had significant clinical implications and the treatment of acute coronary syndromes with beta-blockers is now routine therapy worldwide and has saved millions of lives. His Glucose Hypothesis has stood the test of time, and his discovery of the role of excess cyclic AMP in fatal myocardial infarction made UCT famous. His scholarship on myocardial reperfusion proved that insulin can directly protect the myocardium from ischaemia-reperfusion injury and established the concept of preconditioning as a powerful form of cardiac protection. At the time of his retirement, Lionel had published just under 600 articles in peer-reviewed scientific journals, 31 books on heart disease (including *Drugs for the heart* – now in its 9th edition – and *Heart physiology* – now in its 4th edition) and 141 book chapters. In 2003, Lionel entered a research partnership with Professor Derek Yellon of the Hatter Institute at the University College London and established the Hatter Institute at UCT. Together, they had a prolific research collaboration and established the Cardiology, Diabetes & Nephrology “At The Limits” conferences, with *The Lancet* as a partner.

During his illustrious career, he won many prestigious prizes and awards, which included a 1st Prize at the Essay Contest of the American College of Chest Physicians in 1954, the South African Diabetic Association Prize in 1979, the Lorenzini (Gold Medal) from the International Society for Heart Research

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in 1982, the John F.W. Herschel Medal for Cardiovascular Research from the Royal Society of South Africa in 1986, the UCT Book Award for The heart: Physiology, metabolism, pharmacology and therapy in 1987, and the Percy Fox Annual Foundation Award in 1988 for "outstanding research concerned with the function of the heart in health and disease". He also won the Wellcome Gold Medal for Research of specific importance to South Africa in 1990, a South African Medical Research Council Silver Medal for Research in 1990, the Albrecht Fleckenstein Award for Basic Research in Cardiology from the International Society for Heart Failure in 1995, the President's Medal from the South African Cardiac Society in 1996 and a Silver medal of the International Society for Heart Research in 2002 for "scientific achievements and in gratitude for services to the Society". His book, Living longer, living better was the winner of the United Kingdom Medical Journalists' 2011 award for the best book in the self-help category.

Lionel is remembered by many as the doyen of cardiovascular medicine and research in Africa and a global leader in the field of cardioprotection. While he received many citations and accolades, he would acknowledge that his receipt of the National Order of Mapungubwe in Silver in 2005, the highest national award in South Africa, from President Thabo Mbeki, was arguably the most important recognition of his many and sustained contributions to science and clinical medicine. In 2008, he received an A1 rating by the National Research Foundation (NRF) of South Africa followed by an NRF Lifetime Achievement Award in 2014.

He received honorary doctorates from the Universities of Stellenbosch and Copenhagen and election to Fellowship of many prestigious medical societies in this country and globally. Some of these include the Fellowship of the Royal College of Physicians (London), the fellowship of the American College of Cardiology, an Honorary Fellowship of the European Society of Cardiology, a fellowship of the American Heart Association, a Fellowship of the Royal Society of South Africa, an Honorary Fellowship of the College of Physicians of South Africa, a Fellowship of the International Society of Heart Research and a Fellowship of the Physiology Society of Southern Africa.

Lionel was highly respected by his students, colleagues and peers for his clarity of thought, work ethic, integrity and passion for asking important scientific questions. While I did not work personally with him, his enduring stature and presence was a source of inspiration in mine and the careers of countless others.

He is survived by his wife, Carol, and daughters, Jessica and Amelia, and grandchildren, Liam and Eva.

Ntobeko Ntusi, Editor