

WILLIAM EWART JOHN FARVIS

Ewart Farvis was born on 12th December 1911 in Bristol and educated there at the bluecoat school, Queen Elisabeth's Hospital. On leaving school he served a four-year engineering apprenticeship. He entered Bristol University with a Merchant Venturers' Scholarship, graduating BSc(Eng) in 1936 with First Class Honours in Electrical Engineering and was awarded the Institution of Electrical Engineers Prize for the best student in the class. He was elected to Fellowship of the Royal Society of Edinburgh in 1958. He was awarded a CBE in 1978 and, towards the end of his career (1987) he was elected to an Honorary Fellowship of the Institution of Electrical Engineers.

In 1937, he was appointed Lecturer in Electrical Engineering at University College, Swansea. By that time he had acquired experience, notably at British Thomson-Houston (BTH) in Rugby, of power station operation and maintenance, and also of heavy-current plant manufacture. He remained at Swansea until called away in 1940 to war service.

Ewart Farvis was appointed to the scientific civil service to assist with repelling the invasion forces. His first task was to extend or modify the chain-home (CH) radars to detect low flying targets. These had been originally designed to detect high flying bombers. In this capacity he was located at Dover where, under Pinkerton, he installed the new antennas and other radar parts behind the existing CH radar masts.

He subsequently met with Churchill's scientific adviser, R V Jones, and was asked to assist at Swanage in detecting the signals from the new navigator aids which the enemy were using to direct their bombers on to British targets. This was achieved first by finding the transmission frequency and modulation format they were using and then countering with an appropriate jamming signal to disrupt and disable the navigation aid.

In May 1942 this very sensitive group was moved from Swanage, which was too close to occupied France, to Malvern - where they were offered House 6 of Malvern College as their laboratory. Ewart led the interception group, with Martin Ryle in charge of the associated radio jamming group. All this was coordinated by Dr (later Sir) Robert Cockburn. They were the kernel of the "scientific intelligence" which assisted Whitehall and MoD in operational planning.

Ewart Farvis' speciality was aerials and electromagnetics and his group developed a multiband search receiver, flown by RAF 109 Squadron in 1943, to locate and measure the frequencies of the enemy transmissions. He also designed and developed "bagful", an automatic search receiver. This was flown by bomber command during bombing missions over Germany, in order to collect information on the electromagnetic transmissions which were being used. The information was ultimately used by Ryle and Cockburn to build the necessary jammers.

One of Professor Farvis' major achievements was to counteract a sophisticated new German navigation aid called "Benito" which used three tones. Alex Harley Reeves (the later inventor of PCM telephony) deduced how the system operated. Ewart Farvis was sent to London and, with a jammer built by Hardwick (an ex EMI engineer), they switched on and used the silent BBC sound transmitter at Crystal Palace to jam the German navigation system. Professor Farvis' working knowledge of German was vital when, while listening to the German bombers' radio telephone traffic, they heard the bewildered German controllers asking the prestigious KG26, who were the cream of the Luftwaffe, to "thump the box" as they suspected equipment malfunction, rather than the intentional jamming. Thus many enemy bombing missions were completely ruined. At the end of the war, Ewart went to Germany and he debriefed the German equipment designers, discovering exactly how "Benito" operated and obtaining the detailed circuit diagrams.

These achievements were not without substantial personal risk. He installed radars at Dover with an imminent invasion expected, and at Malvern he was once rather close to a navigation jamming equipment when it was subject to enemy bombing. Luckily the bomb that landed beside his wooden shed did not explode!

As one of the extremely innovative civilian defence scientists, he clearly had a significant impact on enhancing the capability of our armed forces both in their defensive and offensive capabilities. When demobilised he made the decision to resume his Swansea lectureship, as he felt that the Physics Department had superior lecturers due to their increased research activities. There he developed new, more appropriate, courses in electronics and, far-sightedly, somehow found the time to earn an External London degree in Physics.

Academic appointments at Edinburgh University followed his Swansea position. Initially as Lecturer in Applied Electricity (1948), he pioneered these new courses at Edinburgh, and was promoted to Senior Lecturer in 1952.

In 1950 he was invited to put forward a plan to the UGC for setting up a 1-year Postgraduate Diploma course in Electronics & Radio. Southampton was similarly approached, but no other Universities. It is interesting, and probably more than a coincidence, that almost 30 years later, the two centres selected for Microelectronics facilities were still Edinburgh and Southampton. The immediate fillip from the launch of the

Postgraduate Diploma in 1951 was an earmarked UGC grant of £5000 to appoint 4 Lecturers and the University provided 4 Diploma scholarships per year.

Around this time in the 1950s, he concentrated on gaseous electronics. His research work included studying heavy-duty switch gear problems and associated gas discharge phenomena and this led, amongst other things, to a notable British Patent for a novel circuit breaker of advanced design. He was closely associated in ionospheric research with the late Sir Edward Appleton when he was University of Edinburgh Principal, and in particular, Ewart Farvis was responsible for the design and construction of the ionospheric station in Shetland that monitored solar blackspots throughout the International Geophysical Year (1957-58).

On New Year's Day 1961, Ewart Farvis became the first Professor and Head of the new Department of Electrical Engineering, on a starting salary of £1080! Following this, his interests moved into the rapidly expanding field of solid-state electronics. In 1964 he took the bold move to follow the then emerging trend and build up a successful, industrially-based centre for solid-state devices and materials science research at Edinburgh, by covering over the courtyard to build the first cleanrooms for semiconductor device fabrication.

In 1969 a successful initiative by Professor Farvis resulted in the setting up, with £130,700 of financial aid from the Wolfson Foundation, of the Wolfson Microelectronics Liaison Unit (WMLU), initially directed by James Murray, a former lecturer in the Department. This was one of his initiatives to increase university-industry interactions. This coincided with the first appointment of part-time paid visiting Professors in a UK university, (in association with WMLU). WMLU later in the 1980s expanded into an independent VLSI system design company under Professor David Milne.

The final part of his University career was in the 1970s when he expanded rapidly the size of his Department. In 1970 he attracted back Jeffrey Collins from the USA to a SRC funded research chair, from which the two-professor department spearheaded further expansion into microelectronics devices, and initiated electronic systems research and teaching.

Subsequently, with UGC support, he played a key role also in the development of the University's Centre for Industrial Consultancy and Liaison. Improved liaison between University departments of engineering and the manufacturing industry had long been a prime aim of Professor Farvis, and it was with this motivation that he made individual project work an important feature of undergraduate courses leading to the BSc Honours degree in Electrical Engineering.

During his career, Professor Farvis pioneered new undergraduate courses appropriate to the rapidly changing needs of industry, and developed new forms of postgraduate training, both of young engineers intending to go into industry, and of mature engineers already in the industry. Many post-war innovations in the undergraduate curriculum were tried out at Edinburgh before catching on elsewhere, including: open-book examinations; individual experimental project work and in-depth dissertation writing. He also pioneered short modular courses for re-training engineering graduates in modern technologies, with the participation of experts from industry and scientific civil service. He was innovative too in moving the final honours' examination diet from June to January, to achieve better student focus on project work. He became prominent in engineering education at national level with an outstanding record of service in such national policy forming organisations as the Electrical Industries' Training Board, the Science Research Council and the Institution of Electrical Engineers. Ultimately he was a Council member of each of the latter two bodies.

Held in high esteem within his profession and in Whitehall, Professor Farvis has chaired or been a member of numerous important committees. In particular, he served on the CEI Board of Moderators; was a member of a UNESCO International Working Group on Continuing Education; was President of the Education & Training Committee of the Fédération Européenne d'Associations Nationales d'Ingénieurs (FEANI) 1974-1977; and was also Chairman of one of the four official enquiries into the engineering profession in the 1970s.

He retired on 30 September 1977 after 29 years of University service and he is remembered each year by the award of The Ewart Farvis Prize, funded by donations from the Wolfson Foundation, industrial companies, former colleagues and personal friends. This prize commemorates a distinguished career and provides an incentive for potential recruits to the electrical and electronic engineering industry.

Music was a major part of his life from childhood throughout his life, and as a young man he was a church organist and choirmaster. He was a good craftsman, and he would turn his hand when necessary to a remarkably wide range of DIY activities. He was interested also in language and, as a good European, he could conduct professional business in both German and French. We all owe much to this notable pioneer in electronics teaching and research.

Born 11th December 1911, he died on 12th October 2005. He is survived by his wife, Margaret, his children, Sheena and Keith, and grandchildren, Rachel and Mark.

Peter Grant

William Ewart John Farvis CBE, BSc, BSc(Eng), CEng, Hon FIEE. Born 11 December 1911, Elected FRSE 3 March 1958, Died 12 October 2005.