

WE HEAR THAT

from James Millikin University in Decatur, Illinois in 1944, and after a tour of duty with the Navy, he received his MS and, in 1949, his PhD from the University of Illinois. From 1949 to 1952 he worked as a postdoctoral associate at Cornell University.

Among Krigbaum's early contributions to the study of polymer systems were experimental and theoretical studies of the temperature and molecular weight dependence of the second virial coefficient as determined in dilute solutions. This work is still frequently cited in recent treatments of the topic. With Dewey K. Carpenter, Krigbaum studied the universal hydrodynamic parameter ϕ , proposed by Paul Flory as being applicable to the dilute-solution behavior of all polymers. Krigbaum and Carpenter showed that the higher value of the Rayleigh ratio for light scattering measurements was the correct one. (A number of reasonably consistent lower values reported by other investigators were attributable to errors in experimental details.)

In the mid-1960s Krigbaum, with graduate and postdoctoral associates, developed and implemented a procedure based on x-ray diffraction for the quantitative description of crystallite orientation in polycrystalline samples. This work led to an analytical description of orientation that used the crystallographic unit cell as a frame of reference. Also in this period, and before the use of neutron diffraction on polymer samples labeled with deuterium, Krigbaum and Wayne Godwin used heavy-atom tagged ends and x rays in the first successful attempt to determine molecular dimensions in bulk polymers.

In more recent years Krigbaum and coworkers turned their attention to polymeric liquid crystal systems, doing studies of electric field effects on thermotropic nematogenic polymers and elucidating the thermotropic behavior of semiflexible polymers. From their determination of the axial ratio of the Kuhn link extrapolated to the nematic-isotropic transition temperature, Krigbaum and associates concluded that a thermotropic transition occurs when the temperature is high enough to reduce the axial ratio to the critical value.

Krigbaum served on the executive committee of the polymer division of The American Physical Society from 1966-69, on the advisory board of *Polymer Science* and on the editorial boards of the *Journal of Physical Chemistry*, *Macromolecules* and *Texture*.

In spite of a continued progression of physical handicaps, Krigbaum

maintained an active research and publication program, until his physical constraints became so severe as to preclude further professional activity. He will be remembered with respect and affection by his students, colleagues and friends for his gentle and gracious manner, his superlative teaching and his dedication to a job well done.

MARCUS E. HOBBS
PETER SMITH
Duke University
Durham, North Carolina

John H. Elliott

John Habersham Elliott died of a stroke on 10 March 1991, following several months of poor health. Elliott's work represented industrial research at its best. He served his professional society, he advanced the scientific horizons of his field, and he was of great value to his employer because of his ideas and experiments that led to new products and markets.

Elliott received a BA in chemistry from Haverford College in 1935 and a PhD in the same subject from the University of Pennsylvania in 1940. During and after graduate study, he worked for the Du Pont Company in Philadelphia and for a leather tanning company, J. E. Rhoads and Sons in Wilmington, Delaware. In 1942 Elliott joined the Hercules Powder Company in Wilmington, Delaware, as a research chemist in the analytical division. He remained at Hercules until his retirement in 1978.

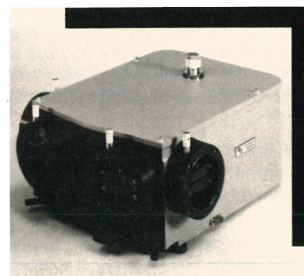
Elliott's early scientific work with Hercules consisted of physical chemistry applied to analytical problems. Typical among his contributions were the application of photoelectric titra-

John H. Elliott



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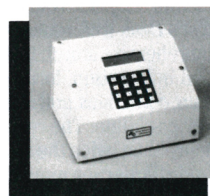
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tion methods to dark rosins and of calorimetric techniques to the determination of the purity of certain monomers. These activities led to his interest in natural resins and additives for the then-new synthetic rubber industry.

In the late 1940s Elliott became associated with Hercules's increasing effort in the new field of high polymers and in particular the technology of cellulose derivatives. At the annual meeting of the Society of Rheology in 1948 he and coauthors reported on applications of capillary viscometry to high-viscosity liquids. This work signaled an important shift in his career, from being what he described as "a pot-and-paddle chemist" to being one of the early specialists in the newly named field of rheology.

In 1956 Elliott was given the title of research supervisor in the new physical chemistry division of Hercules.

For the next decade and more Elliott was deeply involved in work on polyolefins, with special emphasis on polypropylene. In this period he was active in the Society of Rheology, serving as its president in 1960 and 1961. Elliott persuaded the Hercules management that the company was "annually selling millions of dollars of rheology" and that it should invest in serious efforts in rheological characterization. At his urging Hercules purchased a Weissenberg R16 rheogoniometer, with which Elliott went on to assemble more than a decade's worth of important rheological data on polymer melts and aqueous solutions.

Elliott's roles as mentor and role model to his professional or corporate colleagues were just as important as his scientific contributions. His well-balanced advice, urbane charm and marvelous talent for understated humor enriched those fortunate enough to have worked closely with him.

WILLIAM R. SCHOWALTER

University of Illinois
at Urbana-Champaign

C. ROBERT SHERTZER

Hercules Incorporated
Wilmington, Delaware

Lewis Salter

Lewis Spencer Salter, the 12th president of Wabash College, died on 19 November 1989, in Crawfordsville, Indiana. He was 63.

Salter was born 4 February 1926 in Norman, Oklahoma. As a first lieutenant in the US Army, he served in the Philippines in World War II. He enrolled after the war in the University of Oklahoma, where he received his

BS in 1949. Salter studied theoretical physics at Oxford University on a Rhodes scholarship from 1949 to 1953, following which he accepted a position as an assistant professor of physics at Wabash College. In September 1956 he returned to England to receive his DPhil from Oxford University. By that time he had become known among lattice dynamists as one of the bright young theorists in that field. In the early 1960s he spearheaded a departmental research project at Wabash College on the anharmonicity of lattice vibrations in single-crystal aluminum. He collaborated with Vernon J. Easterling and Robert L. Henry at Wabash to measure the variation in x-ray diffraction intensities over a wide range of temperatures. From 1958 to 1960 Salter took a leave from Wabash to help set up a research program in theoretical physics at the Institute of Technology in Bandung, Indonesia.

Salter left Wabash in 1967 to become dean of Knox College in Galesburg, Illinois. In spite of heavy administrative duties he still taught one physics course a year and did research. Salter returned to Wabash as president in July 1978 and served until February 1988 when he resigned because of ill health. After a year as chancellor he returned to the physics department on a full-time basis. He continued to teach until three weeks before his death.

Even though he devoted 21 years primarily to administrative work, Salter never ceased to be a productive physicist. On his numerous trips he always took along his research notebook, or "journal," as he called it.

Salter was a man of great warmth and unaffected charm. He related easily and genuinely to everyone he met. Colleagues and students saw in him a powerful yet not overbearing intellect interested in everything worth knowing. His upper-class courses were vehicles for introducing undergraduates to levels of sophistication with which few would feel comfortable until well into their graduate studies.

Music, photography and athletics were three of Salter's avocations. He was an accomplished pianist and tympanist and a crafty tennis player. As his strength failed, he found much pleasure working on a paper on quantum mechanics, which was published posthumously.

ROBERT L. HENRY

Wabash College

Crawfordsville, Indiana

DENNIS C. HENRY

Gustavus Adolphus College

Saint Peter, Minnesota ■