



In Memoriam

Ernest B. Yeager

1924-2002

ERNEST B. YEAGER, the Frank Hovorka Professor Emeritus of Chemistry at Case Western Reserve University (CWRU), was internationally known for his pioneering contributions to the fundamental understanding of electrochemical reactions and to the development of fuel cell and battery technology. During nearly 50 years on the Case Western Reserve faculty, he mentored 80 doctorate students and 45 postdoctoral fellows, authored 270 scientific papers and edited and co-edited 20 books. He was internationally recognized as an authority in physical acoustics and electrochemistry. His students and colleagues knew him for his uncompromising demand for excellence in research and scholarly writing.

Prof. Yeager, 77, died March 8, 2002, in Cleveland, Ohio, after a long struggle with Parkinson's disease.

A native of Orange, NJ, Yeager considered a career in music and was a talented pianist but decided to pursue mathematics and the sciences. He graduated *summa cum laude* with his BA degree from Montclair State University in 1945. He enrolled as a graduate student in chemistry at Western Reserve University in 1945. After earning his PhD in 1948, he joined the faculty of the department of chemistry where he served until his retirement in 1990. He became a full professor in 1958 and was named the Frank Hovorka Professor in 1983.

Prof. Yeager was the founder in 1976 of what has become the Yeager Center of Electrochemical Sciences. The Center is one of the largest university research groups working in electrochemistry in the United States. In 1994, the Center was rededicated in his honor as the Ernest B. Yeager Center for Electrochemical Sciences. From 1969 through 1972, he served as chair of the chemistry department and chair of the CWRU Faculty Senate in 1972 and 1973.

In a 1976 *Plain Dealer* article, Yeager commented that electrochemistry would play a major role in meeting the nation's energy problems and in helping to conserve natural resources. He believed that electric cars would become more common in years to come and that high performance fuel cells and storage batteries would be needed to power these cars. Much of his research focused on developing these advanced power systems.

Dr. Yeager was an active member of ECS from the time he joined in 1949. He served as chairman of the Physical Electrochemistry Division (formerly the Theoretical Division) from 1955 to 1957, and he was chairman of the Cleveland Section from 1954 to 1955. He was elected president of the

Society in 1965, and made an Honorary Member of the Society in 1977. He was awarded the Edward Goodrich Acheson Medal and Prize in 1980 and the Vittorio de Nora Award in 1992. Dr. Yeager was editor of The Electrochemical Society monograph on *Electrode Processes*.

During his career, he also served as president of the International Society of Electrochemistry from 1969-71, and as vice-president of the Acoustical Society of America. He served as a consultant to numerous organizations, including Union Carbide, the Institute of Defense Analysis, NASA, Argonne National Laboratory, General Motors Corp., and Eveready Battery Co. He was a fellow of the American Association for the Advancement of Science and the Acoustical Society. He also received the Biennial Award of the Acoustical Society of America and a Navy Certificate of Commendation, for work as a member of the committee on undersea warfare. He was a NATO Senior Fellow and a visiting professor at the University of Southampton in England.

In addition to Yeager's research, he was considered by students, staff, and faculty to be a generous person, whose life revolved around his campus activities. He was a dedicated teacher, who would stay on campus later than 11 PM, holding office hours to meet with students who needed help. Following an appendix operation, his students lined up outside his hospital room taking turns visiting him. He often joked that he only needed four hours of sleep. Many students and colleagues remember the joy Professor Yeager exuded when he entertained his holiday party guests with his piano skills. At professional meetings, Yeager was noted for his penetrating questions, which were always presented in a respectful way to an appreciative speaker and audience.

Prof. Yeager is survived by his brother and sister-in-law, John F. and Gertrud Yeager, of Ridgefield, Conn.; his nephew John D. Yeager and family, of Lawrenceville, NJ; his niece Julie D. Zink and family, of New Britain, Connecticut; seven grand nieces and nephews; and an aunt and cousins who live in Switzerland.

Contributions in his memory may be made to the Movement Disorders Research, Cleveland Clinic Foundation, 9500 Euclid Avenue S90, Cleveland, OH 44195, USA, to further research on Parkinson's disease; or to the Ernest B. Yeager Memorial Fund in care of the Ernest B. Yeager Center for Electrochemical Sciences, Case Western Reserve University, 10900 Euclid Avenue, Cleveland, OH 44106-7204, USA. ■



In Memoriam

Joseph C. Schumacher

1911-2002

JOSEPH C. SCHUMACHER, who died late last summer, was very active in Society affairs, and it was always a pleasure to see him at Society meetings. Schumacher was a regional editor for the *Journal*, and served on numerous committees: Honors and Awards, Long Range Planning, and Ways and Means. He was chairman of the Sustaining Membership Committee, and during his professional career, all of his companies participated in what is now called the ECS Contributing Membership program. He was general chairman of the 1962 spring meeting. He received the Vittorio de Nora Award in 1982.

In 1940, he established the Western Electrochemical Co. (WECCO) in Los Angeles, as a new domestic source of chlorate and perchlorate chemicals. He served as vice-president, general manager, and corporate director until it merged with American Potash and Chemical Corp. in 1954. He became director of research at that time and vice-president of research in 1956. In 1969, Schumacher became vice-president of Kerr McGee Chemical Corp., when it acquired American Potash. In 1971, he established the J. C. Schumacher Company and served as president and chief executive officer until 1973, when he became chairman of the board of directors. The company pioneered new products and delivery systems for the semiconductor industry. The company was acquired by Air Products and Chemical Company in 1984.

Dr. Schumacher received his education at the University of Illinois and the University of Southern California, from which he received his bachelor's degree in chemistry in 1946. He began his career in 1931 as a research chemist with Carus Chemical Co. in Illinois and received the first of some 30 patents in 1934. In 1942, after WECCO was established, he received a contract from the Guggenheim Aeronautical Laboratory at the California Institute of Technology to produce compounds required for experiments in the preparation of solid rocket fuel. In 1943, the Defense Plant Corporation contracted with WECCO to construct and operate a plant to manufacture one of the compounds. Solid rocket motors were used in various missiles, and are the primary power source of the U.S. Space Shuttle booster. Schumacher authored the definitive work on the technology used in manufacturing solid rocket fuel.

Although active in the Society through a sustaining membership in each of his successive companies, Schumacher did not apply for individual membership until 1955. Robert M. Burns wrote a letter of support. You couldn't get a better reference than one from Burns, who had served the Society in many capacities (the only person to be president, vice-president, secretary, and treasurer, as well as the first editor of the *Journal*.) Burns wrote, "He is an important electrochemist in the West. He founded and very successfully developed the Western Electrochemical Co. lately acquired by American Potash and Chemical Co. He has been attending most of the national

meetings of The Electrochemical Society for a number of years. Very good man!"

We asked Richard Alkire, past ECS president, to write a few words about Dr. Schumacher. He wrote the following words for this notice.

Joseph Schumacher was a giant among those entrepreneurs of the 20th century whose achievements were grounded in a technical knowledge of electrochemical processes. He had an intellectual curiosity that led him throughout his life in the pursuit of new directions, both within the realm of electrochemistry as well as beyond.

When he spoke of himself, he invariably spoke in terms of what he had done with other people. A wonderful example was the time in September 1929, when he embarked on a fund-raising campaign while a student at the University of Illinois – and met the person who became his wife. He truly cherished those around him: family, co-workers, fellow industrialists, and the memory of his inspirational guiding lights. He hired a remarkable number of outstanding co-workers, and spoke of them with pleasure as they moved on in their careers to have great success in electrochemical engineering. One example of his respect for fellow industrialists was evident when, after selling a portion of his company to Air Products, he mentioned that he had known the Pool brothers back in his days on the War Production Board, and had always admired their company. Mr. Schumacher was attentive to people, and he was justifiably proud of the safety record of his company.

A gentle man with a sense of history past and future, his favorite poem was "A Psalm of Life" by Henry Wadsworth Longfellow, which ends with the ringing stanzas:

*Lives of great men all remind us
We can make our lives sublime,
And, departing, leave behind us
Footprints on the sands of time;*

*Footprints, that perhaps another,
Sailing o'er life's solemn main,
A forlorn and shipwrecked brother,
Seeing, shall take heart again.*

*Let us, then, be up and doing,
With a heart for any fate;
Still achieving, still pursuing,
Learn to labour and to wait.*

One evening, after reciting the poem from long-cherished memory, he was moved to tears as he spoke of leaving footprints of his own. By any measure, he inspired generations of colleagues through his dignified, honorable, and perceptive leadership. ■

(People News continued on next page)

Shigeo Shionoya (1923-2001)



SHIGEO SHIONOYA, a driving force behind Japanese predominance in display technologies, died of a heart attack on October 17, 2001 in Tokyo while on his way to Nagoya to participate in the International Display Research Conference. As a pioneer in modern aspects of synthesis and characterization of luminescent materials and systems, he was universally respected for his contributions to and for his leadership in the international community interested in these materials.

Professor Shionoya was born on April 30, 1923, in the Hongo area of Tokyo, Japan. He received his baccalaureate in applied chemistry from the Faculty of Engineering, University of Tokyo, in 1945. He served as a research associate at the University of Tokyo until he moved to the department of electrochemistry, Yokohama National University as an associate professor in 1951. From 1957 to 1959, he was appointed to a visiting position in Professor H. P. Kallman's group in the physics department of New York University. While there, he was awarded a doctorate in engineering from the University of Tokyo in 1958 for work related to the industrial development of solid-state inorganic phosphor materials. In 1959, he joined the Institute for Solid State Physics (ISSP, Busseiken) of the University of Tokyo as an associate professor; he was promoted to full professorship in the Optical Properties Division of the ISSP in 1967. Following a reorganization of ISSP in 1980, he was named head of the High Power Laser Group of the Division of Solid State under Extreme Conditions. He retired from the post in 1984 with the title of emeritus professor. He helped in the establishment of the Tokyo Engineering University in 1986 and served there in

the Administration and as a professor of physics. On his retirement from the Tokyo Engineering University in 1994, he also became emeritus professor in that institution.

Professor Shionoya made sustained and significant contributions to the field of luminescence, particularly as it applies to phosphors in the solid state. Early in his career, he investigated the physico-chemical properties of ZnS phosphors which have a wide variety of technological applications. He successfully identified the complex processes leading to light emission in these materials. He was responsible for establishing extensive crystal growth facilities at the Busseiken; for example, his comprehensive studies on ZnS were carried out on samples grown at the ISSP using the high pressure Bridgman method, as were most of the materials used in his subsequent studies. He contributed greatly to the study of the luminescent properties, excited state dynamics, and ion-ion interactions in rare earth activated crystals and glasses; this body of work underlies much of our understanding of the efficiency of light emitting materials in various optoelectronic applications. Professor Shionoya and his group developed a number of experimental techniques, which have found widespread use in laser based spectroscopies of solids; these include time resolved optical spectroscopy using picosecond lasers, coherent measurements of ultrafast relaxation phenomena, and the study of highly excited states of semiconducting systems.

During his career, Professor Shionoya trained many students and postdoctoral fellows. Many of these have assumed leadership positions in academic and industrial institutions and have continued to contribute greatly to the advancement of luminescence research in Japan and elsewhere. He published more than 200 scientific papers and authored or edited a number of books—the *Handbook on Optical Properties of Solids* (in Japanese, 1984) and most recently the *Phosphor Handbook* (CRC, Boca Raton, 1999). He served as a permanent member of the International Organizing Committee of the International Conference on Luminescence (ICL) from its inception. He oversaw the organization of ICL'75 held in Tokyo, which was deemed to be highly successful, and which highlighted developments in various Japanese industrial efforts.

In the early 1970s, Professor Shionoya, along with Professors N. Kameyama and S. Makishima, helped

revive the Phosphor Research Society of Japan which had been established in 1941. This society continues to bring together, on a regular basis, members of the Japanese communities interested in developments and advances in phosphor and display technologies. It provides an interface and is a model for efficient and rapid transfer of knowledge between basic academic and applied industrial interests. It has made significant contributions to, and has played a central role in, the evolution of Japanese eminence in the phosphor, display, and lighting industries.

Professor Shionoya has been recognized for his many contributions to our understanding of physical processes, which affect the luminescence properties of solids, and for the services he rendered the luminescence community. In 1977, he won the Nishina Award for his research on high-density excitation effects in semiconductors using picosecond spectroscopy. He was recognized by The Electrochemical Society in 1979 for his contributions to advances in phosphor research. Finally, in 1984 he was the first recipient of the ICL Prize for Luminescence Research.

Throughout his career, Professor Shionoya cared deeply for the welfare of his students and his associates. He willingly and patiently provided advice and counsel to all who sought it and he played an important role in their professional advancement. His presence in Japanese and international forums will be greatly missed, as much for his insight and acumen in human matters, as for sage advice on scientific issues. His legacy, however, will remain in his many scientific and technical contributions, and in the many students he successfully trained and so deeply influenced. ■

This obituary notice was contributed by William M. Yen of the University of Georgia, Takashi Kushida of the Nara Institute of Science and Technology, and Makato Morita of the Seikei University.

Massoud Simnad (1920-2001)

MASSOUD SIMNAD, an internationally recognized expert on nuclear energy and materials, passed away on December 15, 2001 at his home in Virginia, where he had moved last year.

Dr. Simnad received his BS degree from the Imperial College of Science and Technology in London, England, in 1942 and his PhD in metallurgy and physical chemistry with U.R. Evans from Cambridge University in 1946. He was awarded the Edward G. Weston summer fellowship of ECS in 1948, which brought him to Carnegie-Mellon University. After serving as a research associate at Cambridge University, he was a senior researcher and faculty member in the Metallurgical Engineering Department and Metals Research Laboratory at Carnegie-Mellon University from 1949-56. He

moved to General Atomics in 1956, senior technical advisor on materials and fuels for nuclear energy and fusion research programs until 1981. Joining the Mechanical and Aerospace Engineering Department at University of California, San Diego as adjunct professor in 1981, Professor Simnad continued to teach corrosion and energy courses through 2001.

Dr. Simnad authored over 135 publications, was issued more than 15 patents, and was an invited lecturer at many national and international conferences.

The American Nuclear Society awarded him the Certificate of Merit in 1965 and the Outstanding Achievement Award in 1993. He was elected to the National Academy of Engineering in 1995. ■

In Memoriam

ROBERT A. KEYS (1918-2001), member since 1958, Battery.

ROBERT PLIMLEY (1943-2002).

GEORGE J. SKELLY (1926-2001), member since 1955, Electronics.

BRIAN SMATKO (d. 2001), member since 1950.

TADASHI YOSHIDA (1910-2000), member since 1973, Physical Electrochemistry.