



OBITUARY

Roddam Narasimha: A rich legacy of science and mentorship

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Indian aerospace and fluid dynamics scientist Roddam Narasimha, who passed away on 14 December 2020 in Bengaluru at the age of 87, will be remembered not just for scientific brilliance and leadership, but also for an involved brand of mentorship.

When Narasimha was awarded the 2019 [Nature Awards for Mentoring in Science](#), the legacy of the 'Narasimha family tree' he was going to leave behind became immediately apparent in the comments his mentees from across the world sent us.



Roddam Narasimha (1933-2020)

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Before diversity became a buzzword

As chair of the judging committee for the award, I received stunning feedback from young and mid-career scientists, talking of his non-judgemental openness to students' thoughts and dissenting opinions, of his insistence on giving credit where it was due. These lesser known but significant nuggets felt like the revered scientist's life was a classic handbook of mentorship.

Here are some samples of what his mentees told us at the time:

"He is completely free of biases based on gender/ caste/ religion/ economic, educational or cultural background. He encouraged diversity decades before it was known by this term."

"From the very first meeting I had with him, I could feel something special about him from the way he would ask questions and gave suggestions. He taught us to care more for quality than quantity."

"He is never in a hurry to publish anything. He often says "we publish only when we have something to say", by which he means when we have something actually significant to say."

"Apart from the academics, Professor Narasimha would also discuss history of science, what India needs to do in different fields, how government system works, how science is managed in India and in the West. He would look for problems that are original and could be addressed with the resources we have."

"Many talk about the need to popularise science among the young, but are not clear what to do about it. Professor Narasimha started the journal 'Resonance', which is published by the Indian Academy of Sciences. Resonance contains articles on different topics in science and technology written by experts in the field where concepts and ideas are explained in a language that can be understood by high school students."

"Professor Narasimha cares a lot about not being overbearing and is directly critical of no one. He never forced his ideas on others, and gave enough space to others to express their views. At the same time, when stuck with a problem where we do not have sufficient expertise, he had no hesitation in consulting with an expert within or outside the Department. There was no ego of 'I know everything'."

"The many honors that have come his way have made no difference to Professor Narasimha's personal endearing qualities: easy accessibility to all -- despite disparities of their station in life (whether a novice student, a distinguished colleague, or a high-level official); the dignity with which he interacts with people of all walks of life; abiding interest in intellectual pursuits and love for scientific truth and scholarship; unprejudiced and disciplined advice that he provides when it is sought; articulation of his thoughts in spoken and written words; the personal example he continues to set, and the inspiration he provides."

"He teaches that you should be yourself, which speaks best to your own culture; demand high standards only by your own example; work on more than one problem at a time because it enriches your thinking on both; never lose sight of graciousness in personal interactions; be firm when faced with opposition to your ideas but there is no need to make it personal; be open to new ideas, but don't chase fads."

"All his students adore him, never have anything negative to say about him, have been re-shaped by their association with him and, thanks in large part to him, have

succeeded well in their careers. Even people who have long ago done a masters or a short project with him are keen to identify with his family tree.”

“He always gave a careful ear to our ideas and was never perturbed if we disagreed with him. In fact, he was always alert to the possibility that the youngest student may be right in an argument.”

“Once when I was a student I asked a question in a seminar. The speaker shut me down saying I should not ask dumb questions. Narasimha was in the audience. He immediately admonished the speaker to answer the question, and added that it was not a dumb question because he could see what I had in mind. He repeated the question himself. If he had not thus intervened, I might have become shy of ever publicly asking questions again.”

“At the end of my PhD he nominated me for an Indo-US Fellowship which enabled me to do a postdoc in Caltech. As a mother of a young child and a deeply unconfident person, I had had no plans for a postdoctoral tenure outside Bengaluru and did not dare to dream of a faculty position. It was Narasimha’s ambitions for me that took me to a better future.”

“Narasimha is extremely correct in every way, for example in giving credit for ideas and for work, even in a casual conversation. He is very particular about being factual and never over claiming any importance for our findings. He is inherently fair-minded, one of the most gender-unbiased people, and that includes people many decades younger than him. Each of the above characteristics above has been imbibed by most of his students. I have seen my students impressing upon their students that we of the Narasimha family tree do things this way.”

Journey in science

For many years, Narasimha was a Professor of Aerospace Engineering at the Indian Institute of Science (1962 to 1999), Director of the National Aerospace Laboratories (1984 to 1993) and the Chairman of the Engineering Mechanics Unit at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), then Bangalore. At the end of his long career, he was the DST Year-of-Science Chair Professor at JNCASR and concurrently held the Pratt & Whitney Chair in Science and Engineering at the

University of Hyderabad. In 2013, Narasimha was awarded the Padma Vibhushan, India's second highest civilian award.

After a bachelor degree in engineering from Mysore University (University College of Engineering) in 1953, he worked with Satish Dhawan, regarded as the father of experimental fluid dynamics research in India, during his master's degree from Indian Institute of Science. He then worked with Hans Liepmann at Caltech in the US obtaining his PhD in 1961. In 1982, he founded the Centre for Atmospheric Sciences (now Centre for Atmospheric and Oceanic Sciences), which he headed until 1989.

For many years he held a visiting position at Caltech as the Clark B Millikan Professor and Sherman Fairchild distinguished scholar. Between 1989 and 1990 he was the Jawaharlal Nehru professor of Engineering at Cambridge University in England. He held visiting positions in many countries worldwide. Narasimha's research focused on transitions between laminar and turbulent flow, the structure of shock waves, various characteristics of fully developed turbulent flow, the fluid dynamics of clouds, near-surface temperature distributions and eddy fluxes in atmospheric boundary layers. He was closely associated with aerospace technology development in India at both technical and policy-making levels.

As Director of NAL he initiated several major technological programmes. He was instrumental in establishing a major parallel computing initiative in India. As President of the Indian Academy of Sciences, he spearheaded a new programme on university education in science. He served on the National Security Advisory Board and the Scientific Advisory Committee to the Indian Prime Minister's Cabinet.

Widely honoured for his research and scientific leadership, he received the Trieste Science Prize by TWAS, the academy of sciences for the developing world, in 2008.

He was a Fellow of the Royal Society, and a Foreign Associate of both the US National Academy of Engineering and the US National Academy of Sciences. He was also an Honorary Member of the American Academy of Arts and Sciences, and a Fellow of the American Institute of Aeronautics and Astronautics.

In India, his distinctions included the Shati Swarup Bhatnagar Prize and the Gujarmal Modi Award among many others. He was a Fellow of all the National Academies of Science and Engineering in the country, and an Honorary Fellow of the Aeronautical Society of India.

When asked what mentoring young scientists meant to him, Narasimha had said, "All I can say is that I try to understand every student I have: his/ her abilities, tastes, passion, commitment, excitement after understanding something, desire to pursue new paths or device new techniques. I do my best to encourage them."

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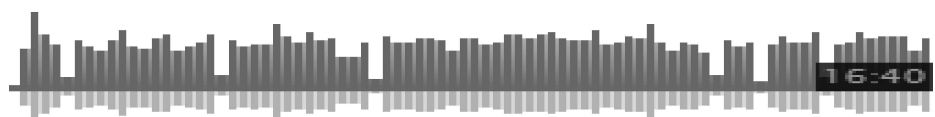
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