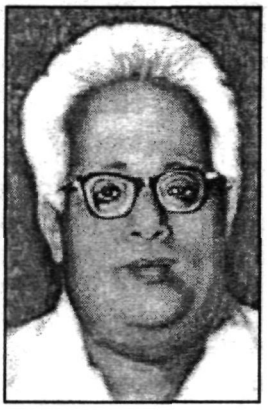
Satyendra Nath Bose

(1894 -1974)



Satyendranath Bose was born on the first day of January in 1894 in Calcutta. Sri Surendranath Bose was his father. He was employed in the Engineering Department of the East India Railway. Satyendranath was the eldest of his seven children; the rest were all daughters. Amodini Devi was Satyendranath's mother.

As a student of the fourth standard of the Hindu High School in Calcutta he set up a new record by scoring 110 marks out of 100 in Mathematics. This bright youngster later became a scientist and won worldwide fame. He solved some problems in mathematics by more than one method and his teacher had to give him more marks than the maximum. So, early in life when he was yet a student at school, his teachers had predicted that Bose would one day become as great a mathematician as Laplace or Cauchy. Satyendranath stood first throughout his academic career. Zeal for work and eagerness to learn new things had taken root in him even in his childhood. Young Satyen loved to improvise apparatus for his experiments. At school, in collaboration with his fellow students, he constructed a telescope and other scientific instruments. No wonder in later life he made many new apparatus one after another and won worldwide fame as a scientist.

Satyendranath joined Presidency College of Calcutta for higher studies. The period of his stay in Presidency College may be called a Golden Age. The company of good friends and classmates and the guidance of ideal teachers shaped his future life. Some of the most renowned scientists - Meghnad Saha, Nikhilranjan Bose, J. C. Ghosh, J. N. Mukherjee and Girijapathi Bhattacharya - were his classmates. He came to be acquainted with Netaji Subash Chandra Bose. Sharat Chandra Bose was his contemporary. Eminent scientists like Jagadish Chandra Bose, Prafulla Chandra Ray and S. N. Maitra were their professors. At the age of nineteen, he became a graduate. In 1914, at the age of twenty, he married Ushadevi. The very next year he completed his post graduation, getting the M.Sc. degree. In all the examinations - the Intermediate, the B.Sc. and the M.Sc. examinations - he secured the first rank. In 1916, the University started M.Sc. classes in Modern Mathematics and Modern Physics. M. N. Saha, J. C. Ghosh and S. N. Bose were all appointed as lecturers. Thus, Bose started his career in 1916 as a Lecturer in Physics in Calcutta University. He served this University for five years from 1916 to 1921. During this time, his friends and colleagues recognized his exceptional talent.

He joined Dacca University in 1921 as a Reader in Physics. While serving in this post he wrote a short article of just six pages on 'Max Planck's Law' and 'Light Quantum Hypothesis'. This article was sent to Albert Einstein. Einstein appreciated it so much that he himself translated it into German and sent it for publication to a famous periodical in Germany -'Zeitschrift fur Physik'. He also explained at length the significance of the subject matter of the article and the great possibilities the article indicated. Later Einstein systematically adapted Bose's approach in his own work. That is why that particular field of Bose's research has come to be known as 'Bose-Einstein Statistics'. Dacca University readily gave him the money for a tour of Europe. Bose first visited Paris in 1924. He stayed there for a year and conducted research in the Madame Curie Laboratory. Next year, he left Paris for Berlin to join Einstein and work with him. There he came into close contact with noted scientists like Schroedinger and Heisenberg. On his return to India, in 1926, Satyendranath Bose was appointed Professor and Head of the Department of Physics in Dacca University.

Bose served in Dacca University nearly twenty-five years as Professor. In 1944, when he was the Head of the Science Section in Dacca University, Bose was chosen as the General President of the thirty-first session of the Science Congress. In 1945, he was appointed as the Khaira Professor of Physics in Calcutta University. He retired from Calcutta University in 1956. The University honored him on his retirement by appointing him as Emeritus Professor. Later he became the Vice Chancellor of the Viswabharati University. In 1958, he was made a Fellow of the Royal Society, London. This was indeed a very great honour. On being appointed a National Professor in 1958, he left the Viswabharati University.

He represented India on many international committees. The scope of his research was vast and varied. Though his main field of work was mathematical physics, his achievements in many other fields were also considerable. His first article on theoretical physics was on 'Equation of State' based on research conducted and published jointly with Meghnad Saha. Incorporating the Theory of Relativity propounded by Albert Einstein, this equation explained many aspects of the pressure, cubic measure and temperature of gases. This article was published in the 'Philosophical Magazine' in 1918. Scientists now refer to it merely as the 'Saha-Bose Equation'. The article entitled 'Stress Equation of Equilibrium' was published in 1919 in the popular Bulletin of the Calcutta Mathematical Society. His other article on Rydberg's Principle was also published in the Philosophical Magazine. He enunciated many new theorems in Geometry.In those days when there was little encouragement for scientific research, Bose successfully carried on research in physics and discovered Boson and Bose Gas. Preparing some photo chemicals himself and with the help of X-ray he started the study of the structure of crystals. It is true that all his great research was in Mathematical Physics. But he was interested in many other subjects, too. He had made a serious and deep study of several other branches of science chemistry, geology, zoology, anthropology, engineering and others. In biochemistry also, he had attained high proficiency. His interest ranged from the manufacture of artificial manure to the manufacture of scents from roses. The study of literature and the practice of art and music were his hobbies. He could read and enjoy poems in Sanskrit, Bengali, English, French and Italian. Himself a gifted musician and critic of music, he had composed some new ragas (tunes).

Satyen Bose was not content with solving scientific problems. It was his constant endeavor to develop scientific knowledge and the scientific attitude in the common man. He was of the opinion that if science is to be understood by the layman, it has to be taught in his mother tongue. A science association named 'Bangiya Vijnana Parishad was founded by him in Bengal in 1948. Right from its inception, it has been bringing out a periodical entitled 'Jnan o' Bijnan'. The Parishad has taken up the difficult task of propagating science among the people in Bengali. He became a member of the Rajya Sabha in 1952. He utilized this opportunity to work for the benefit of both science and society. His fight in the political arena was of immense benefit to science and society. He worked untiringly in the political field from 1952 to 1958. He was the President of the National Institute of Sciences. The Government of India conferred the 'Padma Vibhushan' award on him in 1954. The Delhi University honored him with the award of the degree of Doctor of Science (D.Sc.). Many other universities conferred doctorates on him. He became a scientist revered by one and all. Bose is the author of 'Light Quanta Statistics' and other works of science. He wrote 'Albert Einstein' and several other books in Bengali. Along with Meghnad Saha, Bose translated from German into English Einstein's book on the Theory of Relativity. On the occasion of the celebration of his seventeenth birthday in 1964, a volume was brought out in his honour and many eminent scientists paid homage to him by contributing articles. His eightieth birthday was celebrated in 1974. At the Golden Jubilee celebrations of Quanta Statistics, which was held in the same month, he was felicitated. Within a few days after he turned 80, Bose suffered an unexpected and a severe heart attack. He lay ill for some time and breathed his last on the 4th of February, 1974. The death of Bose was a great loss not only to India but also to the whole world of science. Bose left behind his wife, two sons and five daughters.