

## Lewis V. Spencer is First Recipient of Gray Medal



The International Commission on Radiation Units and Measurements (ICRU) announced today that Lewis V. Spencer is the first recipient of the L.H. Gray Medal. Dr. Spencer, a physicist at the U.S. National Bureau of Standards and Professor of Physics at Ottawa University (Kansas), will receive the award at the XIIIth International Congress of Radiology to be held in Tokyo, Japan, October 6-11, 1969 where he will also give a scientific lecture on an appropriate topic.

The award to Dr. Spencer is based on his long-term study of the theory of charged particle penetration. The theory of electron penetration is crucial to an understanding of dosimetry and Dr. Spencer was the first to obtain from first principles the spatial distribution of energy dissipation in the continuous slowing-down approximation. He has also calculated the electron slowing-down spectrum including the effects of energy-loss straggling and the production of secondary electrons. This work culminated in the application of calculations to an extension of Gray's theory of cavity ionization chambers. The result was a cavity ionization function which related the energy absorbed in the cavity to the slowing-down electron spectrum in the walls. His paper on this topic has become one of the fundamental papers in the field of radiation dosimetry.

Dr. Spencer also developed a mathematical treatment of the Boltzmann equation which led to an extremely accurate calculation of the penetration of gamma rays in matter. The gamma-ray buildup factors used extensively in shielding calculations throughout the world are based on these calculations.