

# C. V. Raman: A Tribute

**I** HAD the good fortune of meeting Dr. C. V. Raman nearly fifty years ago in September, 1921, in London, where he had come to carry out some experiments in sound and I was a student at the London School of Economics. We were staying at the same boarding house — 24 Oxford Street, Putney, — a vegetarian place.

He would come back after his work at St. Paul's Cathedral in the whispering gallery of its dome. One evening he came to dinner rubbing his hands with glee and told the landlady, "I have succeeded in my experiment. I am very happy. But I am very hungry. Give me my dinner." He was child-like in some of his ways, yet somewhat aloof and unconscious of his surroundings and ignored those around him if he was not interested in them.

A remark of his amused me even then. One morning as he sat down for breakfast he said, "It's very cold. The butter is thick." We would feel the cold, but he deduced it from the butter! After dinner he would take Aesop's Fables or Nursery Tales from the landlady's little girl to read before retiring. Evidently, he was too tired to read anything serious then. I found that he was a lover of music and had been making a theoretical study of musical instruments like the violin and the veena.

Although I had heard him deliver two illuminating speeches in Rangoon in 1927, it was in Calcutta in the following years that I came to know him more intimately. He was Palit Professor of Physics at the Calcutta University. Sir Ashutosh Mukerjee, Vice Chancellor of the Calcutta University, brought in men like Raman and Radhakrishnan to make it a leading University of India. He was also connected with the Indian Association for the Cultivation of Science in Calcutta.

Many were the stories told of his absent-mindedness. It was said that he once went out wearing two different kinds of shoes much to the merriment of those who saw him. But he was immersed in his own thoughts. His wife, Shrimati Loka Sundari, was a personal friend of my wife. She played the veena and looked after her distinguished husband whose waywardness caused her embarrassment at times.

All who knew Dr. Raman then were overjoyed and felt proud when he received the Nobel Prize for Physics in 1930 and some of us honoured him at a party. As usual he was witty in his speech. It is perhaps not widely known that Dr. Raman was one of the best public speakers in our country. Most of the men in our public life make ponderous speeches without a single light touch. They take themselves so seriously that they tend to forget that others do not see them that way. But not Dr. Raman.

For a scientist, he was amazingly fond of the platform: he was fluent and crisp, and his talks were interspersed with humour and even biting sarcasm. In private conversation, too, he was, when in the mood, exhilarating and scintillating. I remember that on one occasion — either at a session of the Science Congress or the opening of the National Metallurgical Laboratory in Jamshedpur, he said, referring to the late Dr. S. S. Bhatnagar, that the "Bhatnagar effect" was more powerful than the "Raman effect," since it meant that when Bhatnagar asked for money to build laboratories and institutes, Jawaharlal Nehru promptly gave it!

Only a few months ago, he said that the national laboratories were built to bury scientific instruments just as the Taj Mahal was built by Shah Jahan for ("let us be frank," he said) "one of his women"! He claimed that his discovery for which he was recognised did not require showy buildings or costly equipment. He almost worked, in the old phrase, with sealing wax and string. He did this with ardour and excitement and with an over abundance of creative energy. He was unsparing in his criticism of those of whom he disapproved, and utterly disrespectful, however high the personage in public or official life. The last time I saw him at his Institute in

Bangalore, seven years ago, he told me that he was so disgusted with equivocal statements on the language policy and the senseless attitude towards English that he had literally thrown away his Bharat Ratna medal! He said that in our country no one had the right of dissent. "Everyone has to agree with Jawaharlal Nehru in our country, don't you see?" he observed sarcastically. However, on matters outside the realm of science, he was, like many scientists, not always "scientific" in his approach and outlook.

Dr. Raman was the first person in India and in Asia to get the Nobel Prize for science. Indeed, apart from Rabin-dranath Tagore, he has been the only other Indian to win the Nobel Prize, if we exclude Dr. Khurana who is strictly not an Indian citizen and was a joint recipient of the Prize. The discovery of the effect for which he got the Prize and which bears his name was one of the most important experiments of the decade. He found that light scattered by certain substances may slightly change colour from the original light beam. This effect is hard to account for according to nineteenth century physics, whereas Raman's discovery was an experimental confirmation of the new quantum theory. Moreover, the "Raman effect" has made it possible to investigate, by means of visible and ultra-violet light, details of nuclear and atomic structure. In this way many interesting properties of atoms and molecules have been discovered. In fact, it has been possible to use the "Raman effect" to gather data concerning atomic nuclei. It has also had many practical applications.

In subsequent years, Dr. Raman got interested in diamonds—not for their value but for their structural significance in scientific investigation. In his Bangalore Institute he showed me flowers under spectroscope and how their colours were not what they seemed. He had a large and beautiful garden, his "forest," in fact, in his Vanaprastha, round which he showed me; I could hardly keep pace with his walk or his talk. He was like a schoolboy brimming with enthusiasm telling me all that he was doing and hoped to do.

Dr. Raman was connected with the Indian Institute of Science at Bangalore and was its Director for some years. But he was like many scientists and artists a poor administrator. Besides, he was, as the Americans would say, "a lone wolf"—an individualist who could not work in a team or keep a team together. He ceased to attend the Science Congress and started the Indian Academy of Science. He trained, influenced and enthused many young men — Dr. Vikram Sarabhai is only one of them—but he brooked no rival and was intolerant of criticism.

We were associated in an Advisory Committee for the Nuffield scholarship when I was in the Planning Commission in the early fifties. Dr. Raman was one of its members. When another member remarked that he was asking the candidates some rather stiff questions, Dr. Raman completely lost his temper and it was hard for me (as Chairman) to get him reconciled to an apology! But soon he was his old self again. He was, as C. P. Snow said of Rutherford, the great atomic scientist, "superbly and magnificently vain" but this vanity was combined with utter simplicity. He enjoyed his insights into nature and was proud of his personality. He was, never pompous, never hypocritical. He would probably have agreed with Emerson that "manners were invented to keep fools at a distance."

He was the greatest physicist India has produced and one of the most eminent physicists of our times. His researches were in many ways a single-handed achievement in new realms of physics. "The pursuit of science derives its motive force from what is essentially a creative urge", he wrote in his *New Physics*, "The man of science is just a student of nature and derives his inspiration from her." It was this creative urge, this pursuit of knowledge for its own sake which was C. V. Raman's inner self and his legacy for scientists.

G. L. Mehta