

to Mark, who understood that hindered rotation around bonds in a chain molecule would necessarily lead to a flexible coil structure.

After Germany's annexation of Austria, the International Paper Company invited Mark to head their research at Hawksbury, Ontario. He remained there only two years, though, since he was not willing to restrict himself to the study and technology of cellulose. He moved to the Polytechnic Institute of Brooklyn (now Polytechnic University), where he founded in 1941 an Institute of Polymer Research, the first of its kind in America.

Mark's influence was felt in many areas. He bridged academia and industry to an unusual extent. His books, starting with *Der Aufbau der hochpolymeren organischen Naturstoffe* (coauthored with Meyer in 1928), had a profound influence on the development of the polymer field. He was instrumental in the founding, in 1946, of the *Journal of Polymer Science*. Last but not least, he was the guiding spirit in the organization of a polymer section of the International Union of Pure and Applied Chemistry and IUPAC's yearly International Polymer Symposium.

HERBERT MORAWETZ
Polytechnic University
Brooklyn, New York

Paul M. Raccach

Paul M. Raccach died on 4 February 1992 at the University of Illinois at Chicago Hospital from complications associated with a recent liver transplant. He was 58 years old.

Raccach was head of the department of physics at UIC from 1976 until his resignation due to illness in 1991. His career there was marked by intensive efforts devoted to his research and to strengthening the department. During his tenure, the department greatly increased its research activities and achieved ranking at the national level. Raccach was named Research Professor in 1987 and served on many committees within the university.

Raccach was born in Tunisia and educated in France, where he received a baccalaureate from the Sorbonne in 1953, a national engineering degree from the University of Lyon in 1959 and a PhD in physics from the University of Rennes in 1962. He became a member of the solid-state division of MIT's Lincoln Laboratory in 1964 and then a group leader at CAE, a European subsidiary of Thompson-Ramo-Woolridge. In 1972 he became a professor of physics

and director of the Maxwell R. Maybaum Institute for Material Sciences and Quantum Electronics at the Belfer Graduate School of Science of Yeshiva University in New York.

Raccach's specialties were the characterization of electronic materials and electro-optic devices using modulation spectroscopic techniques, such as electrolyte electroreflectance, photorefectance and spectroscopic ellipsometry, as well as light-scattering techniques such as Raman scattering, photoluminescence and Brillouin scattering. One of his goals was to carry out the investigation of device structures at the atomic level. He made outstanding contributions to the understanding of the electronic properties of heterointerfaces, which are the active areas of advanced optoelectronic devices such as lasers.

Raccach served as a consultant to several companies. His administrative and research activities included guiding many graduate students and postdoctoral research associates.

Raccach was also a scholar in other fields. In particular, he was a noted student and teacher of the Torah and was held in the highest esteem by the Orthodox Jewish community of Chicago, of which he was a devout member.

Paul Raccach is remembered with love by his many colleagues and former students around the world.

UDAY SUKHATME
JEAN-PIERRE FAURIE
JAMES W. GARLAND
SEYMOUR MARGULIES
University of Illinois, Chicago

Albéric Boivin

Albéric Boivin, physics professor emeritus at Laval University, died in Quebec City, Canada, on 8 August 1991, after several months' illness. His passing marks the end of one of the most prolific and prestigious scientific careers in French Canada.

Born in Baie-St.-Paul, Quebec, on 11 February 1919, Boivin in 1940 entered Laval, where he obtained his BSc, MSc and PhD degrees in physics. Immediately after completing his undergraduate studies he started teaching at Laval. He became a full professor in 1955 and was named an emeritus professor in 1988.

Boivin gained his reputation mainly through his research activities in optics. A true visionary, he was the instigator and pioneer of the field's development in the Quebec milieu. He began a lifelong interest in optical diffraction in the years immediately following World War II. The initial

impetus came from his theoretical investigation of Fresnel diffraction through concentric arrays of annular apertures. This investigation was quickly followed by microwave experiments he undertook with collaborators.

Young physics graduates from Quebec and abroad gravitated toward the nucleus formed by Boivin, and by the mid-1960s they had grown into a group of scientists competent in all aspects of optics. The group organized itself formally as the *Laboratoire d'Optique et Hyperfréquences*, with Boivin as its director-founder. The LOH later became the *Laboratoire de Recherches en Optique et Laser* and is now known as the *Centre d'Optique, Photonique et Laser*. The presence of Laval University's optics center was a determining factor in the Canadian government's decision to locate the National Institute of Optics in Quebec City.

Boivin wrote a monumental treatise on scalar diffraction, *Theorie et calcul des figures de diffraction de révolution*, and the vivid description he and Emil Wolf provided in a paper on the field structure about the focus of a wide-aperture aplanatic system will remain a classic in the optical literature.

Boivin was also responsible for the birth and growth at Laval of teaching and research in astrophysics. Passionately fond of astronomy since boyhood, he led a group at Laval that long promoted the development of that field of research at Laval. Their efforts were rewarded in the late 1960s, when the university decided to build an observatory at St.-Elzéar de Beauce. This observatory was inaugurated in 1971. In 1978 it was annexed to the Observatory of Mont Mégantic, administered jointly by the University of Montreal and Laval University.

Boivin was vice president of the Canadian Association of Physicists in 1969.

Besides his scientific achievements and legacy, Boivin will be remembered for his rich personality. Well versed in the humanities and always aware of the historical perspective on his subject, he wrote and taught with a unique flair and clarity. His devotion and patience toward his students were exemplary. Dogged throughout his career by health problems, he maintained nonetheless a cheerful, ever witty and enthusiastic disposition, thus inspiring all who knew him. He will be sorely missed.

FERNAND BONENFANT
Laval University
Quebec City, Canada ■