

BOSE AND EINSTEIN

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BORN in Dhaka in 1894 S.N. Bose was an exceptionally meritorious student and sailed through all his university examinations with flying colours. Sir Ashutosh lost no time in spotting his outstanding talent and 1916 offered him a lectureship in Physics. But in 1921, when the Dhaka University was established, he went there as a reader. In 1924 he wrote a letter to Einstein which has become history. 'Respectfully, Sir, I have ventured to send to you the accompanying article for your perusal and opinion. Bose had completed the article a research note in six pages and had sent a copy of it to the Philosophical Magazine, London and another copy to Einstein. While the Philosophical Magazine kept silent but Bose got a prompt reply from Einstein who wrote that the note had impressed him very much. Later, Einstein himself translated the note into German and published it in the Zeitschrift für Physik (Vol 28 1924). As a footnote to Bose's article, Einstein added, Bose's derivation for Planck's formula signifies in my opinion, an important step forward. The method used here gives also the Quantum Theory of an Ideal Gas as I will show elsewhere. Actually, later Einstein successfully extended Bose's

ideas to monatomic particles in gaseous form and shaped the quantum theory of monatomic gases. This is the reason why Bose's work is referred to as Bose-Einstein Statistics. Soon afterwards in 1925 the Italian physicist Enrico Fermi started a newer approach known as the Fermi Statistics. All the fundamental particles of the universe obey either of these two quantum statistics: (a) Bose-Einstein or (b) Fermi. Those obeying (a) are known as "Bosons" in honour of Bose and those obeying (b) are known as "Fermions". Decidedly, the shy young Bangladeshi scientist had made mark in the arena of international science. Although he was made an F.R.S. (Fellow of the Royal Society London) in 1958, Dhaka University, where his theory originated, honoured him only after his death by creating a chair in his name and making him an honorary Doctor of Science. He died on February 4, 1974.

As regard his performance in other fields: the first paper in theoretical physics submitted by Bose was jointly written with Professor M.N. Saha. It was published in the Philosophical Magazine in 1917. In 1920 along with P.C. Mahalanobis and M.N. Saha he translated Einstein's Principles of Relativity. In the twenties he spent a few years in Europe

working with Madame Curie for a while but failing to meet Einstein (in fact a meeting between the two never took place.) he re-visited France in 1953 and exchanged correspondence with him. Upto 1953 he had published articles on Equation of State and made studies on 'The Stress Equation'; but after 1939 he followed Einstein in his researches on the Unified Field Theory with but little success, either by Einstein or himself.

In 1927 he was made a professor in the Dhaka University where initially he was a reader. He left Dhaka University in 1945 and returned to Calcutta to be the Khaira Professor of Physics. Then a couple of years as Vice-Chancellor Visva Bharati in 1958 he was made National Professor.

Now as regards his private life he used to combine his dedication to science with a lively interest in literature, music or even Sports. Always serene the scientist could find enough time to relax, to read novels or to play with his cats which moved about with lazy grace in his drawing room. And his passion for chess never waned. On the top of it all he was a man of infinite jest. He loved gossiping about all conceivable things, but wherever there was a mathematical problem to tackle, he was lost within it in a second.