GEIGER

always seeking a balance between research and education. His strong personality, impartiality and vitality, as well as the sympathy his harsh life experiences evoked, always brought out the best in his colleagues, both in the sciences and in administration.

Geiger's research activities spanned electron optics and atomic, molecular and condensed-matter physics. He and his research group developed electron-energy analyzers, in particular the Wien type, to unprecedented resolution. During the last several years his group routinely obtained spectra of 25-keV electrons resolved to 1.5 meV with incoming electrons monochromatized to equivalent resolution. Geiger applied these tools to measurements of the inelastic cross sections of molecules and solids, which fascinated him in their microcrystalline and amorphous states. His phonon spectra of MgO set a new standard for theory and future experiments. During the last two years his research efforts concentrated more on amorphous silicon with its potential as a solar-cell material; he saw in this problem a harmony between basic research and the immediate needs of society.

Geiger's scientific hobby was the multichannel quantum defect theory, developed by Michael J. Seaton and Ugo Fano. To him this semi-empirical approach appeared to link electron spectroscopy and optical spectroscopy in an understandable fashion. He applied this theory successfully to Kr, Xe, Ca and Ne, and a Sr analysis was under way at the time of his death. Some of this later work he carried out during a visit to the University of Texas in 1981.

Geiger served physics society at large in several important functions. He was the liaison officer in the partnership between the German government and the National University of Bogota, Columbia. He was a member at the local, state and federal levels of the German Physical Society and the Deutsche Forschungsgemeinschaft. His sense of responsibility for his fellow humans and for science in general, his honesty and his personal modesty were exemplary and will remain a shining light for all who knew him. The void left by his death will be felt for many years to come.

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Albert Dary Crowell

Albert Dary Crowell, professor of physics and chairman of the physics department at the University of Vermont for many years, died 21 September 1985 at the age of 60.

He received a BS in electrical engineering from Brown University in 1946 and an MS in applied physics from Harvard University in 1947. He then returned to Brown, where he received his PhD in physics in 1950. During part of his college career he served in the Navy's V-12 program; he was commissioned in 1946.

Following his graduate work, Crowell held positions at Amherst College and at the University of Vermont. He soon became chairman of the physics department at Vermont, serving in that capacity from 1961 until 1975. Among his early collaborators were Harold E. Farnsworth and William M. Fairbank. He was well known for his experimental and theoretical work on physical adsorption on surfaces, and he also trained many graduate students in this area. His book *Physical Adsorption of Gases* (1962), written with D. M. Young, became a standard reference in the field.

Crowell was perhaps best known for his work on lattice-sum techniques for describing physical adsorption of simple molecules on surfaces. Not content merely to carry out calculations, Crowell tested his results in the laboratory. Despite a lingering illness he continued his research, his last work appearing recently in *Surface Science*.

In recent years Crowell also became interested in the history of science: He established that work by Nathaniel Bowditch and Dean (who was a professor at the University of Vermont) anticipated by 40 years Jules Antoine Lissajous's 1857 work in which he introduced his "figures."

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