

## Jesse W. M. DuMond

1892-1976

### A Tribute by Felix Boehm

**J**ESSE WILLIAM MONROE DUMOND, professor emeritus of physics, died in Pasadena on December 4 at the age of 84. He had been associated with Caltech since his freshman year in 1912.

DuMond was born in Paris in 1892 into an American family of artists. He spent his childhood in Paris and in Rochester, New York. In 1916 he graduated from Throop College of Technology, as Caltech was called then, with a degree in engineering, the only option offered in those days. The following two years were spent as an electrical engineer at General Electric in Schenectady, New York. In 1918 he enlisted in the U.S. Army in France in a sound-ranger regiment commanded by Colonel Lyman, the famed physicist from Harvard. After a brief year with Thomson-Houston Company in Paris and at the National Bureau of Standards he rejoined Caltech in 1921, the year Robert Millikan took charge, and earned his PhD in physics in 1929. So great was his idealism and his devotion to Caltech that he turned down an associate professorship at Stanford to remain here as a research fellow, although Caltech did not pay him a salary until he was appointed associate professor in 1938. He became a full professor in 1946.

During 1937 DuMond extensively visited the laboratories in Europe and the USSR where the new physics took shape. The great pioneers of x-ray physics such as Bragg, Maurice de Broglie, Auger, von Laue, and Ewald left a strong personal imprint on him.

DuMond's early scientific life was under the influence of Millikan, the Chief, as he was teasingly called by his



associates; this influence was the basis of DuMond's deep involvement with the fundamental constants in physics. His fascination with the constancy of the laws of nature in relation to each other bore its first fruits in his important work on the Compton effect, and the determination of the Compton wavelength, followed by the determination, from the continuous x-ray spectrum, of the relationship between Planck's constant  $h$  and the electron charge  $e$ . "Here at Caltech is a rather young physicist, DuMond by name, whose work, in my opinion, ranks among the most significant accomplishments in experimental physics of the last few decades," wrote Albert Einstein in a letter following a visit to Caltech in 1932.

Improving the accuracy of the physical constants required the development of new instrumentation in spectroscopy. DuMond pioneered this development by inventing several unique

spectrometers and — resorting to his engineering skill — carried out design and construction himself. The most famous of these instruments is the focusing curved crystal spectrometer, at present referred to as the DuMond spectrometer. Copies of it were built in many laboratories all over the world.

In the fifties and sixties DuMond's spectroscopic work branched off into nuclear physics. His spectrometers in the West Bridge laboratory provided the key to today's understanding of nuclear energy levels in rare earth nuclei. During this period and until past his retirement in 1963 DuMond continued his active role in the field of physical constants in which he was the world authority for 20 years, and for which he was honored by a doctor *honoris causa* from the University of Uppsala and another from the University of Manitoba. DuMond was a member of the National Academy of Sciences. By the time of his retirement he had built up a

laboratory with 20 associates, students, and employees.

There was not only DuMond the physicist, but also DuMond the humanist and man of letters. He owed this enthusiasm to his great teacher Clinton Judy, who was for many years chairman of the division of the humanities at Caltech. He delighted his friends and associates with his vast knowledge of French and English literature, reciting poems by Victor Hugo or quoting from Shakespeare. His unpublished autobiography is a literary

masterpiece full of subtle reflections on mankind and written with a Proustian sensitivity.

DuMond had strong convictions and an intense feeling for intellectual integrity and justice. He abhorred the spirit of the "establishment" and of the power seeker. "Physics had become big business and with it had come a new type of personality, the man who 'makes history' even though at the same time because of his grossly inflated prestige may also be making colossal mistakes," he wrote, describing

the developments after World War II. He was critical of our materialistic society, reflecting in his autobiography, "It is human, though illogical, to evaluate all acquisitions, goods, and services on the basis of what they cost, rather than what they may truly be worth."

He leaves his wife, Louise, and his daughters Adele Panofsky and Désirée Wilson.

*Felix Boehm is professor of physics at Caltech.*

## J. Niles Puckett Jr.

1943-1976

A Tribute  
by Martha Chivens

I HAVE READ tributes in *E&S* to people who have made contributions to Caltech throughout their distinguished careers. I wonder if you would consider honoring a Caltech graduate who made contributions to Caltech as a student and would have continued to make them if he were alive today.

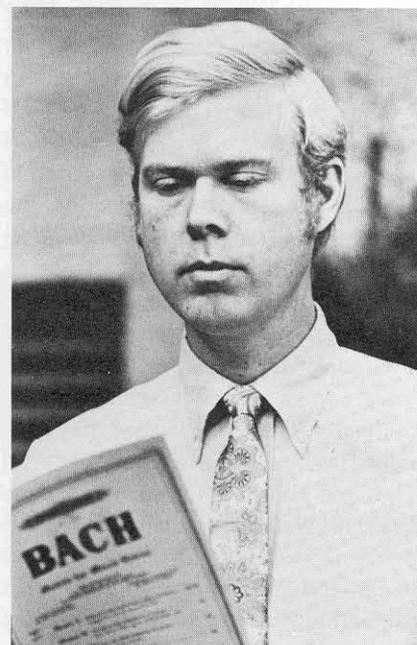
J. Niles Puckett Jr. died on May 13, 1976, after a three-year struggle with cancer. He was 33. In 1961 he was a freshman at Caltech from West High School in Phoenix. Although his field was electrical engineering, he was active in the Glee Club and Madrigal group, and in Cinematech. He was interested in photography and languages, and he cultivated numerous Caltech friends. In 1975 at the class's ten-year reunion, Ricketts House had a large representation because Niles had made a few phone calls. No one seemed to notice that at 32 he walked carefully with a cane.

His three Caltech degrees were in electrical engineering — in 1965, 1966, and 1971. The names Hardy Martel, Carver Mead, Tom McGill,

Cary Lu, and Steve Kurtin came out in conversations with him during those last five school years. Another special person was named Anna Maria Heneis, from Austria. She became Mrs. Puckett in April of 1970.

Dr. Stephen Kurtin wrote the following tribute about Niles's career: "By education, Dr. Puckett's expertise lay in the fields of circuit theory and electron statistics in semiconductor devices. Upon joining Lexitron, at its formation in 1970, Dr. Puckett was a major contributor to the invention and development of Videotype equipment. In this pioneering development, Dr. Puckett's primary responsibility was the display subsystem, but his influence was felt throughout. The display hardware which Dr. Puckett developed and patented in 1970 and 1971 is still today unequalled in capability and cost-effectiveness. Subsequently, Dr. Puckett designed complex text-processing hardware and led the development of other state-of-the-art advances."

While Niles was working at Lexitron, Dr. Hardy Martel worked hard to encourage him to join the faculty at Caltech. It was an opportunity that Niles wanted to take advantage of, an opportunity that would have realized his potential, but he had work to finish at Lexitron and time was too short. Like a detached scientist watching a rat in an experiment, he watched himself, never complaining.



Niles had a gift for seeing the best in people and saying the right thing. When he died, his friends created a perpetual fund at Caltech to support special Madrigal and small choral ensemble projects, which Niles had helped to start while he was at school. The J. Niles Puckett Jr. Memorial Fund will help the song to be heard that his friends and family sing in their hearts for him.

*Martha Chivens is married to Don Chivens, friend and fellow student with Niles. Her father, C. K. Parks, worked in Caltech's accounting department for over 25 years.*