ET PROFILE

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CNR Rao, A Frugal Scientist, Is No Sachin

Bharat Ratna awardee has inspired a generation of young minds by showing what is possible under difficult circumstances

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The award of the Bharat Ratna, the highest civilian honour, on Saturday to cricketer Sachin Tendulkar and scientist CNR Rao put these two doyens in the same sentence. But as cricketing analogies go, Rao is no Tendulkar. Those who know him closely would compare him with Sunil Gavaskar rather than the contemporary maestro. When Gavaskar started playing, India did not have cricketing heroes respected globally. When he finished, a young generation of cricketers were ready to take the team to the next level. CNR Rao did to Indian science what Gavaskar did to Indian cricket: inspire a generation of young minds by showing what is possible under difficult circumstances with little external support.

His colleagues regard CNR Rao, now 79-years-old, as India's Mr — or Dr — Science, who has won all possible international awards in his field other than the Nobel Prize. He is India's most-known, most-published and most-cited scientist. He has nurtured over a hundred students and inspired several thousands more. He has founded, built and taken several scientific institutions to new heights. He has been a guiding hand in many national policies on science. "I would compare him to a nuclear reactor," says MM Sharma, former director of the Institute of Chemical Technology in Mumbai. "He has produced so much output with very little input."

Rao was thus the quintessential frugal scientist, long before the term became fashionable to describe a new kind of engineering. As a young man, he was able to synthesise two-dimensional oxides with very little equipment, a piece of work that brought him to the notice of the international community of chemists. He later went on to become one of the world's best-known experts on transition metal oxides, a class of materials with fascinating properties and applications. Then came nanomaterials and graphene. Regardless of what he worked on, his output never came down. "I was able to produce exciting work in the last few years," Rao told ET on Saturday, "that will keep me busy for a few more years.

Rao's current passion is graphene, the new wonder material, and artificial photosynthesis. He wakes up at 4:30 am. "By 5:00 am, I start thinking about my work," says Rao. He is in his lab by 8:30 am, and works there till 4:30 pm. "I do not let anything interrupt me," he adds. This schedule still goes on six days a week and on Sunday till early afternoon. "CNR Rao lives science and lives for science," says National Research Professor RA Mashelkar. "Once, he told me, 'I would not know what to do if I was unable to do science.'"

Rao retired as director of the Indian Institute of Science (IISc), Bangalore, in 1994. He was then 60, well-known as a chemist everywhere, and a considerable influence on policymakers. He had taken IISc to new heights by procuring substantial funding and using it to expand its activities. He had founded the Jawaharlal Nehru Institute for Advanced Research a few years before, and it was showing promise as a special centre for advanced and interdisciplinary research. It was a good way to sign off a career, but Rao did not rest.

Over the previous four decades, he had shown a great ability to enter emerging areas and make significant contributions. Now, in his seventies, he spotted another opportunity: nanoscience and nanotechnology. Rao made serious contributions to the subject quickly, but that was not enough for him. He also realised their importance to the future of the country, and mobilised political support to start a ₹1,000-crore national mission on the subject. "You cannot grasp the significance of a field so quickly unless you are a very good scientist," says Rudra Pratap, chairman of the Nanoscience Centre at IISc.

At another level, Rao had been constantly pushing the government for more investment into science. As one of India's great institution builders, he has played a big role in the creation of the Indian Institute of Science Education and Research (IISER), a series of high-profile institutions now being developed on a par with the IITs.

As the director of IISc, he was known for his ability to spot young talent quickly. "He was always decisive and made his decisions quickly," says Prakash Khincha, now adviser to the IISc director.

Rao also had a way of persuading others to take their decisions quickly. In 1987, Rao had asked a young Khincha to take up the chairmanship of the IISc Centre for Scientific and Industrial Consultancy. Khincha wanted a day to think about his new responsibility. "Please think about it for 10 minutes and then come back and tell me," Rao told him. Khincha took his new job. So did almost everybody who has been asked by Rao to do something.

Scientist CNR Rao was felicitated by his collegues after the announcement of Bharat Ratna award, in Bengaluru on Saturday -PTI