HONORARY GRADUATE

Frank Reginald Nunes Nabarro

Profesor Frank Nabarro has had an outstanding career in science spanning nearly fifty years. He was born in London on 7 March 1916. Shortly before the outbreak of the Second World War he studied physics and mathematics at the University of Oxford, of which he is a Master of Arts and a Bachelor of Science. Following distinguished wartime service at the Ministry of Supply, for which he was made a Member of the Order of the British Empire (MBE), he spent the period 1945 to 1949 at the University of Bristol as the Royal Society Warren Research Fellow. There, together with Nevill Mott, Charles Frank and others, he made outstanding contributions to the theory of crystal dislocations, which are important in determining the mechanical and other properties of solids. He is regarded as one of the founders of this field, to which he has devoted much of his scientific life. Frank Nabarro continued this work at the University of Birmingham, where he was appointed a lecturer in metallurgy in 1949. For his research contributions the high degree of Doctor of Science was conferred on him by the University of Birmingham in 1953.

With the support and encouragement of Sir Basil Schonland, Frank Nabarro accepted the Chair of Physics at the University of the Witwatersrand in 1953, becoming the Head of the Department of Physics. With his usual energy and determination he built the Department of Physics at Wits into a large, vigorous, modern department which has gained international recognition. He established academic standards that compare favourably with those found at leading overseas universities. While he is a theoretical physicist, he has always appreciated the importance of experiment in physics. He saw to it that a Chair of Experimental Physics was established. Furthermore, through his efforts several research groups and units were established. These included the Nuclear Physics Research Unit, now the Wits-CSIR Schonland Research Centre for Nuclear Sciences, and the Solid State Physics Research Unit, of which he was Director for more than twenty years. He introduced the first modern electron microscope into South Africa at Wits and also fostered low-temperature physics by establishing a helium liquefaction facility in the Department of Physics, again the first in this country.

In addition to supervising research students, encouraging the work of others and running a large department, Frank Nabarro found time to write a treatise entitled *Theory of Crystal Dislocations*. This was published by Oxford University Press in 1967 and is widely acknowledged as the definitive book in the field. He has published nearly 100 scientific papers, mostly on solid state physics. He is on the editorial boards of five international journals and is associate editor of two of them. In addition he edited the major series, *Dislocations in Solids*.

Frank Nabarro has served this university so well in several capacities: as Head of the Department of Physics from 1953 to 1977, as Dean of the Faculty of Science from 1968 to 1970, as a Senate representative on the Council from 1968 to 1977, and as a Deputy Vice-Chancellor from 1978 to 1980. Nor has his contribution to his discipline and to education been confined to this institution. For many years he served on the Council of the South African Institute of Physics, being elected Vice-President for the term 1956-7. He is a member of the Council of the Royal Society of South Africa. He has spent periods as a visiting professor at institutions in the United Kingdom, Canada, the United States of America, Germany, France and Israel.

Many honours have been bestowed on Frank Nabarro over the years. These include, in addition to the MBE (1946), the Beilby Memorial Award (1950), the South African Medal of the South African Association for the Advancement of Science (1972), the De Beers Gold Medal of the South African Institute of Physics (1980) and the Claude Harris Leon Foundation Award of Merit (1983). He was elected a Fellow of the Royal Society of London in 1971, one of the greatest honours that can be conferred on a scientist, and an Honorary Fellow of the Royal Society of South Africa in 1973.

Frank Nabarro has always recognized that physics serves mankind. He has fostered links with industry and encouraged research that is relevant to the problems of the country. As a Deputy Vice-Chancellor he made a significant contribution to the development of the University. Particularly noteworthy was his outstanding Academic Plan, which will serve as a guide well into the twenty-first century. He also took a keen personal interest in the projects of the Centre for Continuing Education, his involvement being maintained after he had completed his term as Deputy Vice-Chancellor. In his teaching he fostered attitudes of critical enquiry and intellectual honesty. In all matters he had the humility and integrity readily to concede that he had made an error where this was shown to him. He sought to help the disadvantaged student as well as the extremely bright one. Generations of students and many colleagues owe him a great debt.

Following his retirement from this University at the end of 1984, Frank Nabarro was appointed an Honorary Research Professorial Fellow in the Department of Physics. In addition he became a consultant and part-time member of staff of the National Institute for Materials Research of the Council for Scientific and Industrial Research. He is still very active as a researcher and regularly participates in international conferences as an invited speaker. In 1986, on the occasion of his seventieth birthday, he was honoured by the announcement of a special commemorative issue of the *South African Journal of Physics*. This is the first time that this journal has produced a Festschrift issue. Many leading international scholars in his field contributed papers, and Nobel laureate Sir Nevill Mott FRS wrote a foreword in which he paid high tribute to Frank Nabarro's scientific achievements.

The University has not been the same since Frank Nabarro left its staff after thirty-one years of devoted service. One of the definitions of a 'character' in the *Oxford English Dictionary* is 'a notable person', and it is as a character in this sense that he is spoken of by those who were his colleagues. They miss having contact with his mind, as keen as a whetted knife: he has the extraordinary mental gift of knowing what one is about to say before all the words have issued from one's lips, and of realizing immediately where one has gone wrong. They miss his incisive wit. They miss talking to him: miss the pleasure of a mental relationship with a person of such learning; a person of such ability to express himself with clarity, verve and polish; and a person of such cultivation, stretching far beyond the confines of his own discipline. They realize that they had the privilege of an association with one of the finest of the academics who have been on the staff of the University since its inception.

How fitting that the University recognize Frank Nabarro for his outstanding contribution to its welfare, research and scholarship, and to meeting the educational needs of all. And this recognition takes the form of the bestowal on him of the highest honour that the University can bestow, the degree of Doctor of Science, *honoris causa*.