

fly-fishermen in America.

His favorite waters were in Idaho, where he went fishing every summer or fall until he was well into his 80's. He had a fund of fishing stories, many from the days before southern California was so populated: of driving to Hot Creek near Mammoth when the road from Mojave was unpaved; of steelhead trout running in the San Gabriel River; of catching brown trout in Bouquet Canyon; and of many successful trips for brown and rainbow trout to the San Gabriel River before the great flood of 1938.

His greatest fishing tragedy was the failure to land the largest trout he ever hooked. He describes the incident in his book. The brown trout, a monster nearly a yard long, was lost because of a bungling attempt at netting the fish by an inexperienced fishing companion. It is characteristic of Michael that he did not identify the angler who failed him at such a crucial time. In later years he would identify the stream capable of growing such a giant fish, but the unfortunate net handler was never named. At the age of 90, Michael's advice to his young friends was, "Get in all the fishing you can, while you can."

Professor Michael is survived by a son, William D. Michael, who is professor of psychology at the University of Southern California.

Bill Michael led a full and active life, pursuing, with excellence, both his vocation and his avocation. He will be missed and remembered by those who had the privilege of knowing him.

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*Paul Jennings is professor of applied mechanics and civil engineering and executive officer for both of these options at Caltech. He is also, like Michael, a devotee of fly fishing.*

## Don M. Yost

1893 - 1977

A Tribute by Terry Cole

With the passing of Don Yost, professor emeritus of inorganic chemistry, on March 27, the Institute lost one of the few remaining links with its beginnings. Don served Caltech, chemistry, his country, and the cause of scholarship for over 50 years. He is survived by his widow, Marguerite; children, Max Caley Yost and Helen Marguerite Yost; and two foster children, William Neal Yost and Bettie Yost Long. As Don's last graduate student, I am honored to commemorate his career.

It has always seemed to me that Don's pioneer youth had a profound influence on his character and unique approach to science. He was born in the village of Tedrow in northwestern Ohio. By 1899 economic conditions forced his father to give up farming there and move, first to the lumbering camps of northern Wisconsin, and finally, in 1902, to a ranch in the Boise Basin of southwestern Idaho.

Don's often-interrupted education continued at a frontier school near the ranch. Its enrollment consisted of about ten children and a half dozen wintering cowboys. He once remarked that the lessons were far from memorable, but the exhibitions of fancy horsemanship by the cowboys at noon recess were always exciting. During high school Don acquired his enduring fascination with mathematics and languages so familiar to later generations of his students. Although no science courses were offered in those days, he taught himself enough electrical theory to build a crystal radio set using galena crystals he found in the surrounding mountains.

In the summer of 1914, his accep-

tance in hand and the \$10 out-of-state tuition paid, Don arrived, via rail and steamship, in San Francisco to begin his college education at UC Berkeley. His freshman year was decisive; by the summer recess he had found his calling through the inspired teaching of his chemistry professor, Joel Hildebrand, and a young lab instructor, Richard Tolman.

During his second year Don met, and in the following year married, Susan Marguerite Sims, later affectionately known to his students as Mamacita. A month after their marriage the United States entered World War I, and Don enlisted in the Navy, where he served for three years. He graduated from Berkeley in 1923.

At the urging of Professor Walter Bonner of the University of Utah, where Don spent his first year as a graduate student, he applied for graduate work with Arthur A. Noyes at the fledgling Institute. His career at Caltech was brilliant and wide ranging. Upon receiving his PhD (magna cum laude) in 1926, he was appointed instructor in inorganic chemistry and began the application of the most modern physicochemical techniques to the elucidation of the chemistry of the rarer elements. A Rockefeller Fellowship in 1928 took him to study X rays with Manne Siegbahn at Uppsala and the newly discovered Raman effect with Peter Pringsheim, at the University of Berlin. Upon his return he began pioneering applications of Raman spectroscopy to the determination of molecular structure and the thermodynamic properties of inorganic halides. His work on the volatile fluorides brought him international recognition.

In collaboration with Louis Ridenour and Edwin McMillan he helped to found the chemistry of artificially radioactive elements. During the 1930s Don published over 50 papers contributing to chemical kinetics, gas equilibria, the chemical effects of X rays, electrochemistry, the chem-

istry of the platinum metals, low-temperature thermodynamics, and rare-earth chemistry. His achievements during this time are the more outstanding when viewed in historical context. In those years there were no high-technology instrument manufacturers; any apparatus more complex than a galvanometer or simple glassware had to be built or improvised as the research went along.

Soon after the formation of the National Defense Research Committee, Don was sought out to direct war research. He was appointed Section Chairman under the OSRD, directing research teams at Caltech, Northwestern, and Los Alamos. His achievements in this capacity were to bring him the Presidential Certificate of Merit.

Toward the close of the war he was struck by a series of serious illnesses that robbed him of much of the physical vigor remembered by his early collaborators. Despite these handicaps he continued active participation in research and as he used to say, "the care and feeding of scientists of imagination." His two books, *Systematic Inorganic Chemistry* and *The Rare Earth Elements and Their Compounds*, were written during this period. Don recognized that the great strides in microwaves and radio techniques made during the war could have a profound impact on physical chemistry, and in the succeeding decade he led a small band of us to saddle up and explore the virgin territory of radio and microwave spectroscopy.

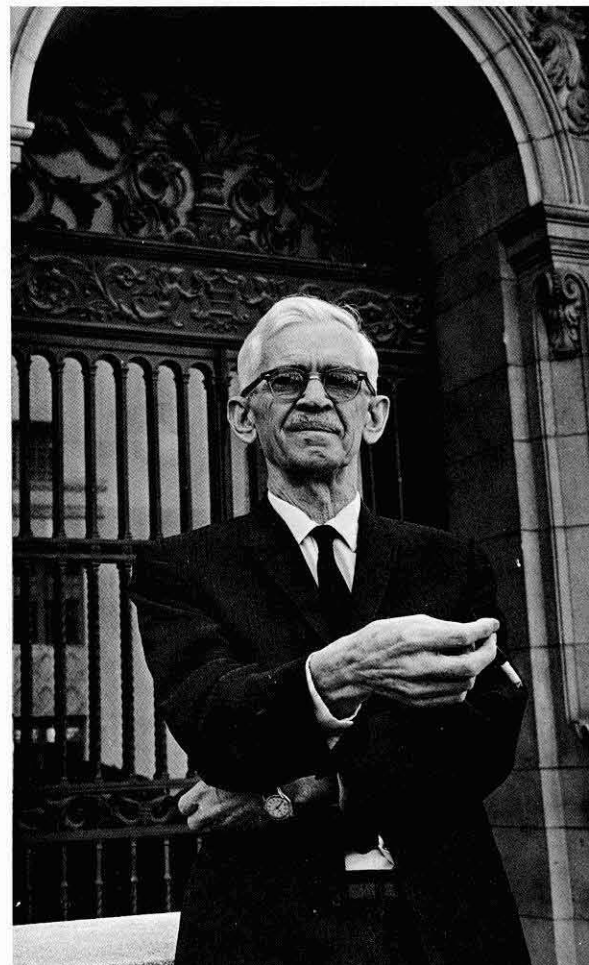
Even after his active participation in research declined in later years, his interest in scholarly matters continued and was expressed through correspondence with colleagues, students, and members of the Iron Nail Club—La Sociedad des Clavos Hierros Cuadrillados, an intellectual and philosophical corresponding society founded by Don (Cisco) and Pancho P. Gomez

of Idaho City, Idaho, dedicated to the free though intermittent discourse on politics, art, science, and humor; listing (by noms de plume only) many of the great and near great of American science and free enterprise. He also wrote on mathematics, the historical aspects of science, and—most memorably—book reviews.

Don's book reviews, published in the *Journal of the American Chemical Society* and *Nuclear Science and Engineering*, have become minor classics of their genre, filled with his perception, erudition, and wit. As a brief exemplar of his style, he began the review of the volume, *Applications of Nuclear Physics*: "There was a time when those of us born west of Dodge City pictured England as a pleasant, provincial island where the men raced around the countryside in Rolls Royces chasing small foxes, where the women rode through the streets on horseback protesting oppressive taxes, and where millions of innocent children were brought up on Latin, *Alice in Wonderland*, W. Shakespeare, and on the exploits of the privateer Sir Francis Drake. But this picture is, in part, now notably different, the change really having been initiated by a transplanted New Zealander (Rutherford) and a visiting Dane (Bohr)."

Characteristically independent, he was always a staunch defender of individual independence against the strictures of official policy. His normally gentle wit became a rapier when deflating administrative pomposity or bureaucratic presumption. One of his former students has called him "the foremost anti-stuffed-shirt in American science."

Don prized and encouraged originality and independence in his students. He expected them to take the initiative in getting the work done; yet when genuine problems arose, he was always generous with his time in discussion and in sharing his vast scientific experience. Caltech can be



a rather intimidating place for a new graduate student realizing how many scientific giants inhabit this small campus and how much he has to learn. Don's courtesy, informality, unfailing good humor, and grace in instruction toward this former student are memories I shall always treasure.

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*Terry Cole, PhD '58, who is a senior staff scientist at the Ford Motor Company's Research Staff, spent most of the last academic year back at Caltech—this time as a Sherman Fairchild Distinguished Scholar.*