



Frank Reginald Nunes Nabarro, Emeritus Professor of Physics at the University of the Witwatersrand, South Africa, passed away on 20 July 2006 at the age of 90, after a distinguished career in materials science spanning almost seven decades. He was world known for his pioneering contributions to the elastic theory of crystal lattice dislocations and their role in plasticity and work hardening (Peirls-Nabarro stress, Mott-Nabarro theory, Nabarro-Herring creep. In recent years he turned his attention to creep resistant materials and rafting in superalloys which, with de Villiers, he surveyed in a monograph. He wielded a profound influence on the field through his monumental book "Theory of Crystal Dislocations", his extensive editing activities, and innumerable personal ties. He has been admired for his brilliance as a physicist and will be remembered as a father figure whose wisdom and integrity were almost boundless.



Frank Nabarro's distant roots would probably go back to North Africa, but long ago his ancestors migrated through Spain to eventually settle in UK, where he was born (London, 7 March 1916) and raised. He received his schooling in Nottingham, and by the late 1930's had obtained degrees (first class Honors) in Mathematics and Physics from Oxford University. In his early formative years he worked with the likes of Nobel Prize winner Neville Mott, Sir Charles Frank, Alan Cottrell, Herbert Fröhlich and Jock Eshelby, some of the most eminent physicists of the day. Initially guided by Mott, he undertook calculations of the dependence of the flow stress of a crystal on solute atoms and precipitates, highlighting the role of the flexibility of the dislocations involved. With Fröhlich he investigated the orientation of nuclear spins in a metal. In 1940 he published four papers on these topics, and was well launched into his research career. During the War years he worked for the British Army Operational Research Group, for which he was later awarded an MBE. After the War he resumed his academic career at Bristol University and later Birmingham University, the latter conferring the degree of DSc on him in 1953. It was then that Nabarro moved to South Africa to take up the position of Head of the then Department of Physics at the University of the Witwatersrand. Within a few years he built up the department to significant strength in a number of areas. He served the University in various capacities, including a term as Deputy Vice Chancellor. During his tenure in that position he was responsible for drawing up the academic plan, the first for any South African University, designed for the anticipated large influx of black students. He retired in 1984, but remained an active member of the University community, always generous with his time and wise counsel.

Nabarro had a significant input over many years to the development of physics and science as a whole in South Africa, through the active role he played in the SA Institute of Physics, the Royal Society of SA and Academy of Science of SA, and in many other ways serving as Founder Member, Vice President, and President in such organizations. Nabarro's energy and resilience were phenomenal, his intellectual vitality extraordinary. He never stopped being active in research, and currently has two papers in press, one with Shrivastava and Luyckx on "The size effect in micro-indentation", and the other a thoughtful essay on "Creep in commercially pure metals". He was editing Volumes 13 and 14 of the definitive series "Dislocations in Solids" when he passed away. He traveled extensively, attending conferences and giving lectures wherever he went. Even as recently as May 2006 he visited China and India, and he was planning to attend the MRS meeting in Boston in November to receive a special issue of Phil Mag dedicated to him. Nabarro was the recipient of numerous awards, including De Beers Gold Medal of SAIP (1980), the AIME R.F. Mehl Award (1995), the Institute of Materials Platinum Medal (1997) and a number of honorary doctorates. He was a Foreign Associate of the US Academy of Engineering, and a Fellow of the Royal Society of the UK.

Frank was not only an outstanding scientist, but also a man of great culture. He was an avid reader of Marcel Proust, and had an abiding love for classical music, which he shared with his wife Margaret, who was a notable musicologist. He was Honorary President of the Johannesburg Musical Society, and in memory of his wife, he established the Margaret Dalziel Nabarro Chamber Concert Fund. Frank Nabarro will be deeply missed by his five children and their offspring, and his many friends and colleagues.