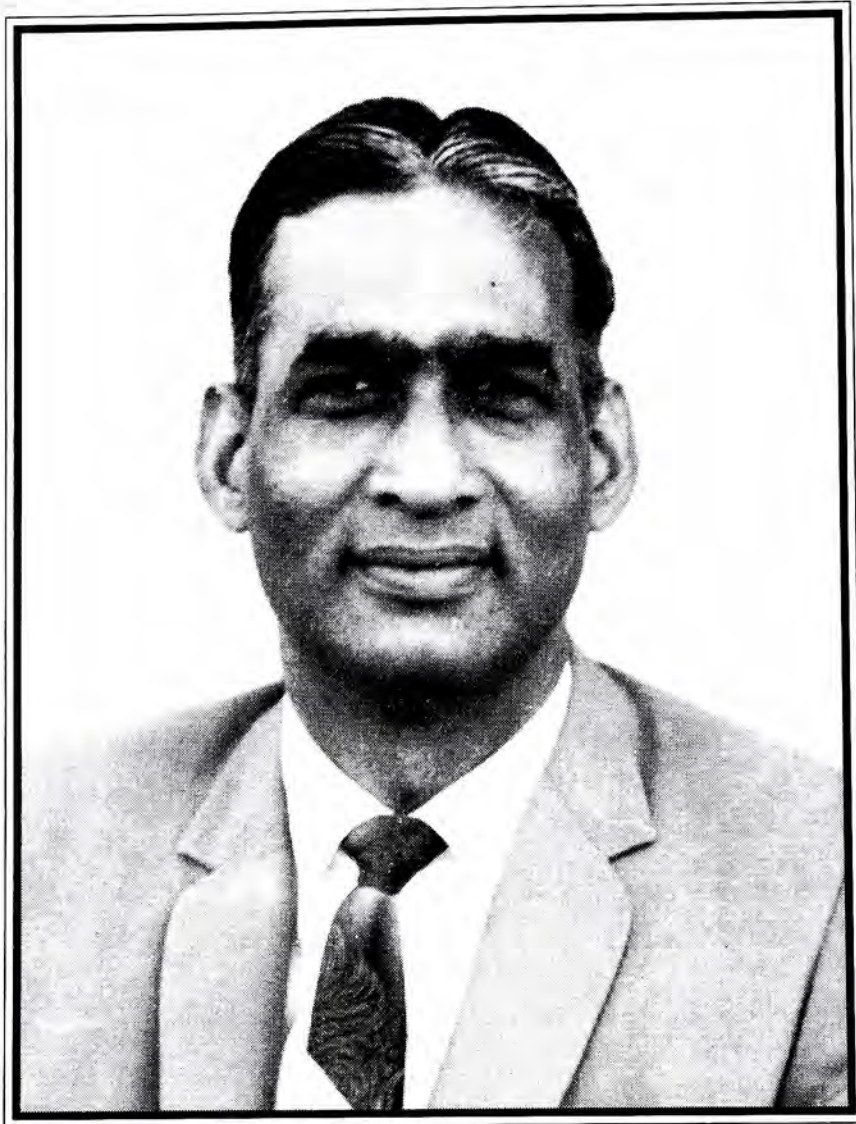


YELAVARTHY NAYUDAMMA

(10 September 1922 - 23 June 1985)

Biog. Mem. Fell. INSA, N. Delhi **28** 1-30 (2005)





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YELAVARTHY NAYUDAMMA

(1922-1985)

Elected Fellow 1975

YELAVARTHY NAYUDAMMA passed away on 22 June 1985 in a tragic air crash caused by the vagaries of human misdeeds on euphemistically termed "terrorism". He was truly the first leather technologist of international standing that India produced. Sri R Venkataraman former President of India wrote of Dr Y Nayudamma (Reminiscences) thus:

"For a man of creative science like Nayudamma and a woman of ideals such as Pavanabai, there can be no final arrivals. They represent great continuums and are not to be mourned. And so when we speak of them in the past tense, it is because grammar of language dictates it and not the grammar of life"

FAMILY BACKGROUND, EARLY EDUCATION AND PERSONAL LIFE

Professor Y Nayudamma was born on 10 September 1922, in a small village called Yelavarthy in Andhra Pradesh as the eldest son of Shri Yelavarthy Anjaiah and Smt Yelavarthy Raghavamma. He had two brothers and two sisters. He hailed from a family of farmers. One of his brothers became a teacher and the other continued the family profession of farming. Nayudamma was imparted a sound vernacular education (in Telugu) in the classical, village genre of those days.

His early education was in Tenali. A young aspiring Nayudamma decided to go to the Banaras Hindu University for higher education. He graduated in industrial chemistry from the Banaras Hindu University, Varanasi in 1942. He seemed to have entertained the idea of becoming a lawyer and seek admission in the Law College in Chennai. While on this mission in Chennai, an accidental meeting with Sri Seshachalam Chowdhry, later a special officer entrusted with the task of establishing the Central Leather Research Institute in Chennai, changed the course of Nayudamma's career. Instead of studying law, Nayudamma started his career in the Institute of Leather Technology (ILT), Chennai, as a staff on a salary of Rs.17/- per month. It did not take much time for Sri Seshachalam Chowdhry, to recognize the potential of young Nayudamma. A decision was made to invest on a great leader to arrive. The decision to establish the Central Leather Research Institute as a laboratory of CSIR had been taken in 1945. Capacity building exercise in leather research had begun. Nayudamma was deputed by the Government of India for advanced training in leather technology in the University of Leeds, UK (1946-47).



the Lehigh University, USA (1947-51). Nayudamma obtained MS and PhD degrees in leather chemistry from the Lehigh University.

He worked with Edwin R Theis in the Lehigh University for his doctoral thesis. He worked on problems associated with elucidation of reaction mechanisms involved in tanning and on shrinkage phenomena. After his graduation in the Lehigh University, Dr Nayudamma underwent training in a leather industrial unit in the USA, working in the shop floor. He valued dignity of labour and the role of personal experience in technology in applied research. He returned to India in 1951.

Married to Srimathi Seetha Lakshmi, Dr Nayudamma started a family. He had two sons and a daughter. Unfortunately, Srimathi Seetha lakshmi died of brain tumor. Later Dr Nayudamma married Dr Pavana Bai, a medical doctor.

PROFESSIONAL CAREER

The Central Leather Research Institute (CLRI), (Madras) Chennai, had been founded in April 1948. The Institute had already started activities from the premises of a rented house. CLRI had also developed links with the University of Madras. The Department of Leather Technology, University of Madras was housed in CLRI. Sri Seshachalam Chowdhry, then in the Institute of Leather Technology, Washermanpet, Madras, became the special officer and was entrusted with the responsibility of building CLRI. The Institute was being built in the present premises in Adyar during 1948-1951. By 1952, CLRI had taken the full shape. Dr Y Nayudamma was at the right place at the right time. He had just returned from the USA after his advanced studies in leather technology. He was, perhaps, the first Indian to have received a PhD in leather technology. He was appointed a Senior Scientific Officer in CLRI in December 1951. Professor BM Das had by then assumed office as the founder Director of CLRI.

Dr Nayudamma, by virtue of being the senior most scientist and Assistant Director in CLRI, played a major role in shaping the future of the institute. He played a central role in higher education in leather technology in India. He became the Honorary Professor in Leather Technology of the University of Madras in 1956. When Prof Das died in harness, Dr Nayudamma had to assume the office of the Scientist in Charge of CLRI at the young age of 34. He had started bringing about major changes in the Institute. He was appointed as the Director CLRI in February 1958 when he was just 35. He was instrumental in developing CLRI as the largest leather research centre of the world and internationally recognized.

Dr Nayudamma, while serving CLRI as the Director, also became an adviser to the United Nations. The Food and Agricultural Organization (FAO) sought consultations from Dr Nayudamma. Under assignments with UN and FAO, Nayudamma contributed significantly to the growth of leather industries in Sudan.



Somalia, Nigeria, Turkey, Iran, Ethiopia, Kenya, Rwanda, Cameroon and other developing countries in the African and South American continents.

In 1971, while he was still 48, Nayudamma was appointed the Director General of the Council of Scientific and Industrial Research and Secretary to the Government of India in charge of DSIR. Till date, he remains the youngest person to be appointed as DG, CSIR.

At the age of 55, after having served as DG, CSIR for nearly seven years (by then a long stint for a DG SIR) Dr Nayudamma chose to return to CLRI as a distinguished scientist and undertake academic responsibilities. He developed the Committee on Science and Technology for Developing Countries (COSTED).

He served as the Vice-Chancellor of the Jawaharlal Nehru University during June 1981 to October 1982. Later, he was appointed the Distinguished Scientist at the Centre for Development Alternatives and functioned from CLRI, from where he retired in September 1984.

SCIENTIFIC AND PROFESSIONAL CONTRIBUTIONS

The research pursuits of Dr Nayudamma were in the area of leather science and technology. His work on the composition and constitution of mineral and vegetable tanning systems as well as mechanism of mineral, vegetable and aldehyde tanning has gained global recognition. His work included studies on physico chemical properties of raw and tanned collagen, co-ordination complexes of chromium, aluminium and zirconium, biogenesis of vegetable tannins, and mechanism of tanning involving protein-tannin interactions. He published by himself and with colleagues 549 research papers and process reports. He was the only Indian to have authored a chapter in the Treatise on Leather Technology, a monograph edited by O'Flaherty. This treatise remains the study material for leather technologists world over till date. He contributed a chapter on shrinkage phenomena. He wrote also a chapter on leather in the Encyclopedia Britannica.

Dr Y Nayudamma was actively involved in the development of products and processes with a focus on import substitution and technological self reliance on the one hand and promotion of export of leather and leather products from India on the other. Focus of research in India during the productive phase of Dr Y Nayudamma was centered on import substitution and promotion of exports. Reverse engineering in industrial research was the common approach. Dr Y Nayudamma was one the most successful industrial chemists of the time. One of his most important contributions in the area of technology development pertains to the innovations in fat liquors required to soften leathers. He was also associated with innovations in development of acrylic resin emulsions for use in leather finishing. At the time their commercial applications, leather chemicals developed by Nayudamma and his colleagues and manufactured by a number of commercial houses in India met



40% of the requirements of India for those class of chemicals. His research made a significant industrial impact in India. He also made several important contributions to the development of new and improved processes for the manufacture of leathers.

Dr Y Nayudamma served as a Consultant to the United Nations as well as the Food and Agricultural Organization (FAO). In these assignments, his advice led to the planned growth and development of leather and allied industries in several developing countries in Africa and South America.

Dr Y Nayudamma was a manager par excellence of Indian research systems in general and industrial research in particular. He innovated and made management practices in CLRI and CSIR a scientific endeavour. He was a visionary in leather research. He introduced Information Technology in leather science in 1968 and designed an industry-institute meet named the Tanner's Get-Together (TGT) rechristened as the Leather Research Industry Get Together (LERIG) in 1965. He led CLRI in organizing Fashion Shows and planned the policy framework for India in shaping the planned growth of leather industry in India.

Dr Y Nayudamma did not confine himself to research in the laboratory. He developed a large number of innovative measures for linking output of scientific research to industrial production and the social cause. His approach stemmed from a personal belief that Science must be interwoven with the social fabric of the country. He firmly held on, and motivated many a colleague, to this unquestionably significant aspect of Indian Science.

Dr Y Nayudamma, as the Director General of CSIR, started several important lead initiatives for CSIR. One of them was in the attraction of talented Indian scientists abroad to return to India for pursuing research in the country. A shining example today is Dr RA Mashelkar, currently DG of CSIR, who was inspired by Nayudamma during an interaction abroad. There have been other such innovative measures taken by CSIR during his tenure as the DG, CSIR. He introduced venture-oriented management practices thereby permitting a scientist of the council to establish his own industry with lead technologies of CSIR. Termed the Scientist-Entrepreneurship scheme, it did lead to creation of a few such business oriented scientists. Science for the common man was the running theme of his work. He augmented the international co-operation segment of CSIR and placed it on a scientific footing.

He was very supportive of R&D Management practices and industrial liaison activities both at the Headquarters and laboratory levels. Under his stewardship the Planning Division of CSIR played a key role in contributing to the concept of R&D Planning and resource allocation among laboratories on a scientific basis.



He was an educationist. He led the committee on technical education, which proposed GATE. This committee made far-reaching recommendations and brought about a major structural change in technical education in India.

AWARDS AND HONOURS

Dr Y Nayudamma had won many awards; they included the Dr KG Naik Gold Medal for research in chemistry 1965, fellowships of the Indian National Science Academy (INSA) and the Indian Academy of Sciences and the National Academy of Sciences and Padma Sri in 1971. He served as the President of the Institution of Chemists and the International Union of Leather Chemist's Society.

SUDDEN EXIT

The end of Dr Y Nayudamma was sudden. He was travelling from Canada to India when the aircraft became the target of terrorists. He died in the Air Kanishka disaster on 23 June 1985 off the coast of Cork in Ireland. The end came too soon for his well wishers to realize as to what had happened.

CONTINUUM

The work and contributions of Dr Y Nayudamma have remained a continuum for all the organizations for which he worked. There have been several people who have worked for CLRI since the time of Dr Nayudamma; but his name is written in letters of gold within the organization and his values remain carved in the hearts of his well wishers in letters of fire. To the men and women, who knew Nayudamma, he never died. To those who have only heard of him, he remains an inspiration for ever. His life in itself is a message for the vast body of his followers and well wishers. Among those for whom the life of Nayudamma is a message is the author of this bibliographic memoir.

ACKNOWLEDGEMENTS

This biographical memoir is largely based on the published record of Reminiscences, edited by Dr NR Rajagopal and Dr G Thyagarajan as well as the original information prepared by Dr Y Nayudamma himself on several occasions. INSA made available some personal records of Nayudamma from which additional information has been sifted. The author, himself, a student who had been mentored by Nayudamma in the early phase of his life, considers it an honour to have been asked by INSA to prepare the memoir.

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