Hilton, Peter John

(1923–2010)

- I. M. James

Hilton, Peter John (1923–2010), code breaker and mathematician, was born at 34 Castletown Road, West Kensington, London, on 7 April 1923, the son of Mortimer Jacob Hilton (1893/4–1959), a physician and surgeon who practised in Peckham, south London, and his wife, Elizabeth Amelia, *née* Freedman (1900–1984), who was active in Jewish charities. He was brought up in Kilburn, north London. At the age of ten he was knocked down by a motor car; while recovering in hospital he practised mathematics by scribbling on his plaster cast. As a result he developed a love for the subject which lasted the rest of his life. In 1935 he entered St Paul's School as a foundation scholar, and quickly shone in mathematics. As a sideline he taught himself German, which he was to put to good use later. In 1940 he left school and went to Queen's College, Oxford, with an open scholarship to read mathematics. This being wartime, he was expecting to be called up for military service. Instead, at the end of his fourth term he was summoned to a mysterious interview in London. This led to his being recruited to the secretive centre at Bletchley Park, midway between Oxford and Cambridge, where encrypted enemy radio messages were being deciphered. Among the many people engaged in this important work were various academics. Hilton found he was to be working with other mathematicians, notably Max Newman, Alan Turing, and Shaun Wylie from Cambridge, and Henry Whitehead from Oxford, as well as young men like himself.

Hilton became a junior member of Turing's team, which had just solved the mystery of the Enigma machine, as used by the Luftwaffe for secret messages. However, a version of Enigma was also used by German submarines, and Hilton began by helping to decipher these signals, which had to be done quickly if the information obtained was to be useful. He was transferred to another team working on top-level messages between German high command and the army headquarters in Berlin, including some from Hitler himself. These were not enciphered by Enigma but by another machine, called the Lorenz officially but known in Bletchley Park as 'Tunny' (encrypted German teleprinter traffic being known as 'Fish'). When this was also mastered the volume of traffic of strategic importance was so great that a large scale electronic digital computer, the first of its kind, was developed to handle it. The information thus obtained, exposing the detailed planning of the enemy, saved countless lives. Eisenhower said that it shortened the course of the war by two years. Hilton later described this part of his career as the most exciting of his life. The importance of his contribution to the war effort could not be generally known for a long time owing to the Official Secrets Act but when this was lifted he wrote several accounts, the first published in 1988.

After the war Whitehead invited Hilton to return to Oxford and become one of his doctoral students in algebraic topology. This was a relatively new kind of mathematics which later split into various branches such as homological algebra and homotopy theory. Hilton enjoyed university life to the full. In sport he enjoyed playing cricket, tennis, and squash. His favourite recreations were chess and bridge. Like Whitehead he was strongly pro-Russian and joined a group of like-minded Queen's men whose social gatherings always ended with a rousing chorus of 'The Red Flag' led by Hilton.

After Hilton completed his DPhil in 1948 Newman, by then a professor at Manchester, recruited him as an assistant lecturer. In 1956, after a spell as university lecturer at Cambridge, Hilton returned to Manchester, which he much preferred, as senior lecturer. Two years later he was appointed Mason professor of pure mathematics at Birmingham. He occupied this chair for four years until he found the burden of administrative work imposed on a departmental head was getting him down. An offer from Cornell persuaded him to emigrate to the United States, and he later became an American citizen. After nine years (1962–71) at Cornell he moved to the Battelle Institute Research Center in Seattle, with an attachment to the University of Washington. He moved again to Case Western Reserve University in Cleveland, Ohio, in 1972 but this was not a success so in 1982 he moved yet again to the State University of New York in Binghamton. In 1993, after becoming emeritus there, he divided his time between Binghamton and the University of Central Florida at Orlando. He was an inveterate traveller. He frequently visited the Eidgenössische Technische Hochschule in Zürich and usually spent his sabbaticals there, but he was a welcome visitor at many other places.

On 14 September 1949 Hilton married Margaret Mostyn (*b*. 1925). She was then a schoolteacher but later made a successful career in America as an actress, especially in 'summer stock' theatre. They had no children of their own but adopted two sons, Nicholas and Timothy.

Hilton's research interests remained in algebraic topology, as is demonstrated by the various books that he wrote in this area, often in collaboration with others. These included *An Introduction to Homotopy Theory* (1953), *Differential Calculus* (1958), *Homotopy Theory and Duality* (1965), *General Cohomology and K-theory* (1971), *A Course in Homological Algebra*, with Urs Stammbach (1971), *A Course in Modern Algebra*, with Yel-Chiang Wu (1974), and *Localisation of Nilpotent Groups and Spaces*, with Guido Mislin and Joseph Roitberg (1975). He also wrote other books and numerous articles on a wide range of subjects, especially the reform of mathematics teaching in schools. He served on many committees, for example as chairman of the US Commission on Mathematical Instruction (1971–4) and of the American National Research Council's committee on applied mathematics training (1977–).

Hilton was a sociable man of many parts, with a wide circle of friends and a wide range of interests. He was a popular raconteur, with a fund of hilarious stories, some of them distinctly risqué. He was often heard on the radio where his frequent flippancies and the irony which was characteristic of his style was most effective. But he was at heart a deeply serious man. When his friend Turing was prosecuted for gross indecency he rallied to his defence. He devoted much time and effort to helping victims of injustice, for example during the McCarthy period in America. He was active in various charities, such as Amnesty International. He died in Binghamton on 6 November 2010 and was survived by his wife and sons. His last book, *A Mathematical Tapestry* (with Jean Pedersen and Sylvie Donmoyer), had just been published. His elder brother, Sidney Hilton (1921–2011), an eminent physiologist, died a few months later.

Sources

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- m. cert.

Likenesses

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