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obituaries

John C. Slater

With the passing of John C. Slater, America lost one of its greatest theoretical physicists; he died 25 July on Sanibel Island, Florida at the age of 75.

Slater entered Harvard University graduate school at the age of 19 and wrote, under Percy W. Bridgman, an experimental PhD thesis on alkali halides at high pressures. Thereafter he studied theory, especially the quantum theory, which at that time was more a challenging puzzle than a well defined discipline. This he learned about in courses given by Edwin C. Kemble.

After earning his PhD in 1923, Slater received a traveling fellowship from Harvard. At the beginning of his fellowship term he came up with the idea that there was a radiation field that guided the light quanta, and this field could be described by associating with the atom a set of virtual oscillators whose frequencies were those given by the Bohr frequency condition instead of those of classical orbital motions. When he reached Copenhagen, Niels Bohr and Hendrik Kramers quickly appreciated the significance of his ideas—the result was the celebrated Bohr-Kramers-Slater paper in which Bohr and Kramers added (against Slater's better judgment) the proposal that the laws of conservation of energy and momentum are only statistically valid. This paper has been worked over and over by historians of science, and the correct portion was generally recognized as that due to Slater. Slater's early work was a leading factor in bringing American theoretical physics high international standing for the first time since J. Willard Gibbs's classic contributions.

After returning to the US in 1924, Slater joined the Harvard faculty. Some of his most striking papers were published in the next few years, as was true of all theoretical physicists of his generation. The advent of quantum mechanics had opened up a whole new research continent in 1926. Particularly noteworthy are his 1931 paper on directed valence and his 1929 article on complex spectra, which developed the method of Slater determinants that circumvented the intricate theory of the permutation group.

When Karl T. Compton became president of the Massachusetts Institute of Technology in 1930, one of his first moves was to bring Slater there to head the physics department, with a mandate to

John F. Clark, formerly director of NASA's Goddard Space Flight Center in Greenbelt, Maryland, has joined RCA's Corporate Engineering staff as director, space applications and technology.



SLATER

strengthen it. Under his chairmanship, the department grew in size and stature to a top rank, both nationally and internationally. One remarkable thing about Slater's career at MIT was how he was still productive in research despite the heavy administrative burden. In fact, he soon assembled a "school" of young theorists who wrote their doctoral theses under his supervision and later became prominent physicists and executives.

In the early 1930's many theorists shifted into nuclear physics. Slater made a reasoned decision that the tide was an excessive one, and he chose to concentrate on solid-state physics, which offered great potential in research and development.

His work during the war was at the MIT Radiation Laboratory and was concerned mainly with magnetrons. He has written, "At the beginning there was no clear understanding of how the magnetron worked . . . Within a few weeks I was able to provide a general theory which laid the basis for most advances in design after that time." When the war ended he was a prime mover in the establishment of MIT's research laboratories for electronics and nuclear science.

In 1951 he was made the first Institute Professor at MIT—a position that relieved him of most of his administrative responsibilities. He focussed his attention on means of calculating the binding energies of atoms and molecules more accurately. In later years he capitalized on the potential provided by the modern

computing machine. He stressed the so-called X- α method for calculating correlation (or exchange) energies, which are particularly recalcitrant in computations by means of the self-consistent field (see PHYSICS TODAY October 1974, page 34). He continued these interests when he became a research professor at the University of Florida in 1964. He held this position until retiring in June.

His many honors include the National Medal of Science (1971) and the Irving Langmuir Prize of The American Physical Society (1967). His research publications span more than 50 years; they included some 100 papers, a number of comprehensive books and his scientific autobiography, *Molecules and Solid State*.

His last book on the X- α method had just been completed at the time of his death. Alas, this volume will be a posthumous one.

JOHN H. VAN VLECK
Harvard University

Robert G. Lye

Robert G. Lye, corporate scientist at Martin Marietta Laboratories, Baltimore, Md., died 7 July at the age of 49.

He received his PhD from the University of Minnesota in 1957 and was a member of the technical staff of Union Carbide Corp's Parma Technical Center in Cleveland, Ohio, 1956-65.

At Martin Marietta he became head of the metal physics group in 1968, and associate director and head of the physics department in 1969. In these positions he had responsibility for research and development programs on infrared detectors, refractory materials, remote sensing of atmospheric pollutants, and materials for heat shields. He was appointed corporate scientist in 1974 and was a member of the APS.

Hamilton M. Jeffers

Hamilton M. Jeffers, astronomer emeritus of Lick Observatory, died 28 May at the age of 82. He received his doctorate from the University of California-Berkeley in 1921 and, the same year, joined the State University of Iowa department of astronomy.

As a graduate student Jeffers had studied at the Lick Observatory—in 1924 he accepted a position there and remained on the staff until his retirement in 1961. During his career he conducted an extensive program of astrometric observations of comets and faint minor planets and made numerous contributions to double-star astronomy, most notably his collaboration on the index catalog of double-star observations.

A newly verified asteroid, which was discovered by Arnold R. Klemola of Lick Observatory, was named after Jeffers in February. □



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