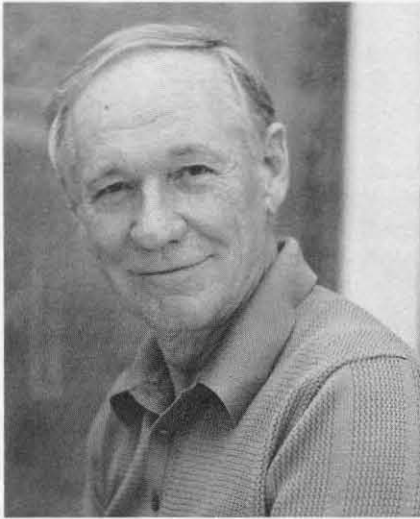


Retirements — 1984



Herschel K. Mitchell

HERSHEL MITCHELL came to Caltech as a senior research fellow in 1946 along with George Beadle. His research at that time concerned biochemical genetics, as did Beadle's, specifically the relationship between genes and enzymes. Working with the bread mold *Neurospora*, he investigated the biochemical pathways of genetic mutations and is co-author of the first textbook on gene-enzyme relations.

Mitchell had previously been a research associate at the University of Texas from 1941 to 1943, where his research involved the isolation and synthesis of B vitamins (he produced the first synthesis of the B vitamin, pantothenic acid), and a research fellow at Stanford for three years before Caltech. He was made associate professor in 1949 and full professor in 1953. In June 1984 he became professor of biology, emeritus.

In the late 1950s Mitchell turned his attention to developmental biology, making use of the fruit fly *Drosophila melanogaster*. His major work in recent years involved the discovery that a heat shock on living cells temporarily turns off the expression of most genes, but at the same time it turns on the expression of a small number of specific genes. The latter produce proteins that are conserved

among many species and apparently have roles in protection against environmental stress. His heat-shock research with fruit flies is providing insights into the mechanisms that cause birth defects and control cancer cells.

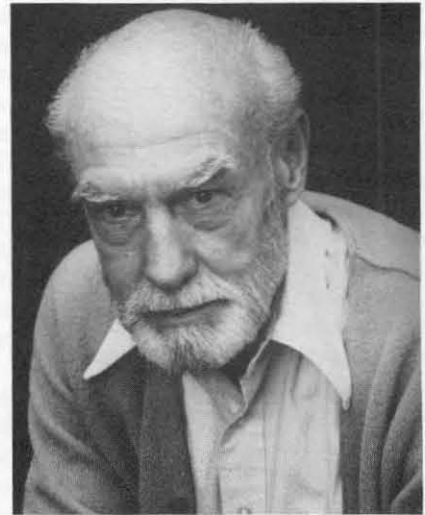
Mitchell has taught the biochemistry laboratory at Caltech for many years. His AB is from Pomona College (1936); he received his MS in 1939 from Oregon State College and PhD in 1941 from the University of Texas.

He's also known around campus for his talents as a glassblower and for his enthusiastic participation in sports. He expanded a chemists' baseball team in the Pasadena Recreation Department league into a campus-wide program including basketball and volleyball as well, which thrived for 25 years before being taken over by the graduate student organization. Also among the regular players was Roger Sperry.

Roger W. Sperry

NOBEL LAUREATE Roger Sperry, who became Board of Trustees Professor of Psychobiology, Emeritus, in 1984, was captain of the basketball team during his undergraduate years at Oberlin College, and also played varsity baseball, football, and track. After his AB in English in 1935 and AM in psychology in 1937 (also from Oberlin), he earned his PhD in zoology from the University of Chicago in 1941.

Sperry joined the Caltech faculty in 1954 as Hixon Professor of Psychobiology. He had been on the Chicago faculty since 1946, with a joint appointment at the National Institutes of Health from 1952, and was previously at Harvard and the Yerkes Laboratories of Primate Biology. In his earlier work with visual perception Sperry demonstrated that the circuits of the brain are largely hard wired, that basic patterns are fixed in early development and cannot be modified by subsequent experience. This basic determinism of the brain discovered by Sperry is "loaded with meanings at

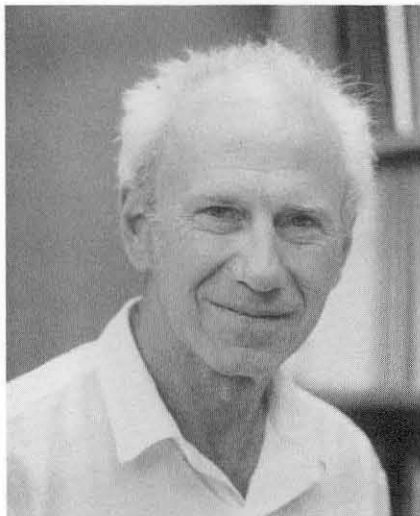


many levels and raises many fascinating and still unsolved questions," said Norman Horowitz, professor of biology, emeritus, at the May faculty dinner. "It would be nice if, in his next incarnation, Roger returns as a molecular neurobiologist and solves some of these problems."

Sperry won the Nobel Prize in Physiology or Medicine in 1981 for his work on the functional specialization of the hemispheres of the brain. The two halves, normally connected by a large band of fibers (corpus callosum), transfer information between them and are usually in agreement. By means of ingenious tests with subjects whose corpus callosi had been severed, Sperry and his students demonstrated that each hemisphere is a conscious system with its own character and function, the left half dominant in language, mathematics, and analytic and sequential reasoning, and the right one superior in spatial, conceptual, and creative tasks. Sperry's most recent work on a changed theory of the relationship between mind and brain and its value implications helped spark the "consciousness revolution" of the 1970s in behavioral science, bringing a turnaround in the scientific status and treatment of consciousness.

Charles H. Wilts

CHARLES WILTS is described in *The Climber's Guide to Caltech* as "probably more knowledgeable about every toehold, finger space, and ledge on campus than any other man at the Institute." Known as a "master



climber on the techniques and teamwork of the sport," Wilts has also taught a popular PE course in rock climbing and lists among his publications the *Climber's Guide to Tahquitz Rock*.

Wilts has spent his entire career at Caltech — long enough to learn every toehold and ledge on the older buildings; the modern ones, he claims, don't offer many realistic climbing routes. He earned all of his degrees here — BS (1940), MS (1941), and PhD (1948), all in electrical engineering — and became a member of the faculty immediately thereafter. Promoted to associate professor in 1952 and professor in 1957, he was named professor of electrical engineering and applied physics in 1974. In 1984 he became professor of electrical engineering and applied physics, emeritus. Wilts has also served as chairman of the electrical engineering graduate studies committee (1967-70), vice chairman of the faculty (1970-71), and executive officer for electrical engineering (1972-75).

Initially Wilts worked on the development and application of large-scale analog computers. His research since 1960 has primarily concerned ferromagnetism in metals and alloys with an emphasis on thin films as a research medium, most recently concentrating on ferromagnetic resonance as applied to single crystals. He developed a mathematical model of spin waves in materials with depth-dependent magnetic properties. His technique can be applied to measure these properties — for example, in garnets, which are used in bubble memories, and in other magnetic materials used in recording technology.