John S. Laughlin, PhD (1918–2004)

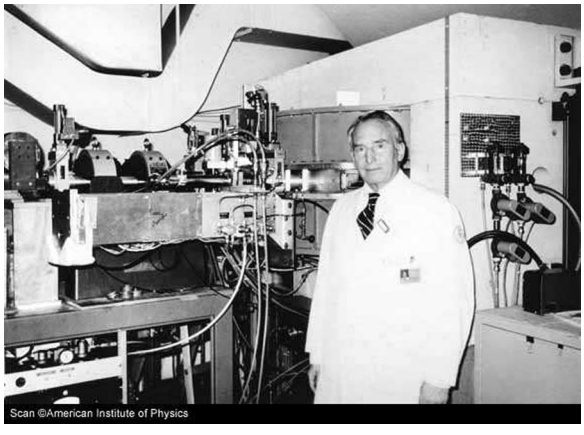
John Seth Laughlin, one of the fathers of medical physics, died on December 11, 2004, from complications of acute myelogenous leukemia. He was born in Canton, MO, on January 26, 1918. He received his PhD in nuclear physics from the University of Illinois in 1947, where he performed research on particle accelerators, in particular on early cyclotrons with Professors P. Gerald Kruger and Donald W. Kerst, who invented the betatron. These years provided the foundation for John's interest in the cyclotron production of radionuclides for imaging and therapy, as well as in the uses of high-energy electrons and x-rays for therapy, and culminated in the first use of high-energy electrons produced by a betatron dedicated to the purpose of radiation therapy. This betatron was donated to the Smithsonian Institution in 1977.

In 1952, he became the chair of medical physics at Memorial Hospital for Cancer and Allied Diseases and Sloan–Kettering Institute (later Memorial Sloan–Kettering Cancer Center; New York, NY), a position that he held until 1990. During these years, John pioneered developments in every area of diagnostic and therapeutic radiologic physics. Recognizing the potential of short-lived positron-emitting nuclides, including ^{11}C, ^{13}N, ^{15}O, and ^{18}F, in 1968 he installed the first medical cyclotron in a hospital (and in the heart of New York City), which remained operational until 2000. Here he pioneered research with a number of radionuclides in addition to those already mentioned and many metabolically important radiolabeled compounds. In addition to building high-energy optimized whole-body rectilinear scanners to image these nuclides, a large-field dual-head coincidence gamma camera for dynamic studies, also optimized for high energies, was built under his leadership in the 1960s. These devices also pioneered digital data acquisition and computer processing for digital display and quantitation. John served as the chief of nuclear medicine for a short period, before the appointment of Dr. Richard S. Benua to that position.

John's research covered every aspect of medical physics, from advancing the quality of medical imaging, through improving the accuracy of radiation dosimetry and the understanding of radiation safety, to optimizing radiotherapy delivery. Of particular importance to our field was his abiding interest in and contribution to nuclear medicine, which remained with him to the end of his life. A few examples of his significant contributions to nuclear medicine include his 1959 publication on the medical applications of radionuclides *(1),* his early interest in bone marrow dosimetry *(2),* the use of ^{47}Ca for bone imaging *(3),* and the potential of total-body scanning *(4).* John foresaw the potential of cyclotron-produced PET tracers and championed the use of compact cyclotrons located in hospitals dedicated to the production of medical radiotracers *(5,6)* for the production of ^{18}F *(7)* and ^{13}N *(8),* a vision that has been fulfilled today. He also recognized early the power of quantitative digital radionuclide imaging *(10, 11)* as a means to noninvasively measure physiologic processes in addition to its uses for radionuclide dosimetry *(12).*

Another legacy is the hundreds of physicists and physicians who trained with John as graduate students, postdoctoral fellows, and residents. Into each of these individuals he instilled a combination of passion, rigor, and tireless energy to pursue his or her scientific dreams, a debt for which we are all eternally grateful. In addition to his position as chair of the Department of Medical Physics of Memorial Hospital and professor of radiology at Cornell University Medical College, John served as a vice-president of the Sloan–Kettering Institute (1966–1972) and chief of the Institute's Laboratory of Biophysics (1955–1989). He was elected president of the American Association of Physicists in Medicine (AAPM; 1964–1965), Radiation Research Society (1970–1971), International Organization of Medical Physics (1969–1972), and Health Physics Society (1960–1961) and served as vice-president of the Radiological Society of North America (1992). For many years, he served on the physics panel of the American Board of Radiology. He chaired the Med-

(Continued on page 26N)



John Laughlin at Memorial Sloan–Kettering Cancer Center; New York, NY with the first medical cyclotron to be located in a hospital.

(Continued from page 24N)
tional Atomic Energy Agency and to promote educational activities in developing countries.

Our PET Center of Excellence and Molecular Imaging and Radionuclide Therapy Trials (MIRT[2]) continue to do well and are accelerating their activities, placing SNM in a strategic position to enhance its role in promoting education to help with the accelerated approval of novel radiopharmaceuticals.

Our communication with the Food and Drug Administration and its understanding of our needs is better today than it has ever been. We must continue to work with the Nuclear Regulatory Commission to increase communication and better understanding of our role in the diagnosis and treatment of diseases. Our Lifelong Learning Self-Assessment Program for maintenance of certification is unique. When fully completed and implemented, it will add to SNM's strength in education and serve our physician members in critical times.

Although I am pleased and proud of SNM's achievements and long-term strategic goals, we must not forget that we live and work in a rapidly changing world in which we face unprecedented competition. Although SNM expects competition, to remain both up to date and competitive, we must continue to be focused and prepared for unthinkables both in opportunities and threats. We must be proactive and seek ways to grow, because growth is a sign of success, helps attract more members, adds to the strength of our voices, and leads to greater success.

SNM is a voluntary organization, and it is blessed with many bright stars—physicians, scientists, and technologists. However, I believe that more champions, who are willing to invest time and energy to participate in many SNM activities, are needed. As president, I learned that governing SNM is similar to conducting a symphony. The beautiful music comes from the orchestra, not the conductor. I want to thank all those who participate in this great orchestra and continue to make selfless sacrifices of their time and efforts to make extensive contributions to the welfare of SNM.

I want especially to thank 3 women, without whose support this presidency wouldn't have been so rewarding: my wife Lalita, who never complained of my countless days away from home, or when I completely ignored my household responsibilities; my chairperson, Dr. Vijay Rao, who never questioned my unprecedented absence from work and who encouraged me to work harder and do better; and Virginia Pappas, our executive director, for her total dedication to the leadership and to SNM. SNM leadership changes, new ideas evolve, and new problems arise. Virginia and her excellent staff provide the bridge and care, without which this organization would not have been as visible, vigilant, and victorious.

Mathew L. Thakur, PhD
President, SNM

(Continued from page 22N)
ical Advisory Committee of the New York City Department of Health from 1960 through 1978. He was a founder of the AAPM and received the William D. Coolidge Award, its most prestigious prize, in 1974. He also received the Distinguished Scientific Achievement Award of the Health Physics Society in 1982, the Aebersold Award of the SNM in 1984, the gold medal of the American College of Radiology in 1988, and the gold medal of the American Society for Therapeutic Radiology and Oncology in 1993.

John Laughlin will be sadly missed but always remembered as a man whose contributions to our field are almost without precedent and who, on the occasion of the 2004 Laughlin Lecture at our institution, exhibited the same interest and enthusiasm for the use of cyclotron isotopes at Memorial as he had done during his entire life.

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