

GARY FRANCIS ROACH
OSTJ, FRAS, FIMA, FRSA

Gary Francis Roach was born in South Wales on 8th October 1933. After a short spell in Persia, as it then was, the family returned to Britain at the outbreak of the Second World War and settled in Nottinghamshire, where Gary attended Southwell Minster School.

After gaining his BSc Honours degree in Mathematics and Physics from the University of Wales in 1955, he joined the Education Branch of the Royal Air Force, attaining the rank of Flight Lieutenant, before moving on, in 1958, to a post as Research Mathematician with the British Petroleum Company. While working for BP, he studied part-time at Birkbeck College in London and was awarded an MSc with distinction in 1960.

In 1961 he accepted his first full-time academic post as a Lecturer in Mathematics at the University of Manchester Institute of Science and Technology (UMIST), from where he gained his PhD in 1964. His Thesis, entitled *Dynamical Theory of Viscous Tides in Close Binary Systems*, led to the immediate award of a Fellowship of the Royal Astronomical Society. In 1966–67 he spent a year as a Visiting Professor at the University of British Columbia, where he worked with Robert Adams.

On returning to the UK, Gary joined the staff of the University of Strathclyde in Glasgow. He was promoted to Senior Lecturer in 1971 and then to Reader in 1972. He was appointed Professor in 1979, and in 1982 was awarded the prestigious 1825 Chair of Mathematics in succession to Donald Pack.

Gary had a long and distinguished research career in Applied Analysis, leading to several books, many papers and contributions to conference proceedings and a number of patents. His first book, *Green's Functions*, was published in 1970, with a second edition appearing in 1981, and the book remains a standard reference in the field to this day. His experience in industry, both in his early career and through subsequent consultancy with bodies such as the Ministry of Defence, Ferranti, ICI and British Gas, led to the study of many problems of practical importance in which applications of Functional Analysis and Operator Theory played a major role. Much of his consultancy work was not published.

Classical scattering theory was a major strand of Gary's research. He studied linear and nonlinear evolutionary equations, modelling both stationary and time-dependent scattering processes involving moving boundaries and time-dependent potentials. A major focus was on inverse problems in radar, sonar and ultrasonic testing. In the course of this research he established many fruitful collaborations, with Ralph Kleinman in Delaware, Rolf Leis in Bonn, George Dassios in Patras, Ioannis Stratis in Athens, and others.

Another of Gary's research interests was multiparameter spectral theory. Initially inspired by F V Atkinson's seminal 1964 paper and subsequent textbook, *Multiparameter Eigenvalue Problems*, he collaborated in this area with Patrick Browne and Paul Binding in Calgary and Mel Faierman in Witwatersrand, as well as leading his own group of research students at Strathclyde.

From 1979 until his retirement in 1996, Gary led the Applied Analysis group at Strathclyde. He instituted a series of annual workshops, covering the group's various research interests, held in the beautiful surroundings of Ross Priory on the shores of Loch Lomond. Proceedings of these workshops were produced under Gary's editorship. Another notable event for the group was hosting a conference on Evolution Equations in 1994, which was a sequel to a similar conference organised by Jerry Goldstein and colleagues at Louisiana State University in Baton Rouge the previous year.

The University of Strathclyde had a long-standing exchange agreement with the Technical University of Łódź, which Gary embraced with enthusiasm. There were regular visits by staff in both directions, while three students came from Łódź to study for Strathclyde PhDs under Gary's supervision, most notably Jacek Banasiak. In recognition of his contributions to the exchange agreement and his eminence in the field of Applied Analysis, Gary was awarded an Honorary Doctorate (ScD) by Łódź in 1993. This was in addition to the DSc which he was awarded by the University of Manchester in 1991, in recognition of his major research achievements.

Gary achieved many other distinctions. He was elected a Fellow of the Royal Society of Edinburgh in 1977. He gained the prestigious award of a Killam Research Professorship in Canada, the first mathematician to receive this accolade. He was a Fellow of the Institute of Mathematics and its Applications and of the Royal Society for Encouragement of Arts, Manufactures and Commerce.

Apart from being a prolific author in his own right, Gary was heavily involved in the editing of journals. In particular, he was a founding managing editor of *Mathematical Methods in the Applied Sciences*, and continued to oversee its development for over 25 years. He also served on the Editorial Board of *Applicable Analysis* and on the Advisory Board for the highly-regarded Pitman/Longman series of *Monographs* and *Research Notes*.

On his retirement in 1996, Gary was appointed Emeritus Professor. He retained an office in the Mathematics Department at Strathclyde for a number of years, continuing his research and his editorships. Books entitled *Wave Scattering by Time Dependent Perturbations: An Introduction* and *An Introduction to Echo Analysis: Scattering Theory and Wave Propagation* appeared in 2007 and 2008, respectively. His last book, *Mathematical Analysis of Deterministic and Stochastic Problems in Complex Media Electromagnetics*, jointly authored with I. G. Stratis & A. N. Yannacopoulos, was published in 2012 by Princeton University Press. Sadly he never saw the book in print.

In all, Gary wrote five books, edited eight others, authored over 150 research papers and supervised 20 PhD students.

Gary gave loyal and distinguished service to many bodies at local, national and international levels. Within the University of Strathclyde, he was Head of the Department of Mathematics from 1980 to 1982, before being appointed the first Dean of the new enlarged Faculty of Science from 1982 to 1985. He served on both the Senate and the University Court. He was convener of the Military Education Committee (joint with the University of Glasgow) from 1992 to 1995. Outwith the University, he was President of the Edinburgh Mathematical Society in Session 1981–82, and served as Convener of the Conference of Professors of Applied Mathematics and of the University and Colleges Admissions Service (Scotland) Coordinating Committee.

He held office in a range of charitable organisations. In 1997, he was Deacon of the Incorporation of Bonnetmakers and Dyers, one of the 14 Incorporated Crafts of the Trades House of Glasgow. In this role he played an active part in the City's affairs for that year, with an emphasis on charitable work and education. From 1996 he was a member of The Trades House of Glasgow School Craft Project Committee, visiting schools and taking a keen interest in what the pupils produced. At his instigation the Committee introduced an award (The Deacon Convener's Achievement Award) to recognise outstanding work.

In 1983 Gary joined The Nomads Club. This body, formed in 1895, exists as a forum for discussion and debate, and Gary presented an Annual Paper to the Club, on a matter chosen by the President of the year. This gave Gary considerable pleasure, owing to the subject usually having absolutely nothing to do with Science or Mathematics! He was President in Session 1998–99 and was made an Honorary Member in 2010.

In addition to all these activities, Gary pursued various hobbies. After Mathematics, classical music was perhaps his greatest passion. He was a member of a philatelic club called The Vikings and specialised in the stamps of the Faroe Islands. Another interest was radio-controlled model planes. At flying displays, he acted as air traffic control, ensuring that no two planes were using the same radio frequency.

Gary was an enthusiastic and talented sportsman. His first love was rugby and, as a teenager, he was invited to participate in trials for the Welsh Under-21s. Unfortunately, a week before this event, he suffered a serious neck injury that ended his rugby career. At Strathclyde University in the late 1960s, he was a member of the Staff Squash Club team that was just pipped for the West of Scotland Division 1 Championship. He continued to play squash at a high level until his early 50s. Throughout his life he also had a passion for hillwalking and bagged many Munros.

While working for BP, Gary met a young lady from Fife called Isobel Nicol, and they enjoyed over 50 years of happy marriage. For 44 years they lived in the Stirlingshire village of Fintry which Gary loved dearly.

Gary was proud of his Welsh heritage. It was perhaps poignantly appropriate that he died in Bannockburn Hospital on 17th March 2012, having that afternoon watched his beloved Welsh rugby team defeat France to win the Grand Slam.

Adam McBride

Gary Francis Roach, OStJ, FRAS, FIMA, FRSA. Born 8 October 1933; Elected FRSE 1 March 1977; Died 17 March 2012.