

**Engineers Australia
Engineering Heritage Canberra Oral History Program
Peter O'Neil Carden (1930 -)
Biographical Notes**



Peter Carden with a rotor from the Homopolar Generator in the grounds of the ANU Research School of Physical Sciences and Engineering

Early Life

Peter was born in Melbourne on January 28, 1930. His father, Condell O'Neil Carden, from the Lakes District in the UK, had emigrated to Australia with a young son after his first wife died in Paris after giving birth. He and Peter's mother, Hilda Isobel Green, met in Sydney where they were married in 1929. He was working in real estate but the onset of the Great Depression ended that. They moved to Melbourne where Peter was born, but they separated two years later hoping to reunite when circumstances improved. Peter and his mother returned to Sydney to live with her parents in Rose Bay. His grandfather died when Peter was about 10, his mother died three years later. He and his grandmother then moved to Ipswich to live with his uncle's family.

Schooling

Peter attended Rose Bay Primary School and Randwick High in Sydney. In Ipswich he attended Ipswich Grammar where he matriculated as dux in 1948 and gained a Commonwealth Scholarship to study Engineering at the University of Queensland.

Qualifications

1953 - Bachelor of Engineering – Electrical in Communications, University of Queensland

1963 – Master of Engineering, University of Queensland

1976 – PhD, Research School of Physical Sciences, Australian National University

Career

1954 – Experimental Officer, Weapons Research Establishment, Salisbury SA.

1955-62 – Research Officer then Research Fellow at the ANU's then Research School of Physical Sciences. In a team led by Sir Mark Oliphant he had several roles in the project to construct a homopolar generator to power a synchrotron and other research apparatus, mostly concerning developing bearings and instrumentation.

1962 – Sabbatical year at Massachusetts Institute of Technology working in the magnet laboratory. Main project was to devise and implement instrumentation to track the performance of superconductor magnets.

1963-70 – Returned to the ANU to establish and lead a magnet laboratory. Devised a nested coil design which, using power from the homopolar generator, achieved a magnetic field in excess of 30 teslas.

1970 – Sabbatical year in Oxford where he worked for the Oxford Instrument Company to design a nested coil magnet that would sit inside a superconducting magnet.

1971-72 – Formed a company with ANU staff to build the nested coil magnet he designed. This was completed and exported to Oxford where Peter spent time to help install it.

1972-81 – At ANU instigates research into large scale solar thermal power generation using sun-tracking parabolic reflectors and ammonia as the energy transfer and storage medium. This work informed the White Cliffs solar thermal power station which was commissioned in 1981.

1981-88 – Various projects at ANU, retired 1988.



Peter Carden beside a display at the ANU Research School of Physical Sciences and Engineering which includes a coil from the nested coil magnet technology and sets of carbon brushes from the Homopolar Generator