

PROFESSOR ABDUS SALAM

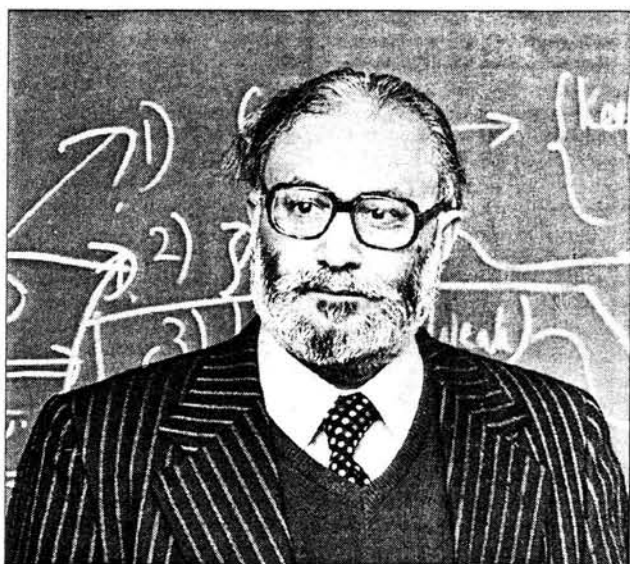
Professor Abdus Salam, theoretical physicist and Nobel laureate, died on November 14 aged 70. He was born on January 29, 1926.

THE death of Abdus Salam leaves the world of theoretical physics without one of its most distinguished and respected members. Born in Jhang, Pakistan, he was soon to display the outstanding creative ability that was such a consistent feature of his professional career. Indeed, his first published scientific paper was produced at the early age of 17. Undergraduate and postgraduate degrees followed from Government College, Lahore, and from the University of Cambridge.

The focus of his research work was quantum field theory, with particular emphasis on the long-term goal of finding a unified approach to the fundamental forces at work in the worlds of nuclear and sub-nuclear physics. In the 1960s Salam was closely involved with the attempts to construct a theoretically coherent account of the "strong" interactions that bind together the constituents of nuclei.

The mathematical techniques on which he worked at that time provided the foundations of the developments that followed — a sustained programme of research culminating in his construction of a theory that unified the electric and magnetic forces with the "weak" nuclear force responsible for the radioactive decay of elementary particles. The dramatic confirmation of this theory by experiments at the European particle-accelerator facility CERN led to his sharing the 1979 Nobel Prize for Physics with the American physicists, Sheldon Glashow and Steven Weinberg. This critical theoretical development became the central component of what became known as the "standard model" of the electromagnetic and nuclear forces.

The incorporation of the gravitational field into this unified picture is a notoriously difficult problem and it is no surprise that this is another area to which Salam turned his formidable attention. The solution of this particular issue remains elusive but, working with his long-term collaborator John Strathdee,



Salam developed some of the main tools for handling the "superfields" that later became a major ingredient in the development of superstring theory — currently one of the most promising approaches to the problem of adding gravity to the list of unified forces.

In addition to his brilliant intellectual gifts, Salam was a man of remarkable vision and outstanding energy who played a major role in developing science throughout the world. Of particular significance was his success in 1964 in persuading the Italian Government and the United Nations to found a research institute for theoretical physics in Trieste, Italy, the prime mission of which was to provide a base for young scientists from the developing countries to carry out research with each other and with visitors from the West.

Salam was the director of the International Centre for Theoretical Physics from 1964 to 1993, and it is a striking tribute to his charismatic and energetic personality that the Centre survived, and indeed, flourished, notwithstanding the numerous political difficulties that inevitably accompany an international project of this kind.

Abdus Salam was a member of the Ahmadiyyah branch of the Islamic religion and would sometimes lead prayers for fellow Muslims visiting the Centre in Trieste. Although his membership of this particular sect caused some difficulties in his relationships with his home country, he never forgot his natural affiliation

with the developing nations. He was also deeply concerned about the proliferation of nuclear weapons and served on many high-level committees involved in the promotion of international peace and collaboration and in the development of peaceful uses of atomic energy.

Salam's outstanding scientific and political achievements were recognised in many ways in addition to his receipt of the Nobel Prize. He was elected to fellowship of the Royal Society at an early age and received its Copley Medal in 1990. He was elected a member of scientific academies and societies in 24 countries and received a large number of honorary degrees. He was made an honorary KBE in 1989. He received nine medals for his contribution towards peace and the promotion of international collaboration.

On a personal level, Salam was a striking man. Any young scientist who had the privilege of working closely with him invariably found it to be an exhilarating and character-forming experience. In addition to his great intellectual gifts, Salam had a genuine sense of humour, including that rarest of qualities of being able to laugh at himself. A warm twinkle would often accompany his more unorthodox suggestions as to how exactly the foundation of physics should be revolutionised.

Abdus Salam was twice married. He had one son and three daughters by his first marriage and a son and a daughter by the second.