

Celebrating a Scientific Luminary of India

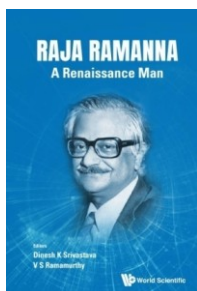
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ABSTRACT

This review explores the book “Raja Ramanna: The Renaissance Man” as a compelling collection of personal reminiscences and technical accounts that illuminate the life, scientific vision, and nation-building contributions of Dr. Raja Ramanna. Drawing on the reviewer's own encounter with Ramanna, it highlights the book's unique blend of human warmth, scientific depth, and institutional history. While the technical language may challenge general readers, it offers valuable insights for science communicators seeking to interpret complex nuclear science. The review also underscores Ramanna's far-reaching influence on India's nuclear programme, defence research, and scientific institutions. Overall, the book emerges as an important resource for understanding the evolution of modern Indian science through the life of one of its foremost architects.



“Dr. Raja Ramanna: A Renaissance Man” Editors Dinesh K Srivastava and V S Ramamurthy. Published by World Scientific Publishing Co. Pte. Ltd.[2026]. <https://doi.org/10.1142/14346>; ISBN: 978-981-98-1442-8 (hardcover)

BOOK REVIEW

It was during the shooting of a broadcast television programme, which I was writing and directing on engineering project management of nuclear power plants under construction and operation in India, that I had an opportunity to meet Dr Raja Ramanna. He had come to participate in a conference that was being held in central Delhi in 2006. The enthusiasm was palpable at the conference since it was just about a year earlier that a 540 MW nuclear reactor was indigenously built for the first time in India, which had attained criticality on March 6, 2005. Looking at my location notes, I now see that Dr Raja Ramannathen spoke on the policy to maintain a capacity factor of at least ninety per cent when one unit is shut down and how that contributed to the gross capacity factor of Indian nuclear power plants to reach ninety per cent.

I was looking forward to speaking with him on-camera and had to wait until the proceedings were over. Though I had heard him speak at the conference hours earlier, I was pleasantly surprised to watch Dr Raja Ramanna play piano during lunchtime. While other colleagues of his went about chatting, he sat tapping his fingers deftly over the piano keyboard, quite unmindful of the din around him. When it came to recording his on-camera statements, his baritone voice was augmented by the looks of his deep-set eyes peeping behind his thick spectacles. Though the video conversation was short, it made a lasting impression on me, especially because he readily responded to even the naive questions of mine as I attempted to understand certain finer technical points as a science filmmaker.

So, when I spotted the book titled “Raja Ramanna: The Renaissance Man” recently published, I couldn’t delay reading it because of its title. The book made me recreate the mental images of the fleeting time of 2006 when I met Dr Raja Ramanna for the first time. Reminded by sudden flashes of memory, I again couldn’t help looking at the book through the eyes of a science filmmaker. A cursory look at the book was comforting, especially because of its short chapters.

Though the book with illustrious editors as Dinesh K Srivastava and Dr Ramanna's student V S Ramamurthy (former Secretary, Department of Science and Technology, Government of India) has 27 chapters of varying lengths contributed by the best-known experts in their respective super-specialities of nuclear sciences and nuclear engineering, I was expecting it to be a heavy read. And it was indeed so only when just flipping through it. But as I settled into the chapters, the book slowly eased along with me. In fact, to me, the book came across as if a number of scientists happened to gather together around a large table, with each of them eager to share their professional as well as personal experiences of associating with Dr Raja Ramanna. And that is what makes the book imminently readable, except for parts where it gets to core science and moves on with just a mention of hard-to-fathom technical terms. The chapter 'From Student to Scientist: Dr Ramanna's Enduring Influence' probably couldn't help it, because by no stretch of imagination it is a book aimed at lay audiences. When I checked, the 'Bremsstrahlung photons' turned out to be electromagnetic waves produced when a fast-moving charged particle slows down in the strong electric field of an atomic nucleus. Though the book does not make any attempt at simplifying the tech-jargon in any of its chapters, it does not in any way diminish the shine of its essential content. Since the various authors write in their distinct styles, the book, therefore, also presents a roller-coaster of emotions in its range of stories that the authors of various chapters share about their life and times as well as that of Dr Raja Ramanna.

For an easy comprehension of a hard-to-understand technical concept, a science communicator can ill afford to avoid going through a jargon-laden description before making an attempt at simplifying the same. Speaking from my personal experience of producing biographical films on the bright minds of science in India, I didn't have the good luck of coming across a sharp technical description of Dr Ramanna's scientific contributions until I caught one on page 150 of the book. Talking of the design and construction of Apsara, India's first reactor, it was easy to see that Dr Raja Ramanna "studied the process of neutron thermalisation in several moderating assemblies". Though a

‘moderator’ is required to slow down extra-speeding neutrons, it helped me appreciate the point when the description was coupled with the mention of ‘neutron thermalisation.’ Expanding on the concept, the explanation which read as “Ramanna and his group determined the neutron diffusion and slowing down constants in water and beryllium oxide by using a pulsed neutron source” made me secretly wish for yet another chance to undertake the production of an enrichment video that makes its non-specialist audience appreciate this very crucial concept in sustaining nuclear chain reaction and the roles the ‘moderator’ plays in complex nuclear fission processes. To help push the boundaries of film-centric science communication, the book, though rather steeply priced, is also a treasure trove of ideas that science filmmakers could pick on.

While the book is replete with tête-à-tête among scientists, the technical descriptions under its skin also hide serious concerns of Dr Ramanna about ‘developing robust research centres within the university system’. Dr K. Sidappa recounts an interesting anecdote - while joking about chillibhajjis during a meeting at a restaurant in Mangalore, Dr Ramanna inquired why ‘professors maintain a distance from Vice Chancellors, even though Vice Chancellors were also professors before their appointment’.

The book is of great value to readers who have been looking for an authentic technical account of all that went into the making of not just nuclear science and engineering in India but in other areas of scientific endeavours well which made for a strong base to build future science and technology infrastructure in the country, many of which already stand as a testimony today. Of note are Dr. Raja Ramanna’s efforts at ‘streamlining the operations within DRDO (Defence Research and Development Organisation) despite the cultural dissimilarities between DRDO and Bhabha Atomic Research Centre/ Department of Atomic Energy’, creation of essential grounds to start the era of large accelerators in India, ‘advising defence minister and the three Services on all scientific aspects of military operations’, taking the ‘lead to conduct a detailed study of the LCA and related engine development programmes’, and making sincere efforts at improving

collaboration even among the non-nuclear science and engineering laboratories that particularly stand out from among the countless contributions that Dr. Raja Ramanna (28.01.1925-24.09.2004) made during his lifetime.
