Michael de Burgh Daly

1922 – 2002

Michel de Burgh Daly, MA, MD, ScD Cambridge, FRCP, Emeritus Professor of Physiology in the University of London and Distinguished Visitor Joint Department of Physiology Royal Free Hospital School of Medicine and University College, London from 1984 until his death, formerly Professor of Physiology and Head of Department of Physiology St Bartholomew’s Hospital Medical College, London from 1958 to 1984, died suddenly on 1 March, 2002 at home aged 79, two months before his 80th birthday.

Michael was the eldest son of the late Dr Ivan de Burgh Daly, CBE, FRS, and was born in York on 7 May, 1922. He was educated at Loretto School, Edinburgh and Gonville and Caius College, Cambridge. He did his clinical studies at St Bartholomew’s Hospital, London and graduated Natural Tripos Part I in 1943, Part II 1944, Physiology with Pharmacology. He then became a House Physician at St Bartholomew’s Hospital in 1947 before commencing his career as a physiologist, following in his father’s footsteps.

His first post in physiology was at University College, London where he was appointed as assistant lecturer (1948-50) and lecturer (1950-54). Early days as a physiologist he was influenced by Lawrence Mount, Alfred Schweitzer, Eric Neil and Chris Lambertsen in addition to working with his father. During this period he was awarded a Rockefeller Foundation Travelling Fellowship in Medicine (1953-53) which he spent in Philadelphia. He was then made a Locke Research Fellow of the Royal Society (1955-58) in the Department of Physiology University College. At the young age of 36 he was appointed to the chair of Physiology at St Bartholomew’s Hospital Medical College and Head of Department – a position he held from 1958 to 1984 until he retired at the age of 62. At this time Professor Spyer invited him to move to the Royal Free Hospital School of Medicine in the Department of Physiology where he was to stay for the next 18 years. This move allowed him to continue with his research without the burden of committees and university politics. He was able to contribute to the department by teaching both the undergraduates and the research personnel who were able to take advantage of his knowledge and experience.

He was a good and dedicated teacher who willingly gave many hours of his precious time to teach others. He knew his own subject well and was meticulous over the details and content of his lectures. He made sure he was up to date and would even contact experts in their fields to get their advice about any advances in the subject of his lectures. However, he was a perfectionist and would not suffer fools gladly. He could not understand why other people could not do the things he did so easily, and some of his research students found him a hard taskmaster. He was still teaching and lecturing up to the time of his death, many years past the normal retirement age. Over the years he must have taught and influenced thousands of medical, science and research students all over the world. Many of his former students are now themselves professors and leaders in their fields, thus his influence on his subject has travelled far and wide.

He served on many committees and was very conscientious in attending them. He sat on the Ethical Committee at Bart’s but was also a member of the Personnel Research Ethical Committee MOD (Navy) from 1975, becoming chairman in 1990. He also helped to supervise research in the Navy. He felt that by giving the Navy his expertise on the subject of diving and its implications in man that he would contribute to the safety and welfare of this country.

Research

His interest in the carotid body chemoreceptors and baroreceptors began early in his career. He was well tutored by his father, Ivan de Burgh Daly, who was an expert on the pulmonary circulation and they published papers together on this subject in The Journal of Physiology in 1957, 1958 and 1959. After his father retired from Babraham, they collaborated again in the 1970s, resulting in further publications. During the many years of active research which was still continuing at the time of his death, he developed the theme of the peripheral arterial chemoreceptors and respiratory-cardiovascular integration which culminated in his opus magnum, the Monograph of the Physiological Society 46, with this title published by Oxford University Press in 1997. His research covered almost half a century and his thirst for the knowledge of his chosen field led him to study many species of animals including seals in Alaska and monkeys in Australia. He had many
collaborators, some who came to him as research students and others as experts who contributed by having different skills. As a result of this constant stream of theories and experiments published in several hundred research papers, he produced many bricks building up a wall of knowledge, helping us to understand the underlying mechanisms involved in cardiovascular and respiratory reflexes. The studies involved anatomical and physiological experiments in which he always played a very active part. In many of the experiments it took him and an assistant, his technician Derek Bacon, who was with him for 35 years, 12 hours to prepare before any new information could be obtained from the experiment. He was a magnificent surgeon and would silently work for many hours painstaking dissections with magnifying glasses, often with instruments he had designed himself to make the surgery possible. There would be racks of Dale-Schuster pumps modified by him to produce a more natural pressure profile, mimicking that of the normal circulation, and tubes connecting different circulations, allowing all the parameters of pressure, flow, temperature, pH and chemical constituents to be independently controlled. He had a lathe in his office with which he was able to make and modify his research equipment. Subsequently he would spend many hours accurately measuring all his results – a task he found it difficult to delegate. The accuracy of his measurements was made possible by his careful calibration and zeroing of all measuring equipment before and after each experiment. In truth he was a master following from the traditions of other great cardiovascular physiologists such as William Harvey, in whose footsteps he followed. He re-enacted William Harvey’s experiments when he made a film entitled William Harvey and the circulation of the blood which received the Gold Medal from the BMA in 1972.

Travel was an important part of his physiological life. He enjoyed being invited to different parts of the world. One of his most momentous journeys was in 1975 when he travelled to Alaska with his colleague, Jennifer Angell-James at the invitation of Professor R Elsner to experiment on seals and to study the cardiovascular and respiratory reflexes. Single nerve fibres from the receptors were also going to be studied. This necessitated both physiologists taking apart their respective laboratories and packing the equipment up and rebuilding it in a laboratory of the University of Alaska. The arrival of all the packets of equipment caused not a little worry and confusion at the customs at the airport but was finally released and was able to continue its journey to the University. The Esquimox caught the seals which were transported from the Bearing Straights and there looked after by the animal technicians who were experts at feeding them by hand with fish. The same technicians were required to obtain giant frogs from the lakes to enable the nerve fibre recording equipment to be tested. Once the experiments were finally started they lasted from 8 o’clock in the morning to 5 am on the following day. However, although they were a huge test of stamina, they were entirely successful and resulted in several publications concerning the diving response and the cardiovascular and respiratory sectors and their reflex responses in the seal. These papers have recently been quoted in a book entitled Biology of Marine Animals edited by Jon Reynolds and Sentiel A Rommel 1999 in the chapter Living in Water: Solutions of Physiological Problems which was written by R Elsner, at whose invitation the seal studies had been performed. He had many assistants and collaborators over the years, including Dr Mary Scott (now Taylor), Dr Jennifer Angell-James, Professor Robert Elsner, Professor Janice Marshall, Professor Michael SPrer, Dr Jane Ward, Dr John Clarke and many more.

Research Grants
During his scientific life he was supported by numerous grants from such organisations as the Medical Research Council, the Royal Society, the British Heart Foundation, the Wellcome Trust, the Special Trustees of St Bartholomew’s and St Mark’s Hospital London, the Central Research Fund of the University of London and the National Institute of Health. During his career he received prizes: the Schafer Prize in Physiology, University College London 1953, the Thurston Medal Gonville & Cau College 1957 and the Sir Lionel Whitby Medal Cambridge University 1963.

In addition to all his research he contributed chapters in textbooks: Lippold and Winton Human Physiology, Starling Principles of Human Physiology and Emslie-Smith Paterson Scratcherd and Read Textbook of Physiology.

He was an active member of the Physiological Society, frequently attending meetings and presenting communications, posters or demonstrations and he served on its committee and was made an honorary member in 1986. He was co-editor of The Journal of Physiology from 1956-1963 and 1984-1989. He was a member of the Society of Experimental Biology and Chairman of the Monograph of the Physiological Society 1981-1987. He was also a member of the European Underwater Biomedical Society from 1971.

Family life
In 1948 he married Beryl Esmé, younger daughter of late Wing Commander A J Nightingale, whom he met when she was a nurse at Bart’s. Family life was important to him and he had two sons and grandchildren to carry on his genes. However, he worked so hard and such long hours that his family must have seen less of him than they would have wished. His complicated experiments would sometimes continue well into the small hours of the night. He had a younger brother who sadly died at the age of 33 in a
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helicopter crash in Malaysia. This had a profound effect on him and people who worked with him at the time said that his personality changed as a result, leaving him a quieter and sadder man. He tried to act as a surrogate father to his brother’s children. He was a kind, gentle and very polite man with a shy and retiring personality who would help anybody who asked for it. He was in looks tall, slim with blue eyes, commonly found in people of Irish descent. He was very careful about what he ate, he never smoked and drank little alcohol. He always took exercise in his younger days, playing tennis and enjoying walking. He loved to relax with his family at Salcombe where he could walk and watch the boats. He described himself as a model engineer and his main hobby was designing, building and running hydroplanes. He was a superb model engineer and mechanic who made his engines with a lathe from the solid blocks of metal. His class B hydroplane, Nipper 2, held the European record of its class for many years. At the time of his death he was hoping to reclaim the record with another new model which he had designed and was building. He also sailed model boats which he had built. He remained physically and mentally well until the last, despite having a heart attack in his 60s and more recently some angina which was treated with a coronary artery stent. Michael de Burgh Daly contributed a huge amount to his subject of physiology, both by his own research but also by the influence he had on all those who studied with him and under him. He was one of the last of the classical experimental physiologists, a man who will be missed by family, colleagues and friends.

Jennifer Angell-James
Great Missenden, Bucks

Michael de Burgh Daly Prize Lecture

Many of you will know that Michael de Burgh Daly sadly died last year. Michael was not only a distinguished and respected scientist, he was a valued colleague, enthusiastic teacher (to staff and students alike) and, most importantly, a valued friend to many of us.

Michael had a long association with the Physiological Society. He became a member in 1951 and was elected an Honorary Member in 1986. He served on several of the Society’s Committees and Editorial Boards and in 1997 the Society published his seminal monograph on Peripheral Arterial Chemoreceptors.

In memory of Michael’s association with the Society monies have been donated to the Society to fund an annual or biennial lecture in his name under the auspices of the Cardiovascular/Respiratory Control and Autonomic Function Special Interest Groups, the areas of research to which Michael attributed enormously throughout his career.

The first Michael de Burgh Daly Prize Lecture, entitled Towards an understanding of cardiovascular and respiratory integration was given by Professor Janice Marshall (Birmingham University) at the UCL meeting of the Society in December 2002. This was particularly apt since Michael’s first lecturing post in 1948 was in the Physiology Department at UCL. Janice was an appropriate choice to give the first Lecture not only because her own research has paralleled and built upon some of the important concepts that have arisen from Michael’s findings, but also because she knew Michael personally over a long period. Her Prize Lecture, to a packed Lecture Theatre, summarised some of Michael’s elegant experimental approaches and the important conclusions he reached regarding the importance of integration between cardiovascular and respiratory control. She then described how her own studies, firstly on peripheral chemoreceptor reflex responses and the alerting/defence response followed later by studies on the response to acute and chronic whole body hypoxia were explained by and extended the concept of integrative responses.

In future years it is hoped that the Prize Lecture, in addition to allowing established investigators to be invited to present to the Society, will provide an opportunity for younger researchers in this field to present their findings.

If any of you would wish to contribute to the fund set up to endow the Prize Lecture and ensure its existence for many years to come, then please send cheques payable to the Physiological Society directly to the Treasurer, Professor JPT Ward at The Physiological Society, PO Box 11319, London WC1V 6YB. Please mark any cheques and covering letters ‘Michael de Burgh Daly Prize Lecture’

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