



Professor Charles Nicholas Hales MA, MD, PhD, FRCPath, FRCP, FMedSci, FRS was Head of the Department of Clinical Biochemistry at the University of Cambridge for 25 years where he provided intellectual leadership at the interface of basic and clinical science. "Fishing in the stream of diabetes" was the title Nick Hales himself gave to a Biochemical Society award lecture he delivered in 1995. This title was not only an allusion to Nick's favourite hobby but reflected the wide range of experimental and clinical studies related to diabetes that was the core of his research throughout his career. Nick's special interest in diabetes was sparked when his younger sister Judith developed the disease in childhood. During his career he made major contributions to the development of methods for measuring hormones such as insulin, to the understanding of insulin production by the pancreas, and in establishing the role of nutrition during early life as a key factor in the development of diabetes in adulthood.

Nick was born in Stafford, England on April 25, 1935. His father Walter was an oral surgeon and his mother, Phyllis (herself a diabetic) was a milliner. In the summer of 1940 Nick was evacuated to Canada with his elder brother Tim. They travelled together on board the Duchess of Atholl, but on arrival were separated to live with different families in Montreal until the summer of 1944. They were reunited for the trip back to Britain on HMS Smiler. Nick was educated at King Edward VI Grammar School, Stafford, and then followed his brother to Trinity College, Cambridge, to read Medicine, choosing to study Biochemistry in his third year. He undertook his clinical training at University College Hospital, London, before returning to Cambridge to study for a PhD in the Department of Biochemistry under the supervision of Philip (later Professor Sir Philip) Randle. His first major scientific paper, describing a new method for measuring insulin levels and published in the *Biochemical Journal* in 1963, remains the most highly cited of his publications (which eventually numbered over 300), having been referred to almost 4000 times in other scientific publications. The immediate impact of this work, and a series of papers that soon followed describing levels of circulating insulin under different physiological conditions, established his reputation.

In 1970 Nick was appointed Head of the Department and Honorary Consultant in Chemical Pathology at what was then the Welsh National School of Medicine in Cardiff. Although his interests and responsibilities were by now diversifying, he continued to work on immunoassay methods. A later generation would have been quick to patent these inventions, but that was not the way of university research in the late 60's and early 70's, and in any case Nick was firmly committed to the notion that new ideas should receive the speediest and fullest dissemination if they were to deliver maximum benefit to scientific colleagues and most importantly to patients. Nowadays, diagnostic methods based on labelled antibodies are a worldwide multi-billion dollar industry.

In 1977, Nick returned to the University of Cambridge as Head of the Department of Clinical Biochemistry and Honorary Consultant at Addenbrooke's Hospital. Returning from a site visit to an MRC Unit in the Gambia in the late 1980s, he fell into conversation with an epidemiologist from Southampton, Professor David Barker, who told him of striking observations establishing a link between birth weight, adult blood pressure and death from cardiovascular disease and suggesting that environmental influences during fetal life play a major role in this association. Nick recognised that since the majority of insulin-producing cells are laid down during fetal life these could be very vulnerable if they were exposed to poor nutrition during this critical period. He reasoned that the clustering of diabetes, ischaemic heart disease and hypertension could therefore be explained on the basis of a common origin, fetal nutrition. Scientific evidence for this was provided by a series of epidemiological studies, in collaboration with David Barker, on a group of 64-year old men living in Hertfordshire for whom birth weight records were still available. These studies demonstrated that men with a low birth weight were six times more likely to have diabetes than those with the highest birth weight. He went on to dissect the underlying molecular mechanisms linking fetal growth to long-term health and published around 100 papers related to the developmental origins of adult disease. He often remarked that many non-scientists had said to him that they could not understand why it took scientists so long to work out that what a woman ate during pregnancy was important to the health of her baby.

Nick made many contributions to academic life in addition to his personal research. He was especially keen to support younger scientists by providing an intellectual environment in his departments that encouraged them to tackle difficult problems, develop new interests and achieve independence. He was always willing to listen and to give advice, support and constructive criticism, not only in the laboratory but also in more convivial locations. This was a habit established in his earliest days of leading a research group in the Cambridge Biochemistry Department, when he would suggest retiring to the nearby Bun Shop (a public house) of an evening to continue discussions started at the bench. Nick had no great love of committees but he was a respected member and/or chairman of many including research grant review committees of the British Diabetic Association (now Diabetes UK), the British Heart Foundation and the Medical Research Council where he was a member of Council from 1985-90. Amongst his many awards, he was elected a Fellow of the Royal Society in 1992 and received medals or prizes from the British Diabetic Association, the European Association for the Study of Diabetes, the Society for Endocrinology, the Association of Clinical Biochemists, the Royal College of Physicians, the Royal College of Pathologists and the Biochemical Society.

Nick had two sons during his first marriage and a daughter in his second. His oldest son Paul died tragically in a boating accident in September 1995. Nick is survived by his wife Margaret, his son Tim and his daughter Kate.