

# The Raman saga

**C V Raman, who died this day, 27 years ago, contributed greatly to make Bangalore the 'Science Capital of India'. A DEVA RAJU recalls the life and times of this remarkable scientist**

**I**F Bangalore has emerged as one of the science cities of the country, there is no doubt that this is because of the seeds sown by Chandrasekhar Venkata Raman.

C V Raman was the first Asian scientist to win the Nobel Prize. He laid the foundations of a scientific tradition in India by building up institutions for research, by publishing journals and encouraging young scientists. It was his conviction that if a research worker is not inspired from within, no amount of money can bring success in research. He once said, "The equipment which brought me the Nobel Prize did not cost me more than Rs 300. A table drawer can hold all my research equipment."

Raman was born on November 7, 1888. Because of the discipline, principles and value of education inculcated in him by his parents at an impressionable age, Raman's education was stimulating. While he was studying at the Presidency College, Madras, he submitted his research paper on mathematics and physics to the *Philosophical Magazine*, London. After completing his MA with distinction, C V Raman had taken the Indian Financial Services (IFS) examination, which he topped.

Raman was then appointed as Deputy Accountant-General and posted to Rangoon, the capital of Burma. Though this job brought him social recognition, comfort and money, he was not happy with the routine paper work and yearned for research. During evenings and whenever he had time, he contemplated various aspects of science.

Raman was transferred to Calcutta in 1907, and it proved to be a turning point in his life. Once, when he was going to the office by tram, he saw the office of Indian Association for the Cultivation of Sciences (IACS). He immediately got off the tram, ran to the office, met Dr Amritlal Sarkar, the Secretary of the Association and expressed his willingness to work for the association as an amateur scientist. His offer was accepted at once and he got the opportunity to work with the association as a research scientist. He



worked in the laboratory of the association during his leisure hours, early mornings, late in the night and on all Sundays including general holidays.

It was the right kind for atmosphere for Raman. It enabled him to do research vigorously. It was here that he worked on "Surface tension" and "Propagation of light."

His inclination towards research was such that he often forgot his home, food and sleep. He made it a point to meet young scientists regularly. He was a refined, well-disciplined and dedicated speaker and teacher. Very soon,

C V Raman conquered the domain of the scientific research in Calcutta. Because of C V Raman, the reputation of the Association spread even overseas, so much so that the great Arnold Sommerfeld once remarked that "India has suddenly emerged in competitive research as an equal partner with her European and American sisters."

Raman captured the attention of Ashuthosh Mukherjee, who was the Vice Chancellor of Calcutta University and who had been popularly known as the "Bengal Tiger." In 1917, Mukherjee felt that C V Raman should join

Calcutta University as one of its professors and offered the Palit chair in Physics in the university. This offer put Raman in a dilemma since Raman had almost settled down had a plum Government job, a car and a bungalow. The offer made by the university, if accepted by Raman, would deprive him of all these privileges.

Raman spent sleepless nights wondering whether to accept the offer of the university or to continue in the government job. At his point, his wife Lokasundari Ammal felt that Raman, being a scientist, should take the university job.

Later, Raman left Calcutta to become the Director of the Indian Institute of Science, Bangalore. It was said by the then noted geologist, Sir L L Fermor: "Calcutta's loss will be Bangalore's gain. At present Calcutta may be regarded as a centre of scientific research in India but with the transference to Bangalore of one of our leading investigators, she will have to guard her laurels."

It was in 1933 that Raman was appointed Director of the Indian Institute of Science. He opened a separate department for physics which was his pet subject. He tried his best to bring up the Institute. Due to some reasons he had to resign from the Directorship but he continued as professor of physics till 1948. Later on, he founded the Raman Research Institute. He was made the first National Professor in 1948 after Independence. When he stepped down from the directorship in 1948, the press was full of rumours that Raman was planning to settle abroad. With a Nobel Prize in his pocket that should have been quite easy, yet Raman chose to stay behind at a difficult time!

Raman received many honours and awards from all over the world for his contribution to the field of science. To mention a few, in 1928 the Science Society of Rome awarded him the Matteucci Medal; in 1929 the British Government knighted him; and in 1930, the Royal Society of London awarded him the Hughes Medal. The Swedish Academy of Sciences chose Raman for the Nobel Prize for physics in 1930. No Indian or Asian had received the Nobel Prize for physics up to then. And our country decorated him with the Bharat Ratna in 1954.

After Raman's retirement, the Government offered him funds for research but he rejected it because he wanted to preserve his independence. And finally, when he was sounded for the office of the Vice-President of India, he declined. Raman died on November 21, 1970.