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Book Review

Myth of C V Raman's Instruments

A Review of :

C V Raman's Laboratory and Discovery of the Raman Effect

by

Rajinder Singh

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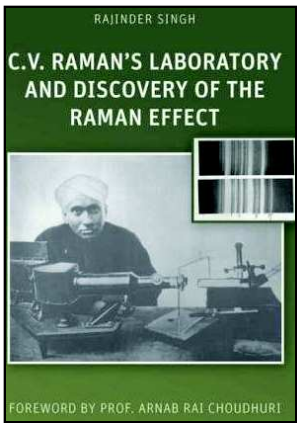
In this book, Rajinder Singh has portrayed a vivid picture of C V Raman's laboratory in Calcutta during the time of the discovery of Raman Effect. In addition to describing the instruments, and their design and purpose, Singh has also discussed Raman's interactions with various people in Calcutta University at that time.

Scientific discoveries have a way of attracting myths. It is the task of science historians to clear the air and set the records straight. In his book 'C V Raman's Laboratory', Rajinder Singh has questioned the authenticity of some statements regarding the expenditure incurred during the discovery of Raman Effect, that the apparatus cost a few hundred rupees. These statements were originally made by C V Raman himself, and which seem to have become a lore in the history of Indian science after being echoed by others.

Rajinder Singh has systematically made an inventory of the instruments used in C V Raman's laboratory in this book. He has painstakingly collected old catalogues which listed these instruments when they were bought and attempted to estimate the total cost. Singh's study is first one of its kind in the context of any Indian laboratory, and in this regard, a welcome addition to the history of scientific research conducted here. Singh has determined that the total worth of all the instruments in Raman's laboratory was more than Rs 7000 at that time, much more than the humble claim of a few hundred rupees.



However, therein lies a fallacy. Singh has included instruments such as the heliostat that Raman did not buy but rather got built by his technicians. Moreover, Singh admits that for the initial discovery Raman used a small quartz spectrograph (p. 30), which according to the estimate on p. 47 cost him roughly Rs 500, not much different from the claimed estimate. It seems to me that while the attempt to make an inventory of Raman's instrument is useful, the idea of 'debunking a myth' by adding the cost of all his instruments is misdirected.

Besides, such an attempt misses the most important aspect of Raman's discovery altogether. While it is necessary to have good instruments, they are by themselves not sufficient to lead to path breaking discoveries. When Robert Wood of Johns Hopkins University cabled to 'Nature' stating that he had verified Raman's results (because he too had the instruments and was working on light scattering), he added that Raman's discovery was due to a'patient and long study'. The fact that Niels Bohr nominated both Wood and Raman for the Nobel prize tells us

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that Wood, with his well-stocked laboratory, was an equal contender, but Raman's ultimate victory came from something else, something subtler than a mere set of instruments. Listing and adding the cost of his instruments and trying to debunk a statement (which was factually not wrong—see above) made in the throes of a remarkable discovery miss that moot point.

In the opinion of the present reviewer, history of science should not be reduced to a history of scientists, unless it affects the general evolution of scientific ideas. It is the flow and evolution of ideas of scientists that should be the focus of a science historian's gaze. If the statements by Raman and others had influenced the evolution of ideas and attitudes in the Indian scientific milieu, one would have understood the motivation behind the present study. However, the book does not tell us the implication of the 'myth' it is trying to debunk.

The rest of the book is a potpourri of topics loosely put together. It attempts to 'fill the gaps' of our knowledge of Raman's time in Calcutta, but does so in a tabloid style of reporting, of putting together some quotes and observations under an assortment of headings. Often the quotes do not carry any references. For example, while discussing 'J C Bose and Raman' under 'Raman's opponents' (!), Singh quotes from "a local newspaper 'Justice'", but does not mention the date or year or the name of the person who wrote it. While there was a tension between J C Bose and Raman, listing Bose's name under 'Raman's opponents' is rather insulting to both Bose and Raman. There is nothing in the last topic discussed in the book – three international honours for Raman (Fellowship of the Royal Society, the Nobel Prize, and the Knighthood)—that is unknown. This part the book feels like an unnecessary appendage when one comes across the final conclusion in the form of facile sentences such as: 'Evidently Raman was a man of science and culture'. Lastly, the fact that the book is generally littered with typos and grammatical mistakes, almost on every page, does not help in making it an absorbing one.

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