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Obituary William Hall

Pioneer of the UK's nuclear power industry who became an authority on plant safety

- M.J. Harris
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Bill Hall, emeritus professor of engineering at the University of Manchester, who has died aged 80, was a gifted researcher and educator. He played an important role in the development of the UK civil nuclear power programme, made fundamental contributions to the understanding of engineering heat transfer and was an authority on problems of reactor safety.

Hall was one of those regrettably diminishing breed of professional engineers who started their careers via workshop and design-office training and part-time study. He left Urmston grammar school at 16, and served a five-year engineering apprenticeship with the Manchester Ship Canal Company.

He then joined the Royal Aircraft Establishment at Farnborough where, for two years, he worked on instrument design. In 1946, he became a technical engineer at Risley, the northern headquarters of the Ministry of Supply's division of atomic energy, working for five years on technical studies for the first UK nuclear power plants.

During this period, Hall studied part time at the Manchester College of Technology for a University of London external degree and met his wife-to-be, Mary Dennis, a journalist. They were married in 1950, and later that year he graduated with first-class honours.

In 1951, he transferred to the research and development branch of the Atomic Energy Authority at Sellafield, where he conducted the first measurements in the UK on heat removal by the liquid metals that were to be used to cool fast reactors. He set up and led the experimental engineering laboratories, developing the heat transfer arrangements for the Calder Hall power reactors (the first in the world to generate electricity on a truly commercial scale, and forerunners of the UK's nuclear power programme) and the prototype advanced gas-cooled reactor. He also helped to lead the investigation that, in the immediate aftermath of the 1957 Windscale reactor fire, determined its cause and evolution.

In 1955, he was seconded to Manchester University's engineering department for two days a week to set up research and teaching support for the UK's rapidly developing nuclear power programme. This led to his appointment in 1959 to the newly created chair of nuclear engineering. He soon built a strong research school, which continues to flourish. Hall was the driving force behind the establishment in 1964 of the Manchester-Liverpool joint research reactor, and, in 1976, launched an undergraduate degree in nuclear engineering -

characteristically taking more than his share of its teaching, which he found a particular source of interest and satisfaction.

Hall's approachability, insight and encouragement inspired and empowered colleagues and students alike. His research during this period significantly enlarged an understanding of a wide range of heat transfer applications, and, in 1979, he was awarded the James Clayton prize by the Institution of Mechanical Engineers.

Hall also became an international authority on the analysis of nuclear plant safety, serving on the advisory committee for the safety of nuclear installations from 1972 to 1983. At the end of that period, he was appointed technical assessor to the public inquiry into the proposed Sizewell B nuclear power station at Sellafield. Although the inquiry became the longest of its kind in legal history, Hall maintained his enthusiasm for this task, which was to become crucial as the proceedings came to be dominated by the debate over the Central Electricity Generating Board's safety record.

Many will remember Hall for his gentle manner, which concealed a considerable strength of purpose; his devotion to his family; and his interest in, and enthusiasm for, music. He was justifiably proud of his daughters and their musical talents. He also had a passion for building model steam engines which remain as a working memorial for his children and grandchildren in his garden in Eskdale, just over the hill from Sellafield. Even in his final year, when his health was deteriorating, he produced sophisticated software for use by the model steam engine community to help improve the performance of their machines.

He is survived by his wife Mary and four daughters.

- William (Bill) Bateman Hall, professor of engineering, born May 28 1923; died August 6 2003