

Homi Jehangir Bhabha

(1909-1966)



The progress of mankind is based on the talents and achievements of a few extraordinary individuals. Homi Jehangir Bhabha was one such great man. He was born in Bombay on October 30, 1909. His father Jehangir Bhabha, once a student of Oxford University, was a reputed advocate and served the Tata Enterprises, Meheran.

In his childhood Bhabha used to sleep very little. The doctors assured the worried parents that though Bhabha was in excellent health he did not sleep as long as other children of his age because of his super-active brain and the continuous, rapid flow of thoughts.

His parents took interest in shaping Bhabha's love of science. Bhabha was provided with a small library and he made full use of his library. Books became his friends. Thus a good foundation was laid for his scientific career. Even as a boy Bhabha was a lover of nature. He was deeply interested in painting, music and literature. He took full advantage of his good collection of books and records.

Bhabha was educated at the Cathedral and John Cannon High School in Bombay. He was a meritorious student. He won many prizes at school. At the age of 15, Bhabha passed the Senior Cambridge Examination. Later he entered Elphinstone College and the Royal Institute of Science, Bombay. He continued his studies here for two years. Bhabha loved Physics. Mathematics was also his favourite subject. However, his father wanted him to become an engineer; so he left India for Cambridge to study engineering. Bhabha passed the Mechanical Engineering Tripos in the first class in 1930 and then pursued his studies in Theoretical Physics as a Research Scholar.

Bhabha was not a mere bookworm. He had an inborn taste and a creative urge. During his stay in Europe, painting became his hobby. He visited many art galleries,

museums, palaces and gardens. He never missed a good musical concert. Many of his paintings now grace the walls of art galleries in England. Devotion to art and study of science went hand in hand in Bhabha's life.

Bhabha was awarded the Rouse Ball Travelling Studentship for two years in 1932. He worked with W. Pouli in Zurich and Enrico Fermi in Rome. During this period he was awarded the Isaac Newton Fellowship in 1934 and the 1851-Exhibition Studentship in 1936. Bhabha was fortunate to come into close contact with famous scientists like Rutherford, Dirac, Niels Bohr and Heitler. This association greatly influenced his research and way of life. Bhabha's original contributions in Physics lie in the fields of cosmic radiation, theory of elementary particles and quantum theory.

Bhabha presented, with Heitler, the 'Cascade Theory of Electron Showers', in 1937. It is called the 'Bhabha-Heitler Cascade Theory'. It is a unique contribution to the world of Physics. Bhabha's new theory explained clearly the processes and effects of the mutual reaction of cosmic rays with atoms in the air. Bhabha recognized heavy electron particles in cosmic rays and called them 'Meson'. Bhabha's mastery of mathematics is revealed in the 'Classical Theory of Spinning Particles'. The importance of his work was immediately acknowledged and it received wide recognition.

Bhabha returned to India for a holiday in 1939 during the time of the Second World War. He did not return to England and this was indeed fortunate for India. The material pleasures of foreign countries did not attract him. He decided to devote his life to the service of his motherland.

In 1940 Bhabha joined the Indian Institute of Science as a Reader in Theoretical Physics. He shouldered the responsibility of building a new department to undertake research on cosmic rays. In 1941 he was elected a member of the Royal Society at the age of 31 years. Not many have been honoured so at such a young age by the Royal Society. Bhabha became a Professor in the Institute in 1942. The University of Cambridge also awarded the Adams Prize to him.

Bhabha was quite convinced that science was the only means for progress of India. In those days the equipment and facilities needed for research in Atomic Physics were not available in India. Realizing this, Bhabha formulated a plan to meet this need. When he was invited to join the staff of Oxford University he did not accept the invitation. He expressed his desire to build an excellent institution of research in India. 'Tata Institute of Fundamental Research' was founded by the Tata Trust in 1945 mainly due to the initiative of Bhabha. Bhabha was appointed its first Director and he assumed the responsibility of shaping the Institute. India thus took the first step on the journey of nuclear science.

In 1948 Bhabha was appointed Chairman of the newly formed Atomic Energy Commission. The Department of Atomic Energy came into existence as a separate department of the Government of India in 1954 and Bhabha became the Ex-officio Secretary of the Department. Shortly after the formation of the Department of Atomic Energy, it was decided to create the Atomic Energy Establishment for application of atomic energy to peaceful purposes. Bhabha became its first Director. Thus India began to win new laurels in the field of atomic energy. Bhabha worked ceaselessly and he emphasized indigenous know-how to make the country self-reliant in the nuclear field.

'Apsara', India's first nuclear reactor, was taken up in 1955 to fulfil the needs in neutron physics, radiation, chemistry and biology and also the production of radio isotopes. Subsequently 'Cirus' and 'Zerlina' were built by Indian scientists and engineers, with foreign assistance. The credit for establishing these reactors goes to Bhabha.

Having acquired these reactors, Bhabha planned to take up the actual construction of atomic power plants. The atomic power plant of Tarapur in Maharashtra and the other two plants situated at Rana Pratap Sagar in Rajasthan and Kalpakkam in Tamil Nadu appreciably contribute to the production of electricity in India. These achievements are the living symbols of Bhabha's imagination and dynamism. On May 18, 1974, India conducted its first nuclear explosion for peaceful purposes, at Pokhran in Rajasthan and joined the galaxy of nations with atomic energy capability. The success of this achievement is due mainly to Bhabha who put India on the world map of nuclear science.

Bhabha was a recipient of many honours. He was awarded honorary doctorates by several Indian and foreign

universities. Among these universities are London, Cambridge, Padova, Perth, Banaras, Agra, Patna, Lucknow, Allahabad, Andhra and Aligarh. In 1948 he received the Hopkins Prize of the Cambridge Philosophical Society. He was elected the President of the Indian Science Congress in 1951. In 1954 the President of India gave him the Padma Bhushan award for his outstanding contribution to nuclear science. In 1963 he was elected as the President of the National Institute of Sciences of India. Laurels came to Bhabha from all corners of the world throughout his lifetime.

Bhabha was a member of many scientific advisory committees of the United Nations and the International Atomic Energy Agency. He also served as the Chairman of the Scientific Advisory Committee to advise the Government of India. In 1955 Bhabha was elected as the President of the first International Conference on the 'Peaceful Uses of Atomic Energy', organized by the United Nations at Geneva. The conference was another step in international cooperation. Bhabha was the first to advocate, from international fora, the peaceful uses of atomic energy.

His duty was Bhabha's first love. It was more pronounced in scientific research, planning and direction. When Bhabha was invited to become the Minister of Atomic Energy in the Union Cabinet, he declined. Science was dearer to Bhabha than the charm of ministership. Bhabha's ambitions were sky-high but he also worked tirelessly to realize them. He was not a scientist who sat in an ivory tower. He was a man of action. He was a rare blend of idealism and realism. Bhabha was a bachelor. When once asked about his marriage, he said: "I am married to creativity."

The life of this eminent scientist met with a tragic end when the Air India Boeing 707 'Kanchenjunga' in which Bhabha was travelling to attend an international conference on a mission of peace, crashed in a snowstorm on January 24, 1966 at Mount Blanc. He died comparatively young and at the height of his fame. It was a loss too deep for tears. Bhabha had disliked the practice of stopping work when some one passed away. He considered that the best homage to a departed soul was to work harder. When the members of staff at Trombay heard the news of Dr. Bhabha's death, they worked as usual and thus paid their respect to their departed leader. As a tribute to Dr. Bhabha, the Atomic Energy Establishment, Trombay, was renamed as the Bhabha Atomic Research Centre, on January 12, 1967.