

Krishnan's contribution to the Raman Effect

The hallmark of a great scientist is the clear understanding of his own role in a major discovery. And that certainly was true of Krishnan, the grand and complete physicist. The articles of Sundaram and Ramaseshan in the K. S. Krishnan Birth Centenary issue (*Curr. Sci.*, 1998, **75**, 1263–1265, 1265–1272), suggest that Krishnan was clear that he executed the idea and experiment of his Professor well and that his experimental skill facilitated and accelerated the discovery of the Raman Effect.

Did Krishnan co-discover the Raman Effect? This controversial question continues to exercise social scientists and historians of science. Agreed that the disparaging remarks of Raman have clouded the issue. But the fact is that the credit for major discoveries goes (and should go) to persons who conceive and/or execute an idea. Therefore, it seems that Raman did not do any injustice to Krishnan. Raman could have shared the credit with him if Raman was overly

benevolent, which of course, he was not. Such examples of research students and postdoctoral assistants not being given the credit for major discoveries by their supervisors are plenty. For example, several coworkers contributed a lot to the critical experiments on the observations of fractional Quantum Hall Effect but were not included for the 1998 Physics Nobel Prize.

I met Krishnan during the 1956 International Conference on Low Temperature Physics at Seattle, USA. He invited me for a discussion in his hotel room. He expressed his desire to visit the Low Temperature Laboratory of the University of British Columbia (UBC) where I was doing my Ph.D. Krishnan was treated with much respect by the Physics Department at UBC and a high level official lunch was arranged for him at the faculty club. Krishnan also expressed desire to meet some Indian students at UBC and eat an Indian meal. As the President of the Indian Students' Asso-

ciation, I arranged a lively meeting. That India should take a quantum leap into the silicon age was argued by some of us to which he agreed enthusiastically. On my request, Hargobind Khorana, who at that time working in the British Columbia Research Council on the UBC Campus agreed to cook an Indian dinner at his home. The three of us sat on the floor and enjoyed Khorana's dinner. In his very saintly manner, Krishnan mentioned during a discussion on the Raman Effect that he is happy that he did his job well as advised by his Professor.

The purpose of my personal account is to help (hopefully!) bring the curtain down on the controversy whether or not Krishnan discovered the Raman Effect for Raman.

K. L. CHOPRA

*Department of Physics,
Indian Institute of Technology,
Hauz Khas, New Delhi 110 016, India*

Science and scientists in India

Much as one would not like, Pushpa Bhargava's assessment of scientists in India (*Nature*, 1998, **395**, 233–234), especially at the top rung is true. It is unfair for Balaram (*Curr. Sci.*, 1998, **75**, 869–870) to have hinted that this is as from a once-influential scientist finding himself on the sidelines. Earlier Balaram had written on the craze of scientists for foreign travel. Vidyasagar hinted that it sounded a little like sour grapes.

Let us be frank about the science we do, even in BARC, ISRO or in the area of Agriculture, etc. Undoubtedly we have talents. But most of our work is on beaten

tracks, tracks which are bound to be covered sooner or later, the skill lying only in how quickly the track is covered. To a considerable extent, our inability to do high grade original research, is due to the lack of infrastructural facilities; but more due to mediocrity filling the top rung in the scientific cadre.

A perceptible tendency amongst most of our scientists is to be visible. For this they will cultivate politicians, bureaucrats and other scientists in better official positions, by their conversational skills. After the age of 50, their aim is to work for a position after retirement, to continue

to be in the limelight, not necessarily by doing good research. Some people manage to build empires for themselves, a process which depletes funding of the existing good institutions. Unfortunately, influential scientists are often unwilling to work in departments which they once headed.

N. S. NARASIMHAN

*Department of Chemistry,
University of Pune,
Pune 411 007, India*