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REVIEW

The Most Influential Scientists in the Development of Medical Informatics (4): Allan Cormack

Izet Masic

Academy of Medical Sciences of Bosnia and Herzegovina, Sarajevo, Bosnia and Herzegovina

Corresponding author: Prof Izet Masic, MD, PhD. E-mail: imasic@lol.ba; izetmasic@gmail.com

CORMACK ALLAN (1924–1998)

Allan MacLeod Cormack (February 23, 1924 – May 7, 1998) was born in Johannesburg, South Africa, the son of George and Amelia, a civil service engineer and a teacher respectively, who had emigrated from Scotland to South Africa prior to World War I (1). At the University of Cape Town, South Africa, Cormack chose the field of engineering, but two years later he changed his major to physics, completing a baccalaureate of science in 1944. He remained at the University of Cape Town, completing a Master of Science degree in the field of crystallography in 1945. During the years that followed, Cormack became a lecturer in physics at the University of Cape Town and pursued graduate studies in the field of theoretical physics for two years at Cambridge University in England. In 1950 Cormack returned to South Africa from Cambridge and during this period he was asked to serve a six-month service as resident medical physicist in the radiology department in Cape Town, where he supervised the use of radioisotopes as well as the calibration of film badges used to measure hospital workers' exposure to radiation. At Groote Schuur, Cormack witnessed first hand how radiation was being used in the diagnosis and treatment of cancer patients. Baffled by deficiencies in the technology used for such procedures, Cormack began a series of experiments and analyses, the results of which were two papers published separately between 1963 and 1964 in the *Journal of Applied Physics*.

Between 1956 and 1964, most of his research in connection with the development of computerized axial tomography was conducted on his own time. Neither of his two *Journal of Applied Physics* papers met with significant response, despite the fact that they proved the feasibility of his method for producing images of heretofore non visible or barely visible cross sections of the human body. Hounsfield was independently coming to conclusions similar to Cormack's, and developed the first CAT scanner as early as 1972. In 1979 Cormack and

Hounsfield were awarded the Nobel Prize for physiology or medicine for their joint, though independent, development of CAT scan theory and technology. Unlike previous Nobel recipients, neither Cormack nor Hounsfield held a doctorate in medicine or science; further, their discovery was awarded the prize only after the Nobel Assembly voted the first choice of the selection committee; and, finally, it was highly unusual that the two men had never met or worked together, yet had worked on the same invention concurrently.

In 1990, as one of several scientists receiving the National Medal of Science, Cormack was recognized by President George Bush. Cormack is a member of the National Academy of Science and the American Academy of Arts and Sciences, and is a fellow of the American Physical Society. Cormack died of cancer in Massachusetts at age 74. He was posthumously awarded the Order of Mapungubwe for outstanding achievements as a scientist and for co-inventing the CT scanner.

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