Harry John Leamy III (1941–2008)—In Memoriam

Twenty-five years ago, when MRS was young

Harry Leamy, a former president of the Materials Research Society, died last summer at his retirement cottage. Among his many accomplishments, Harry revived the moribund MRS Bulletin *and oversaw its transition from a slender bi-monthly newsletter to today's high-impact and substantial monthly magazine. "Materials science" was scarcely recognized as a discipline in its own right at that time, and the Society was a relatively tiny fraternity. That little club had an outside observer whom Harry recruited to help advertise its then-hidden strengths. We asked this "observer" for a remembrance of his great friend.*

When Harry John Leamy III became president of the Materials Research Society in 1983, the Society had no professional staff and a modest membership of about 1200 research scientists who were about the only people on earth who knew what gallium arsenide was. Desktop computers were Apple IIs and mobile telephones weighed 30 pounds.

Harry earned a BS degree in metallurgical engineering from the University of Missouri at Rolla and a PhD degree in metallurgy at Iowa State University. As a research scientist at Bell Laboratories, who had done his post-doctoral work at the Max Planck Institute for Metallurgy in Stuttgart and a subsequent year on loan to Philips in Eindhoven, Harry amassed more than 40 patents on the properties of materials. He knew nothing about public relations, however, and hired me, his brother-in-law and a reporter for the *Wall Street Journal*, to revive the *MRS Bulletin*, which had not been published for awhile—this was around 1982. Harry was also responsible for starting the MRS symposium proceedings and establishing a Society headquarters office during the same period.

We had a wonderful year, and I got a rare glimpse of my brother-in-law in his work world. One day the representative of an international publishing firm took Harry and a couple of others to lunch at Windows on the World, 20 miles from his laboratory in Murray Hill, N.J. The sales representative's firm wanted to take over the *MRS Bulletin*, which was becoming successful as the world of materials was beginning to assume the importance it has now. As part of his sales pitch, he had computer print-outs of the publication histories of Harry and his MRS colleague. His colleague's list was very impressive, running to several pages. Then the sales representative took another scroll from his pocket and rolled it out—all eight or so feet of it. Harry laughed like a donkey brays—if you knew him, you knew his abrupt laugh of sheer delight—but he did not give the guy the business.

Harry John Leamy III

After his (very happy and productive) year as president of the Society, Harry continued his research—and he took up fishing. I am proud to say that I introduced him to it, and reluctant to admit the teacher became the pupil. Harry became a fine fisherman, and we wetted lines from the Ozark Mountains and the Delaware River to Alaska. The photograph on this page shows him with a fat, handsome smallmouth bass that he plucked from the icy waters of Pipestone Lake in western Ontario in May of 2003. He caught a trophy musky on that trip, too.

I am told that Harry was somewhat of a renaissance researcher. All of his projects were at the leading edge of their respective fields at the time and his contributions were always significant and sometimes seminal. He moved from metallurgy to electronic materials to electron microscopy and evidenced a thorough understanding of the details in each instance while maintaining a firm grip on the larger context of the work. This is a rare talent. Then, as the Bell System disintegrated, Harry was sent from New Jersey to Dallas as head of AT&T Energy Systems Research & Development. In 1992 he joined the University of North Carolina at Charlotte as a professor, asso-

Harry Leamy catches a smallmouth bass in western Ontario, 2003.

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Leamy's Materials Research Contributions Highlighted

Harry John Leamy III, the 1983 president of the Materials Research Society, devoted his professional career to materials research and to the leadership of research and development activities and organizations. Early on, he learned the benefits of multidisciplinary research, achieving results, he said, that would never occur within isolated historically defined disciplines.

Trained as a physical metallurgist, he contributed significantly to the understanding of elastic/plastic deformation of ordered alloys, morphology of alloy phase transformations, structure of the solid–liquid interface, mechanical and magnetic properties of metallic glasses, microstructures of thin films, electrical properties of defects in crystalline semiconductors, and laser annealing in semiconductors.

As part of his doctoral work at Iowa State University, Leamy showed that the remarkable work hardening rate and five-stage stress-strain behavior of long-range–ordered Fe–Al alloys results from the motion of three distinct varieties of superlattice dislocation. He subsequently accepted a post-doctoral position at Max Planck Institute for Metallurgy in Stuttgart, Germany, where he authored the first publication in which the specific influence of both interphase and antiphase boundary energy upon morphology of ordered precipitates was explicitly considered (*Acta Metall*. **18** 1970, p. 31).

In 1969, Leamy joined Bell Laboratories as a member of the technical staff and remained through the company's various changes, departing in 1991 as head of the Energy Systems R,D&E Department (AT&T Bell Laboratories) in Mesquite, Texas. With K.A. Jackson, G.H. Gilmer, J.D. Weeks, and others, Leamy studied statistical thermodynamics of the solid–liquid interface, performing the first application of the Monte Carlo method to surfaces from which they uncovered the critical exponents of the surface roughening transition. In later work with Jackson and L.C. Kimerling, Leamy invented a laser-based system for thermal-gradient-zone-migration in semiconductors.

In metallic glass research, he collaborated to produce the first study of anelastic behavior in amorphous alloys. He and his collaborators were the first to discover the unique catastrophic flow mechanism of failure in glassy ribbons, and Leamy and Gilmer provided the first cogent theory of "explosive" crystallization of amorphous thin films that they later confirmed experimentally. This was followed by seminal work on ferromagnetism in Fe-based glasses. This body of work established metallic glasses as a material with enormous potential, which is now being practically realized.

In work performed with Kimerling, A.J.R. deKock, and S.D. Ferris, Leamy pioneered the use of transparent Schottky contacts for examination of bulk materials and provided the first satisfactory description of the imaging mechanism for dislocations and dopant striae.

During a sabbatical at N.V. Philips Research Laboratories in Eindhoven, the Netherlands, in the 1970s, Leamy and A.G. Dirks studied the origin of perpendicular anisotropy in amorphous, ferromagnetic Ge-Co thin films. They uncovered a microscopic substructure of columnar form which was found to be a common feature of vapor-deposited thin films. Dirks and Leamy identified the geometrical origin of the structure, which they published in an article that has since become a classic (*Thin Solid Films* **47** 1977, p. 219).

Within the Bell Labs system, Leamy defined and supervised a program to develop process technology for flip-chip attachment of very large-scale integrated circuit parts on a silicon interconnection substrate (1984–1986), and conceived and led the development of an advanced, lead-acid battery product and guided the development of a rechargeable lithium battery of energy density three times that of conventional technology (1986–1989). He became department head of energy systems at AT&T Bell Labs in 1989.

When Leamy became director of the Applied Research Center at the University of North Carolina–Charlotte in the 1990s, he brought his years of industry experience to academia. He remained at the university until his retirement in 2004.

ciate dean of engineering, and director of the C.C. Cameron Applied Research Center. When he retired in 2004 he was named Emeritus Professor of Mechanical Engineering and Engineering Science, and Emeritus Professor of Physics.

Harry died at the age of 67 on July 23 at his retirement cottage on a lake in Salem, S.C., of complications related to acute myelogenous leukemia. He faced leukemia with optimism and characteristic humor and lived each day with gratitude and hope. He was a powerful example of suffering with dignity and deepening faith. Harry is survived by his wife, Eileen; his children, Harry John IV, Jennifer, and Jillian; his brothers, Larry, Patrick, and Don; his stepdaughters, Phaedra and Jessamin; and his grandson, Finn. He was preceded in death by his parents and his wife, my sister-in-law, Janet.

Harry was a joyful man, and those members of MRS who were present when he was at the helm will recall his optimism and confidence and exuberance. He was happy when he was on the water, and when he was with his family and friends, and especially when he was working, whether at his laboratory bench or building a lattice of walkways and gazebos between his deck and the lake. As we both grew old we delighted each other with anecdotes about those days when materials were his professional life.

And he took great pride that fate put him at the helm of the Materials Research Society at the very time materials were beginning to assume such an important role in technology—and that he handled that job faithfully, and even passionately.

TIMOTHY MIDDLETON

After editing the MRS Bulletin *under Harry Leamy's continued persuasion, Timothy Middleton went on to become an editor in New York City and later an investment adviser. He is the editor of the* ETF Insider *investment newsletter, author of* The Bond King *(Wiley & Sons), and a columnist for* MSN Money.

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