

BALAKRISHNA RAMAMURTHI

(12 August 1904 - 10 August 1990)

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B. Ramamurti



BALAKRISHNA RAMAMURTI

(1904-1990)

Elected Fellow 1955

BALAKRISHNA RAMAMURTI a renowned Mathematician and Applied Statistician passed away on 10th August 1990 after patiently fighting cancer for a decade. He was an outstanding academic and civil servant, known apart from his intellectual clarity, for his legendary integrity and modesty.

EARLY LIFE AND SCHOOLING

Professor B Ramamurti was born on 12th August 1904 to an impoverished Brahmin family in the temple town of Kumbakonam in Tamil Nadu, on the banks of the river Kaveri. His father Mr. A Balakrishna Iyer was a stamp vendor in the Munsiff's court in Kumbakonam with average monthly earnings of about forty rupees. The family meanwhile grew large. Young Ramamurti was one of five brothers, along with two sisters and a half-brother, not counting siblings who fell victim to infant mortality.

Survival with dignity of such a large family on such a stringent budget was possible largely because Ramamurti's father, Mr. Balakrishna Iyer was an exceptionally austere and disciplined person. Strict meal and bed timings were rigidly enforced so that scarce resources of food and fuel were not wasted. The home environment was peaceful and no one starved, but there was little room for frivolity. Ramamurti's mother Sengammal, a lady of great courage and will power who eventually lived to be a hundred, managed the household within the miniscule budget and the stern disciplinary requirements of her husband.

A man with very little formal education, Balakrishna Iyer nevertheless commanded great respect in the neighbourhood because of his personal integrity and simplicity of lifestyle. He was a fervent devotee of Lord Rama and yet neither an avid temple goer nor a performer of elaborate rituals. His devotion to the Lord was expressed only through hours of contemplating his name and image. Young Ramamurti inherited many of these values of simplicity, modesty and self effacement, although his demands of austerity from his own children turned out to be far less strict than that of his own father. But idle gossip, bragging, even watching movies let alone whistling film songs were frowned upon by Dr. Ramamurti even when he headed his own family.

When Ramamurti finished his schooling from Banadurai High School, he was the first member of his family to do so. In their economic bracket, that



considered a significant achievement, enabling the person to seek a clerical position in the government. That would have provided job security and a steady salary which would have doubled the family income. But Ramamurti performed so well in his school examination that his father, although he himself did not have the benefit of much formal education, decided that Ramamurti should be encouraged to go ahead and pursue further studies even if it meant tightening the family belt further.

UNDERGRADUATE AND POST GRADUATE EDUCATION

Thus encouraged by his father and his school teachers, Ramamurti joined the Government Arts College at Kumbakonam where he first completed his Intermediate degree followed by his B.A. He was supported by merit scholarships throughout. His Professors S A Mani Iyer and P R Krishnaswami Iyengar provided further encouragement at College.

His brilliant performance as an undergraduate led to higher studies. He was offered a scholarship to do his Master's degree in mathematics at St. Joseph's College in Trichy (Thiruchirapalli).

He completed his M.A. (Math) degree from St. Joseph's College in 2 years, standing first class first in all colleges of Madras University combined. He specially benefited from his teachers Father Provo and Mr. Totadri Iyengar.

For his scholastic achievements he was awarded the prestigious Stuart Prize of the University in 1927. (The 1920 edition of the classic book "Modern Analysis" by Whittaker and Watson, given to Ramamurti as part of the Stuart Prize is still being actively, albeit gingerly, used by his family members!) He was also awarded the P. Muniswamy Chetty Gold Medal by Madras University.

After his master's degree he started research and teaching in Mathematics. He was guided by the distinguished Mathematics Professor of Madras, Dr. R. Vaidyanathaswamy, the Mathematics Dean at Madras University. Some years later Ramamurti submitted his collected papers for a doctoral degree and was awarded a Doctorate of Science in Mathematics by Madras University in 1935. His work was further recognised by the award of the Ramanujam Prize for the best original research in mathematics in 1936.

Thus it happened that Ramamurti, coming from a family of strained financial means where no one else had entered college before, went on to earn the highest of academic degrees. He owed this in large measure to the enlightened support of his father Balakrishna Iyer and his elder brother Rajagopala Iyer who bore his living costs during his stay in Trichy as an M.A. student.



TEACHING AND RESEARCH IN MATHEMATICS

After completing his master's degree, Ramamurti wanted to continue with the life of an academic rather than take a governmental administrative career. So he joined Sri Meeenkshi College near the temple town of Chidambaram, as a Lecturer in Mathematics in 1927. By 1929 Meenakshi College was enlarged and transformed into Annamalai University through the vision and generous endowments of Rajah Sri Annamalai Chettiar. It was then the only university in the erstwhile Madras Province with full on-campus training of students at all collegiate levels across a wide spectrum of disciplines (Madras University did very little teaching of its own - overseeing instead the teaching at its numerous affiliated colleges).

The mathematics group at Annamalai at that time had a few other active researchers, including the distinguished mathematician S S Pillai. Dr. Ramamurti found the atmosphere conducive to his own pursuit of mathematics and a quiet academic life. He got married to Smt. Sitalakshmi. They were a devoted and happy couple. They lived in a small house located in an open field in Thiruvakulam village bordering the university campus, with fresh air from the distant Bay of Bengal. The house faced a pretty temple tank with nice steps and lotuses - used for the daily bath. A Shiva temple was only ten yards away and music wafted from a music college just a few houses away.

The customary apparel recommended by the seniors for young academics in those colonial times consisted of trousers, jacket and shoes, and in the case of Dr. Ramamurti also a white turban to shelter the long and rich tuft of hair on his head. The customary mode of travel was a bullock cart, but the required western dress with shoes made it very inconvenient to squat in carts. Like some others in his age group Dr. Ramamurti learnt to ride a bicycle, which was to be his mode of travel for the rest of his professional life in India.

Dr. Ramamurti taught and did research in Mathematics at Annamalai University for over a decade between 1927 and 1939. He lectured on geometry, calculus and dynamics. He was a very popular teacher in that he took pains to prepare for each class, and work out examples in class in great detail. A typical example mentioned by his contemporaries in the family is his staying up nights to make a cardboard model of a tetrahedron for his spherical trigonometry class.

His main research interests were in Geometry, particularly Rational Norm Curves in an arbitrary number of dimensions. He worked on the rank and other aspects of quadrics related to Norm curves. He also discovered several properties of Binary Quartics. On a separate front he was actively interested in Abelian Groups. He also discovered a theorem on the newly emerged subject of spinors. The 20-odd publications from this period are given in the Bibliography at the end of the Memoir. His doctoral thesis based on some of the research during this period was submitted



under the title "Invariant Theory and Geometry of Norm Curves in N-dimensions", and earned him a D.Sc. from Madras University in 1935. He was an active member of the Indian mathematics community in the thirties, regularly attending the Annual Science Congress, which in those days was an occasion for genuine scientific interaction.

But at a personal level, his happiness at Annamalai was very short lived. In 1935, within a few years of marriage, his young wife Smt. Sitalakshmi died during child birth. This loss left Dr. Ramamurti devastated. On top of that, the infant daughter born out of that tragic delivery also did not survive for long. For a long period Dr. Ramamurti stayed in a state of gloom, focussing his energies only on work. Eventually, he was persuaded to remarry and got married to Smt. Visalakshi.

MOVE TOWARDS STATISTICS AND GOVERNMENT SERVICE

From the day he started earning a salary, Dr. Ramamurti contributed a significant portion of it to his father and brothers to augment their limited incomes. His father's income had dwindled and his older brothers who had married and set up their own households had modest salaries in clerical positions and spawned large families of their own. The pressure was mounting on him from this larger family unit, notably from his strong willed mother Sengammal, to give up the academic life and move to the relatively greener pastures of a government career in order to be able to contribute more money to the larger family. His Annamalai salary in the scale of Rs. 100-200 was inadequate for supporting several other branches of the larger family on top of his own.

Obligations to family were paramount in those times, especially in tight knit, conservative and disciplined families. Dr. Ramamurti's own modest persona led him to feel that pursuit of his own intellectual interests and potential was a selfish luxury. He felt that in having been allowed to study for years, and not asked to take a job immediately after high school, and allowed to do research and teaching for so many years after studies, his parents had already indulged him a great deal.

In addition, as mentioned above, his life at Annamalai University had also been clouded by very major personal tragedies. It made sense to move somewhere else with his wife Visalakshi, and begin a new life.

He therefore acceded to the wishes of his mother and began a gradual shift towards government service. As a first step, he moved to Ajmer in 1939 to join the Government College there as a Professor of Statistics. Apart from his teaching and other duties as Professor, he also conducted his first economic survey—of rural Rajasthan, in 1941. After four peaceful years at Ajmer he moved to New Delhi in 1943 to join the central government as an expert on statistics. He steadily rose from his first position as a Progress Officer in the post war Supply Department, to being



Deputy Director, Statistics in that department. Part of this period had also to be spent in Simla.

He was then promoted and transferred in 1947 to the Ministry of Labour as a Statistician and officiating director of the Labour Bureau. Finally in 1951, he was made Joint Director of the Central Statistical Organisation (CSO), in the Cabinet Secretariat of the Government of India. There was no Director, and the responsibility of building the CSO was given to him along with his co-Joint Director, Mr. S. Subramaniam.

BUILDING INDIA'S MASSIVE STATISTICAL PROWESS

India is world renowned in the field of Statistics -- both in the academic disciplines of pure and applied statistics as well as for its massive governmental apparatus for gathering information on all aspects of the country. This includes the famous National Sample Survey (NSS) and the nationwide Census conducted every 10 years. It was soon after independence that the Indian government realized the great importance of obtaining data on all economic and social indicators of the country reliably and efficiently to enable the execution of its policy of a planned socialist economy, anchored by a series of Five-Year Plans. Given the vast size of the country and its huge population dispersed in thousands of rural and urban areas, what was needed was a massive and well-organized structure.

Professor Ramamurti contributed greatly to building up this prowess. His first major contribution in this direction was undertaken in 1950-51 at the Labour Bureau, when he designed and conducted the First All-India Agricultural Labour Enquiry. It covered 800 villages and 11,000 households, selected on the basis of stratified random sampling. The results, the first of their kind, were published in seven volumes.

After he was appointed Joint Director of the nascent Central Statistical Organisation (CSO) in 1951 Professor Ramamurti helped build the methodology and infrastructure for gathering nation-wide statistics, processing it and conveying it in a useful form to various government departments and agencies. With the invaluable support and guidance of Professor P.C. Mahalonobis, the architect of the national planned economy, he set the stage for the CSO growing into the full fledged Department of Statistics that exists today.

CONTRIBUTIONS ON THE INTERNATIONAL STAGE

1. ECAFE in Bangkok (1957-63)

After spending about fifteen years helping build India's statistical structure, Professor Ramamurti moved to the international arena as the United Nations Regional Statistician for Asia and the Far East. Located in Bangkok, Thailand, he was



in charge of the development of Statistics in a vast region ranging from Iran in the west to New Zealand in the east. He coordinated the work of Regional Advisors for the Censuses and Industrial statistics. He also organized a series of conferences of Asian Statisticians along with working groups and seminars devoted to statistics in this vast geographical region containing both developed and developing countries. Among the many specific contributions of Professor Ramamurti during this period were the 1960 Census of population, the 1963 World Programme of Industrial Enquiries, promotion all over Asia of scientific sample surveys in which India was a pioneer, initiating studies of National Accounts and preparation of training courses and manuals for use in the region.

2. Lagos, Nigeria (1963-1966)

In 1963, Dr. Ramamurti was invited to set up the statistical organization in Nigeria as their Chief Statistician under the United Nations OPEX scheme. This scheme was designed to enable developing countries hire distinguished experts from other countries to head their internal governmental organizations during their start-up phases. Along with setting things up and getting the organization going, this expert was expected to train a senior local person to succeed him. In his capacity as Chief Statistician of Nigeria, Professor Ramamurti was not merely an advisor, but had executive authority as a senior officer of the Nigerian government.

He began Nigeria's National Programme of Statistics Development geared to the needs of that country's national planning, and in consultation with their Federal and regional agencies. These integrated programmes implemented over the next few years included the conduct of national sample surveys including demographic, rural economic and labour force surveys. In cooperation with the University of Ibadan, training courses were set up for officials of the budding Statistics department of Nigeria. A Deputy Chief Statistician was given on-the-job training to take over as Chief Statistician after Prof. Ramamurti completed his tenure. This post, the last Prof. Ramamurti held before retiring from formal jobs, was the most satisfying of the civil service positions in which he had served, freed as it was of bureaucratic harassment. The Nigerians accepted Prof. Ramamurti's training and leadership with grace and gratitude.

POST RETIREMENT WORK

In November 1966, after completing his tenure as Chief Statistician of Nigeria and having given their Statistics Department a robust start, Dr. Ramamurti retired from formal full-time positions. But he continued to be active for well over a decade after that, serving on various national and international committees. These included being a member of the Fuel Policy Committee and the National Agricultural Statistics Committee of the government of India, and the four-member UN Expert Committee on Post Adjustment.



PERSONAL LIFE AND THE END

Professor Ramamurti led a very quiet life, free from any controversy either on the personal or the professional front. Although his record as an academic and later a technocrat testifies to a brilliant mind, his was not a flamboyant personality. He was exceptionally modest. By nature he was a retiring person, who did not have a large social circle. If he had only a few close friends, he also had no enemies.

His unassuming personality often led to his being overshadowed by others more extroverted or charismatic. This too he accepted without rancour as a part of life. The only thing he was heard to occasionally complain about was harassment by bureaucrats on petty matters. Those were the days before technical people found their due place in the governmental machinery. There were hardly any "science secretaries" then, no high tech public sector undertakings nor a body of technocrats. Someone who was "only a mathematics professor" was viewed with indifference by the average bureaucrat and had to struggle for minimal working facilities even though he was building what has now grown into a large full-scale department, crucial for economic policy making and the governance of our country. Throughout his career in India, he had no car and no refrigerator at home. The most complicated appliance at home was a used pre-war radio set purchased second hand from his pre-independence British boss. Financially his life was a constant struggle, since he had to provide not only for his wife and a large brood of six sons, but also different segments of his larger family. But following one of the principles inherited from his father, he never borrowed money, never took bank loans and saved 10% of his salary every month come what may. The family enjoyed no luxuries, but was never short of food, nor the boys of school books.

He was very fortunate in that his wife Smt Visalakshi was an exceptionally intelligent and capable lady. Given the opportunities available for middle class girls today, she could have easily gone on to manage some large organisation. Born to an unusually liberal father who believed in encouraging his daughters to study as far as they wanted, she would probably have gone on to college had not her father prematurely died, throwing the family unexpectedly into financial distress. The daughters had to be quickly married off, and Smt. Visalakshi had to shift gears and adapt herself to matrimonial responsibilities. This she did with grace and devotion to her husband and family, managing everything from the kitchen to household repairs and domestic accounting, leaving her husband to concentrate on his work. It was her tremendous capability that enabled the family to survive honourably within its limited budget.

Once Dr. Ramamurti retired from the Indian government and went abroad in the last years of his career to Bangkok and Nigeria, his financial situation improved greatly. He was able to purchase a car, the much coveted refrigerator and a house in India.



His last years were spent in relatively financial comfort in Chennai. As a man of regular habits and a vegetarian who never smoked or consumed alcohol, he was in good health generally. But demon cancer, which respects no rules, attacked him in his mid-seventies. He struggled patiently for a decade with cancer, and worse, the medical treatment for it, under the devoted care of his wife, before expiring on 11th August 1990 at the age of 86.

He left behind his wife Smt. Visalakshi and five of his six sons, his second son Ramnath having passed away earlier of a brain aneurysm. Of the five surviving sons three are professors like their father, two of them holding endowed chairs in leading universities in the US. The other two sons went into administrative work, one of them was first in the IAS and later a senior technocrat with an international organisation. His eldest son, following his father's footsteps, was elected a Fellow of INSA three decades later.

AWARDS AND HONOURS

- Pitti Muniswamy Chetty Gold Medal (1927)
- Stuart Prize for standing first in the University in Madras (1927)
- Ramanujam Prize for the best original research in Mathematics, Madras University. (1935)
- Elected Member of International Statistical Institute (1955)
- Elected Fellow, National Institute of Sciences of India (NASI) (1955)
- Alternate Delegate to the United Nations Statistical Commission 1956
- Vice-Chairman of the ECAFE Conference of Statisticians 1956
- Member, International Labour Organisation Committee on the Determination of the States of Chief Industrial Importance
- ILO Committee of Statistician Experts
- Member, Committee for the compilation of the Index Number of Wholesale Prices (Ministry of Commerce & Industry)
- Working, Group on Manpower Studies Technical Training (Planning Commission)
- Research Programme Committee (Planning Commission)
- Agricultural Prices Enquiry Committee (Min. of Food & Agriculture)
- Port and Shipping Statistics Committee (Min. of Transport)
- Committee of Departmental Statisticians



- Inter-Departmental Committee on Official Statistics
- Member U.N. Expert Committee on Post Adjustment
- Member Fuel Policy Committee, Govt. of India
- Member, Agricultural Statistics Committee, National Agricultural. Commission, Govt. of India
- After retirement, invited Expert Member of the United Nations four- member Expert Committee on Post Adjustment for seven years ending 1978

Representing India in Conferences:

- UN Statistical Commission
- UN Seminar on Statistics
- ILO Expert Committee
- ILO Seminars
- Commonwealth Conference of Statisticians, 1951 & 1956

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