

laboratories), large inhomogeneity in professional quality, and insular background, it had to become coherent, compete in the open, serve as a friendly source of innovation for the industry, as well as market its science and technology base. This had to be done fast, in a climate of small and perhaps shrinking budgets. He met these challenges. He constituted an active and powerful Advisory Committee which met frequently and helped bring cohesion and innovation to this large structure. He had a working plan devised for the CSIR as a whole, and for the constituent laboratories, to reinvent themselves to be relevant and strong in the new environment. His clear-eyed sense, his genuine ability to listen and to take colleagues along, his calm, gentle but firm and nonabrasive temperament were all valuable. He also was one of the two or three formal representatives of Indian Science in the world. In the latter capacity, he was an active participant in the support of science through the Commonwealth Science Council; he was its President from 1992 to 1995.

Joshi's address after 1995 was the National Physical Laboratory (Room 252 in NPL, New Delhi would find him); here he continued to do his physics. He held various academic positions and was involved in steering many institutions. For example, from 1997 to 2000 he was the Chair of the Recruitment and Assessment Board of DRDO, a gigantic collection of laboratories. From 2015 till his illness

made it impossible a few months ago, he actively chaired the National Accreditation Board of Testing and Calibration Laboratories, clearly related to one of the primary mandates of the NPL. These years were marked by his selfless contribution to the growth and well being of science in India through chairmanship or membership of innumerable 'Joshi committees'. He was in them, not because he was an innocuous and vacuous 'item', but because he was a non-judgemental, likeable person who listened to diverse points of view; but whose academic and personal integrity as well as knowledge of ground-level realities was unquestionable and who steered them clearly and quietly in a professionally appropriate direction. This is a quiet and long lasting contribution to institution building.

The scientific community of the country recognized his eminence in many ways. He was awarded the Bhatnagar Prize for Physical Sciences quite early, in 1972. He was a Fellow of all the three national academies of science, and was President of two. He was also internationally recognized; as an Honorary Fellow of the Russian Academy of Sciences, and a Fellow of the Third World Academy of Sciences.

Professor Joshi was, quite unusually for a person in any walk of life, both a personal and professional example. His personal qualities of genuine goodness that cannot be faked; his smiling demeanour and extremely intelligent actions

and reactions which came out of the often tentative-sounding, non-assertive but clear-headed and insightful personality, were an ideal for many. He was open and collegial. He listened to others. He had deeply held personal values, but did not judge people on that basis. He was gentle and not abrasive or assertive. Among his greatest strengths were his simplicity and humility. A child of the Himalayas, he was deeply religious and spiritual. He did not wear this on his sleeve, nor did he let it affect his professional practices.

Professionally, Professor Joshi was constantly growing. One of the last times I heard him was when he gave a talk in 2012 on the then recent discovery of the Higgs boson. He talked about it well and happily; he knew that the discovery was momentous, though it was far afield for many physicists like him and me. A friend told me about how, last year, he gave a long and contentful lecture on Meghnad Saha, an icon of Indian science, whose birth centenary was being celebrated.

It is our good fortune as a scientific community that such a leader was present at this time in our history.

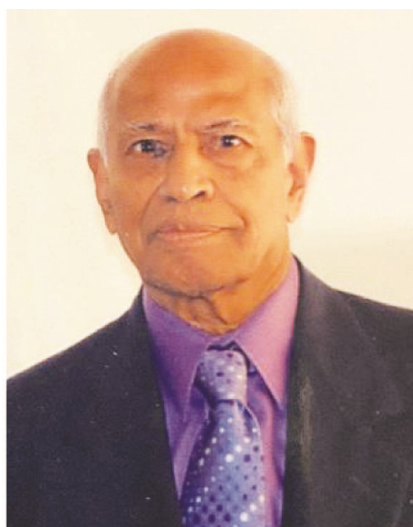
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Melkote K. Ramaswamy (1931–2020)

Melkote Krishnarao Ramaswamy passed away on 1 January 2020 peacefully at his home in Westerville, Ohio (USA). He was born on 4 January 1931 in Bengaluru, India into a large and loving family (he was the 4th eldest of 11 siblings). His formal education included a B Sc degree in Physics from Bangalore University, an MS in Physics from University of Arkansas, and a Ph D in Nuclear Physics from Johns Hopkins University. He then spent time as a post-doctoral fellow at Ohio State University.

Ramaswamy started his research career at Karnatak University, Dharwad as a Reader in Nuclear Physics. He then went to Ohio State University. In 1964–65 he was a Visiting Associate Professor



and Visiting Scientist in the American Institute of Physics. Between 1966 and 1972 he was an Associate Professor of Physics at the Fordham University in New York. He was then lured back to India to take up a Professorship at the Birla Institute of Technology and Science in Pilani from 1972 to 1977. He served as Warden of the Malaviya Bhavan hostel during this time. The move to Pilani proved to be very influential on his entire family, especially for his sons who were able to spend formative years in India. Since he kept his green card active through visiting professorships at Duke and Vanderbilt during this time, he was able to leave academia and return to the US in 1977.

Thanks to the generosity of his brother Melkote Shivaswamy and his wife Usha, he was able to begin this second phase of his career in Muncie, IN. He transitioned to industry as a technical writer, a career in which he flourished until his retirement in 2005. In 1978, he and his family moved to Indianapolis, an area in which he lived and enriched the community. He worked at Value Engineering from 1978 to 1980, and then at Esterline Angus Instrument Corporation (1981–84), Regency Electronics (1985–86), and in various contract positions in the US defence industry. His love for physics continued, as he taught courses as Adjunct Professor at Indiana Central University (now known as University of Indianapolis) from 1986 to 1990. It is indeed fitting that in 2019 he returned to the Columbus, Ohio area to where he first immigrated in 1960.

Ramaswamy has made important contributions to nuclear physics especially the study of nuclear energy levels by beta-ray and gamma-ray spectroscopy and the elucidation of nuclear structure effects by the study of internal conversions and electric monopole transitions. He explored the possibility of neutrino detection using indium-113m. He also initiated phase transition studies using positron annihilation technique.

In addition to his technical career and background, Ramaswamy was a prolific

punster and humorist. He entertained his friends at social gatherings, and to this day, some of his former BITS students remember how he wove humour into otherwise dry physics lectures. His first foray into written humour began humbly with a column titled ‘Potpourri’, published in the *Muncie Weekly News*. He followed this with ‘Cents of Humor’ in the Indy East community paper, and a radio segment ‘As the Word Turns’ that aired on WGRT-FM in 1982.

Upon the urging of friends, he wrote and self-published *India-Na* in 1982, a compilation of some of his best puns – several poking gentle fun at the sometimes subtle, sometimes jarring contrasts between Indian and American popular culture. The literary angle was a major focus of his second act in the US – he served as editor for the India Association of Indianapolis newsletter (*Bharati*). He was a regular columnist for the *Indianapolis Star* for the past 3 decades, and his last ‘Faith & Values’ column appeared on Thanksgiving 2019. During this time, he published two additional books – *An Immigrant Celebrates America* in 2007, and *Vedanta through Drstanta* in 2013.

Ramaswamy developed a love and passion for Indian classical music during this time, specifically, the Carnatic style. He did not have formal training, yet this

did not stop him from teaching himself the difficult nuances of Tyagaraja’s compositions, and giving impromptu concerts. Singing bhajans was another pastime of his. He compiled a *Bhajan Mala* which served as the backbone of the Indianapolis bhajan group, and to this day is used by the Hindu Temple of Central Indiana (HTCI). He was extremely involved in the Indian community, as an active member of Geetha Mandal, HTCI, and the Carnatic Music Association of Indianapolis. He was also one of the founders of Mallige Kannada Koota.

As if music and writing did not keep him busy enough, Ramaswamy took pride in his walking pace. Not only did he do brisk walks every day, indoors or outdoors, he also participated in competitive walks and regularly placed in his age group.

Ramaswamy is survived by his wife Suneela (with whom he enjoyed 60 years of marriage), sons Rajesh and Sanjay, daughters-in-law Gita and Rashmi, and granddaughter Ashvini. He is also survived by 4 brothers and 2 sisters, along with numerous nieces, nephews, relatives, former students, colleagues, and friends.

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Tangirala Ramasarma (1932–2020)

Born on 13 May 1932, in Gudivada (Andhra Pradesh), Tangirala Ramasarma (TR) obtained his B Sc in Chemistry from the Andhra University in 1951. Subsequently his Diploma in Chemical Engineering was from Indian Institute of Science (IISc) in 1953 and Ph D in Biochemistry from the Bombay University in 1956, the work having been done at the institute under the guidance of K. V. Giri. He obtained a postdoctoral fellowship from the National Research Council of Canada in 1956, to work at the Prairie Regional Laboratory (PRL), Saskatoon, Saskatchewan, Canada. He moved to Madison, Wisconsin, USA in 1957 to work on mitochondrial electron transport and energy transduction with David Ezra Green at the famous Enzyme Institute. He joined the Biochemistry Department as a CSIR pool officer in 1959 and

served as a regular staff member from 1962 to 1992. He also served as the Dean, Science Faculty (1982–1984) as well as the Chairman, Department of



Biochemistry (1986–1989). He guided more than 30 Ph D students, many of whom have taken up faculty positions in various institutions within India and

abroad. Several of his students have succeeded as entrepreneurs in industry. One of the most important traits that students learned from him was to have passion for science and how to nurture that passion in others.

His main research interests included cholesterol–ubiquinone inter-relationship with special focus on the regulation of HMGCoA reductase, environmental stress and biochemical adaptation with special focus on mitochondrial function and enzyme regulation as well as the roles of vanadium as a biological oxidant. Protein folding and the hydrogen bond was his favourite preoccupation during his final years before death. His last paper was published a few days before his death. His work, described in over 200 publications, was well received both nationally and internationally as