

FREDERICK MALLOCH BRUCE  
BSc, MSc, PhD(Dunelm), FIEE

Professor Bruce, who died peacefully at his home in Surrey on July 23rd 1997 at the age of 85, spent his latter years slowly recovering from the illness which had forced him to retire early from Headship of the Department of Electrical Engineering at the University of Strathclyde in 1972.

Fred Bruce was born (13 July 1912) and schooled in Aberdeen and freely acknowledged the value of his upbringing in an unprivileged family dedicated to education. He studied Electrical Engineering at King's College, Newcastle (later the University of Newcastle upon Tyne), graduating in 1933 with a First Class Honours BSc and proceeding directly to graduate training at C A Parsons Ltd in the immediate vicinity. Later, his extra-mural research work at the University, sponsored by the Electrical Research Association, led to the award of a PhD degree for research on discharges in gases and the precision measurement of high voltages, work in which he was to become a recognised leader. He continued this research at Queen Mary College, London supported by a Sir James Caird Senior Fellowship, and at that time published two outstanding seminal papers dealing with precision high voltage measurements using an ellipsoid voltmeter and specially-designed uniform field electrodes. 'Bruce profile' electrodes continue to be used in high voltage research to this day.

The outbreak of war in 1939 saw him enlisted from Queen Mary College to the Ministry of Supply Armaments Research Department where he was the leader of a group studying the kinematics of small-arm and aircraft automatic weapons. He was, of course, no stranger to weaponry as he had been awarded a university full 'blue' for rifle shooting, a hobby that paralleled his ardent collecting of Munros on the Scottish mountains. (Indeed, throughout his career he was not above appearing in his boots and climbing gear at 9 o'clock Monday morning staff meetings).

In 1946, Dr Bruce was appointed to the position of Head of the Nelson High Power Laboratories of the English Electric Company at Stafford with responsibility for research, development and testing of all manner of electrical power equipment. From there, in 1948, he was invited to take the Chair of Electrical Engineering at the then Royal Technical College in Glasgow, with the specific enjoiner and support to establish a major research interest in his Department. In Glasgow he worked under Sir David Anderson and Sir Samuel Curran, and was one of the architects and founding professors of the successor University of Strathclyde. He established firm contacts with industry and a wide range of research organisations, including particularly the Central Electricity Generating Board and its major research laboratories, the Scottish Electricity Boards and principal Electrical Manufacturing Companies like Reyrolle, Parsons, Bruce Peebles, etc. As such, he was able to acquire facilities and personnel which laid the foundations of Strathclyde's modern-day Centre for Electrical Power Engineering, a Centre which he was so proud to learn had been awarded a Queen's Anniversary Prize in 1996 for Achievement in Higher Education. He knew about Technology Transfer long before it became fashionable, using his many industry connections wisely and effectively, and participating to the full in the activities of the Royal Society of Edinburgh (elected a Fellow in 1962), the Institution of Electrical Engineers (IEE) and the Institute of Physics. He was Chairman of the Scottish Centre of the IEE in the session 1956/57 and contributed much to learned society activities. He was a prolific technical writer in engineering and physics journals, and was regularly approached for advice by numerous establishments both at home and overseas. Worthy of special mention in this context is his service as an adviser to the Royal Commission for Commonwealth Scholarships, his role as a consultant to the Safety in Mines Research Establishment and his membership of the Advisory Mission to the Government of Uganda on the Training of Graduate Engineers.

I joined the Royal Technical College as an undergraduate student in the year (1948) that Professor Bruce was appointed, and first met him there during my acceptance interview. I remember it well. He sat opposite, quietly impressive and somewhat stern as he asked a number of penetrating questions, each of which, on reflection, betrayed his deep interest in the well-being of his students and an abiding sense of duty towards them. This, for me, was the beginning of a life-long friendship, and some years later, when I became a member of his academic staff, I was to learn how really important these matters were to him. Yet Fred was perhaps too reserved a man for most to come close to easily. He wasn't shy, and was never afraid to speak his mind, but he was a man of natural modesty who kept many of his views to himself. In time, many of us came to know him well as a trusty colleague, as a warm and fatherly friend, and certainly as someone to turn to when times became more than ordinarily difficult.

Thus Professor Bruce steered his Department through stirring times of achievement and change - and sometimes difficulty - and I and other colleagues consider ourselves fortunate in having had someone so steadfast to work with and to guide us in our formative days. His advice to colleagues was sparing but crystal clear. It was never over-pressed and always fair. He was a great supporter, and he loved innovation and effective application - essentially an upright self-effacing man of great experience in the world of men and machines and with a rich personality within. He had an unswerving regard for the truth, pleasing or otherwise. He was not a trimmer and had no room for bureaucracy. He sought neither power nor compliments, and in all his service to the University and beyond, as I knew it, he was content that his reward should be its

smooth and correct running and especially that its students would be cared for by good people. Over and over, he would stress the need for more attention to be paid to the human qualities in education, for better pastoral care and for staff and students to think clearly, speak clearly and write clearly. He sought out these qualities in all new appointments, and he would show his disappointment if we failed to pay attention to them. No need for a Dearing Enquiry with leaders like Fred Bruce around.

It was a blow to his Department, to the University and to the engineering community at large, when Fred Bruce had to retire early due to ill health, with very much more to give. That he survived for so long afterwards owes much to the loving care and attention afforded by his late wife Frances and his close friends.

DAVID TEDFORD