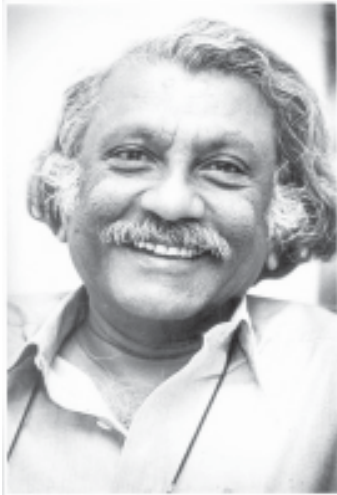


Reminiscing Rad

On the morning of March 3, 2011, the third day of the ‘Diffuse Relativistic Plasmas’ (DRP) conference, many of us from the Raman Research Institute (RRI) woke up to hear the shocking news that Rad was no more. For those of us who had chatted with him the previous night during the conference dinner, it was unbelievable and tragic. For those of us who had grown up at RRI during its second phase, starting 1972 with Rad at the helm, the news was not only shocking but profoundly devastating. The harsh realisation that we would never see him again overwhelmed us.



The organisers of the conference were confused, not knowing how to proceed: ‘Postpone the conference by a day’ or ‘just run it as scheduled’? For those of us who had grown up with Rad’s school of thinking ‘the show must go on’ was the uneasy but imperative solution for us as RRIians. Thus the conference went ahead as scheduled with a brief announcement of the sad news by Prof. Ravi Subrahmanyan, Director, RRI. All the participants expressed their last respects, even though they had known him only for a couple of days. Unmistakably, it was the magician in him that had instantly attracted them all! These participants, ironically, were in fact the new faces that

Rad had exclaimed the previous day that he was seeing for the first time!!

Venkataraman Radhakrishnan was born to Chandrasekhara Venkata Raman and Lokasundari Ammal on 18 May 1929 in Tondaripet, a suburb of Chennai. He was the younger of the two sons to his parents. His early schooling was in Madras. He graduated in physics from the Central College, Bangalore of the Mysore University in 1950 before joining the Department of Physics at the Indian Institute of Science, Bangalore. His fascination for machines and gadgets, especially motorcycles and radios, since childhood galvanised him to attain the ability to build innovative instrumentation in radio astronomy and then further excel himself by designing several machines such as ultra-light micro-flyers, hang-gliders and sail boats fitted with aircraft wings. When asked where his inspiration to experiment in fields outside the realm of radio astronomy came from, his reply was ‘many people know Einstein for many things, but I worship him for his great interest in sailing’.

Rad's passion for motorbikes must have driven him to leave India while still in his early twenties, work in UK, hitch-hike in Europe and end up joining the Onsala Observatory of the Chalmers Institute of Technology in Sweden in 1955. Between 1955 and 1972, he worked in several observatories all over the world studying atomic hydrogen, polarization of radio waves, radio interferometry, and the magnetic field of Jupiter. His work at the Parkes Observatory provided strong observational evidence for the multiphase interstellar medium. A detailed account of this work filled an entire volume of the *Astrophysical Journal Supplement*. A classic observation of the polarization swing of the Vela pulsar formed the basis for the widely accepted *magnetic pole* model for pulsar radio emission. No wonder that one of the astronomers who met him at a meeting in 2001 told him "I don't know how I would have wasted my career away if you had not done the pioneering work on the HI 21-cm absorption that you did in the 60's and the 70's. But, as it is, I was happy to spend my life following you".

In 1972, Rad accepted an invitation from the RRI Trust to return to India and take over the reins of RRI which was undergoing a revival after C.V. Raman's death in 1970. Under his overall leadership, RRI achieved successful programmes in radio astronomy and came into the reckoning. He initiated and was closely involved with the construction of the 10.4m millimetre wave telescope at RRI and of the low-frequency telescopes at Gauribidanur and Mauritius. He inspired several generations of youngsters to build innovative instruments for these telescopes, to experiment, observe and research astrophysical phenomena. His main contribution to astronomy was through his involvement in other people's research. The institute during Rad's tenure had become recognised for its efforts to sustain an open working atmosphere with emphasis on fostering young talent within an informal and friendly atmosphere.

I was fortunate to have had a very long association with him during my formative years (1978–1988) while working for the Gauribidanur Observatory and in later years while working for the Mauritius radio telescope (1990–2000). It would be a gigantic task to share the wealth of wisdom and fun that filled our discussion meetings. However, I will try telling you what happened at one such meeting. This is on similar lines to the episode 'He Fixes Radio Thinking' in the book 'Surely You're Joking, Mr. Feynman!'. We were discussing the design of an astronomical clock, specifically its operation when the mains power supply fails. This was considered very important given the mains power supply situation in India. The objective of our design was that it should provide uninterrupted time information. Those were not yet the days of GPS and other sophisticated time standards. I had designed a change over circuit which would switch the battery on if the mains power failed. Rad was quick to suggest that we should have two batteries to ensure smooth operation if the mains power supply ever failed while

the battery was being replaced. Redundancy is a key concept in the designing of critical components of a system and this suggestion did not raise many eyebrows. But, Rad surprised us by suggesting that there should be a switch to ensure that the system draws power from the older of the two batteries in place. This suggestion did not draw an enthusiastic response. Then Rad told us a story.... A civilisation which often faced and fought shortage of water decided to build a spare water tank and very soon completed the construction and decided to use the spare tank only during periods of drought. There was no water shortage for several seasons. People were happy. The water shortage, though, did occur after a while, the people did not worry as they had a spare tank full of water. But, behold, when they opened the spare tank, left unattended for several seasons, they found it empty. It did not take them long to figure out that a small leakage, not easily noticeable, had drained the entire spare tank. It dawned on them that they should have used the two tanks alternately rather than considering one of them as a spare to be used only in an emergency. The story left us with no questions about the necessity of the inclusion of a switch to ensure that the older of the two batteries is preferentially drained. Every design has to have a philosophy.

Rad had sought to lower the barriers between theorists and experimentalists and also between scientific and technical staff. Truly, this approach could be considered unprecedented not only in the country but perhaps in the rest of the world too.

Prof. Ed van den Heuvel in his condolence message to our director aptly expressed, "We are very sorry to hear the news about Prof. Radhakrishnan's passing away. With him, world astronomy and world science at large, loses one of its most creative and most remarkable minds, and we all lose a great friend. My University of Amsterdam loses one of its greatest Doctors Honoris Causa (Year 1996)".

Awards and distinctions aplenty pursued him in life. And as I sat down to list out the awards and distinctions he had won, somewhere deep down in my heart I sensed his voice asking 'Idella Theveya; (which means 'Is all this necessary?' in Tamil) and I realised then that the list was not, in fact, necessary.

Rad leaves behind his wife Dominique, son Vivek, his wife Namrata and their two daughters, Veda and Surya.

7 December 2011

N. Udaya Shankar
RRI, Bangalore

The Man, his Men & his Machines



Fig. 1. A single-seater powered hang glider which Rad used extensively for participating in cross-country rallies (1995).



Fig. 2. A two-seater powered hang glider, especially designed for training. The two seats are side-by-side rather than in tandem (2000).



Fig. 3. Rad (right) with a fellow sailor. He was participating in the fourth ‘Vasco da Gama Yatch Rally – 2010’. Rad had joined as an invitee for the Yemen-Kochi sector.

Fig. 4. Rad’s dream boat – Eldemer – double hulled boat with a sail resembling the wing of an aircraft (2005).





Fig. 5. Rad with colleagues who worked on his machines (2004).