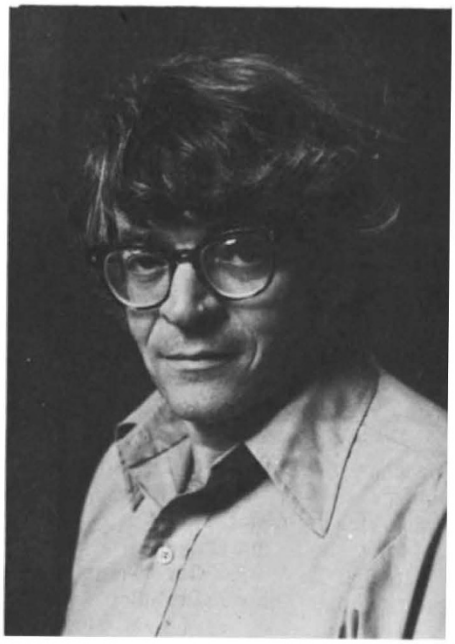
obituary

Gordon Mayer Tomkins of the University of California, San Francisco, one of America's most distinguished biochemists and a pioneer research scientist in the field of hormone activity, died in New York City, July 22, 1975. He was 49 years old. He had been ill since undergoing brain surgery in late May.



To his colleagues in scientific institutions all over the world Dr Tomkins was an extraordinary individual. He was a physician, a highly creative scientist, a teacher of unparalleled enthusiasm and an accomplished musician who played both classics and jazz with distinction.

Dr Tomkins was born in Chicago and received an A.B. degree in Philosophy from UCLA, an M.D. degree from Harvard Medical School and a Ph.D. degree from the University of California, Berkeley. He spent 16 years at the NIH, Bethesda, Maryland, and left there in 1969 as Chief of the Laboratory of Molecular Biology, National Institute of Arthritis, Metabolism, and Digestive Diseases, to join the University of California, San Francisco, as Professor of Biochemistry.

He served on numerous editorial boards for scientific journals and periodicals and was the recipient of many honours, including the Mider Lectureship (NIH, 1969); the Jesup Lectureship (Columbia, 1971); the Harvey Society Lectureship (Rockefeller, 1972); the Prather Lectureship (Harvard, 1972); and the Baker Lecture (Cornell, 1975).

His scientific contributions encompass broad aspects of biological chemistry and molecular biology. His first publications described the regulation of cholesterol biosynthesis by diet. From this early involvement with sterols developed his intense interest in steroid hormones and their molecular mechanisms of action. He described the now important enzymatic reductions and hydroxylations of steroids and soon after introduced the concept of and provided evidence for a low molecular weight compound, such as a steroid hormone, specifically changing the conformation of a protein molecule. This concept, subsequently termed allostery by others, is an important one not only in endocrinology but for most of molecular biology and biochemistry.

He was responsible for developing a system in which the mechanism of steroid action and the regulation of gene expression can be studied in continuously cultured mammalian cells, a system which is widely used in research laboratories today and which in recent years he extended to the selection and isolation of mutant cell clones with altered responses to steroid hormones and cyclic nucleotides. This approach is providing insights to many of the fundamental problems in endocrinology and is playing a significant role in the further acquisition of knowledge in fields of genetics, cellular and developmental biology, and cancer.

Equally important were his theoretical contributions to a variety of biological and medical fields. He introduced the idea that the regulation of the levels of specific proteins might occur at steps subsequent to the formation of their messenger RNA molecules. From a consideration of the problem of the transformation of a normal cell into a malignant or cancerous one with uncontrolled growth, he developed a unifying theory of growth regulation termed 'pleiotypy' by which a normal cell, unlike its malignant counterpart, coordinates a diverse set of intracellular reactions to arrest its growth in response to extracellular conditions. In his final theoretical contribution, he described a plausible mechanism to account for the evolution of hormonal regulation, that is characteristic of multicellular organisms, from simple unicellular organisms.

His impact on medical research has been generated not only by his training and education of numerous esteemed scientists and physicians throughout the world but also by the unusual excitement about science that he created among colleagues and acquaintances.

To those who knew him scientifically, his death is the loss of exciting ideas; to those who knew him musically, the loss of distinguished talent; to those who knew him personally, the loss of intellectual brilliance, extraordinary wit, great warmth and charm. To those who were fortunate enough to experience all of these various gifts, his death is the end of an era.

Reiji Okazaki, the Japanese molecular biologist, died on August 1 at the age of 44.

Okazaki arrived at the forefront of molecular biology in 1966 with his discovery that the synthesis of new DNA strands during the process of DNA duplication seems to occur in rather short sections (now known to everyone as 'Okazaki pieces') that only later are joined together to make the long uninterrupted strands of the finished product. This finding explained how two new strands of opposite polarity could be synthesised at a single locus travelling in one direction along the parental double helix, and it therefore reconciled the properties of DNA polymerase with the large-scale structure of replicating DNA. Since then he had worked indefatigably to determine what is the direction of synthesis of the short pieces of DNA, how they are started and how finally they are joined together. These experiments involved a very high level of technical sophistication and were followed with great interest by all workers in the field. Okazaki was a schoolboy in Hiroshima when the bomb was dropped and this may have been the cause of his death, from leukaemia—a young man still at the height of his powers. At the time of his death he was professor of molecular biology at Nagoya University in Japan.