

## Adayapalam T. Ganesan 1932-1991

Adayapalam Tyagaraja Ganesan, Professor of Genetics, died of an apparent heart attack at home on December 1, 1991 at the age of 59. Thus ended abruptly his 30 years of dedicated service in teaching and research in the Genetics Department at Stanford. At various times during his life he had been plagued by ill health. In 1981 a series of life threatening bouts with asthma began. He bore these afflictions with courage and wry humor. Gradually the attacks abated and he began to recover from the effects of the disease as well as the massive doses of steroids used to treat it. His courageous and successful comeback to full-time effort was a relief and inspiration to his friends and colleagues at Stanford who deeply feel his loss as do the many people world-wide, whose careers he influenced and lives he enriched. He was greatly appreciated for his candor in all matters and his good humored approach to life.

Gan, as he was affectionately called by students and colleagues, was born in 1932 and spent his early life in Madras state in India. He was a descendant of Appayya Dikshitar of Adayapalam. He attended Annamalai University in Chidambaram, Tamil Nadu, where he earned a Bachelor of Science (Honours) in 1953 and a Masters degree in Botany in 1954. He worked in yeast cytogenetics as a Research Fellow at the Indian Institute of Science in Bangalore before joining the Plant Tissue Culture section of the Department of Genetics of the Indian Agriculture Research Institute in New Delhi, where he carried out work on the embryo culture of jute in collaboration with Dr. M.S. Swaminathan. He was awarded a Rask-Ørsted Foundation Fellowship to study yeast genetics from Ojvind Winge at the Carlsberg Laboratory in Copenhagen, Denmark, where he also studied cell physiology with Heinz Holter and protein chemistry with Kaj Linderstrom-Lang. His early papers dealt with the kinetics of mitosis, the process of sporulation, and the cytology of the life cycle of yeasts. He was known for meticulous attention to detail and his persistence in striving for perfection in his research. When he applied for graduate study, one of his recommenders wrote: "His cytological preparations are of a high degree of excellence, and I have never seen any which surpass them."

He joined the Department of Genetics at Stanford Medical School in 1959 as a graduate student under Joshua Lederberg. Upon completion of his Ph.D. in 1963 he stayed on as a Postdoctoral fellow and Research Associate in Genetics. In 1965 he was appointed Assistant Professor in the Genetics Department, in which he advanced to Associate Professor in 1970 and then Professor in 1976. Between 1975 and 1985 he participated in the US-USSR, US-Japan, US-France, and US-India exchange program conferences. In 1975-76 he was a visiting



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scholar in the Department of Biochemistry, Oxford University, England, and in 1978 he was a visiting professor at the University of Pavia, Italy.

The contiguity of the Genetics and Biochemistry Departments in the Medical School and the commonality of interests in microbial biochemistry and DNA replication brought him into intimate contact with the students and staff of several Biochemistry research groups, including those of Dale Kaiser, Arthur Kornberg and Robert Lehman. In recent years, with his focus on DNA polymerase III and germination in *B. subtilis*, Gan became a contributing member at the weekly research meetings of the Kornberg group.

In 1988 Gan helped to set up the Biotechnology Center at the Indian Agricultural Research Institute in New Delhi. He served generally as a consultant to the Food and Agricultural Organization of the United Nations with regard to biotechnological applications in agriculture for third world and developing countries. He ran an advanced course on Recombinant DNA technology in Agriculture in 1989 in New Delhi. These activities were representative of his continuing devotion and feeling of responsibility toward his homeland. In addition to his very full schedule of research and teaching activities at Stanford, he always felt an obligation to bring to India some of the benefits of his extensive training and experience. He returned to India as frequently as possible to share his professional expertise and to visit his family in Thanjavur.

Ganesan became one of the internationally recognized leaders in research on the Bacilli. He carried out important early studies on the mechanism of genetic transformation in *B. subtilis* in the course of his graduate research. He then moved into the field of DNA replication and repair. He was one of the first to provide evidence for the membrane association of bacterial DNA. With his student, Phil Laipis, he isolated and characterized the first *B. subtilis* mutant deficient in DNA

polymerase I. He then identified both Polymerases II and III in these bacteria. He also characterized the genome and replication properties of several bacterial viruses. He was one of the first to engage in the introduction and characterization of prokaryotic genes in mammalian cells. Ganesan won a Research Career Development Award from the National Institutes of Health and an American Lung Association Research Award in recognition of his research contributions and the promise of more to come.

A masterly achievement with wide repercussions was his organization of six international conferences on the Genetics and Biotechnology of Bacilli with over 300 attendees, four of them held at Stanford. In collaboration with Dr. J.A. Hoch he secured the funds, organized the program, housing and entertainment, edited five volumes of proceedings and brought off these complex events with minimal confusion and universal approbation. One of his favorite tasks was designing the announcement posters and covers for the Abstract booklets for the conferences.

Although his primary professional commitment was to first rate scientific research Ganesan was also well-known and admired by his students as a deeply committed teacher. Much of his teaching was with small student groups and individuals in the laboratory. However, for many years he taught a very popular lecture course in cytogenetics, which emphasized experimental approaches to the field. His students remember him for his informal friendliness and sense of humor as well as for his demand for rigor in their scientific work with him.

Gan was a superb experimentalist ranging with technical proficiency from cytology and microbial genetics to enzymology and site-directed mutagenesis. He was equally proficient in the kitchen, an outstanding chef with cuisines that included a variety of European and unique Indian dishes. As a naturalist, he nurtured a variety of animals exemplified by an iguana that grew to six feet and a feeding station for wild raccoons in his yard. For less green-thumbed friends, he maintained an intensive care unit for their ailing orchids.

Ganesan was a warm, sensitive human being who related with genuine excitement to the world about him. He was a member of the World Wildlife fund and he was keenly interested in supporting animal welfare and wildlife. He also had interests in photography, wood carving, and music. He had served on the board of directors at Ali Akbar College of Music in India since 1987 and also supported the college in many other ways.

In 1963 Gan married Ann Katharine Cook, currently a Senior Research Scientist in Biology at Stanford. He is also survived by his mother, Savitri, a sister and three brothers in India, and another brother in The Netherlands.

**Phillip C. Hanawalt, Chair  
Arthur Kornberg  
Joshua Lederberg**

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