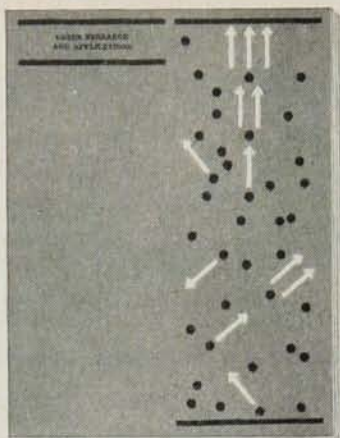


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## OBITUARIES

**Hartland S. Snyder**, senior physicist at the Brookhaven National Laboratory, died on May 22 in a hospital in Berkeley, Calif., after having suffered a heart attack. He had been on leave of absence from Brookhaven since September of last year in order to participate in studies of advanced accelerator design at the University of California's Lawrence Radiation Laboratory. He was serving as a member of the Theoretical Physics Division at LRL.

Born in Salt Lake City in 1913, he received his BS degree from the University of Utah in 1937. He earned his PhD three years later at the University of California, where his doctoral dissertation (on the theory of cosmic-ray showers) was prepared under the supervision of J. R. Oppenheimer. Dr. Snyder became a member of the physics faculty at Northwestern University in 1940 and remained there until 1947 when he joined the Brookhaven staff. During the war years, he also served as a civilian scientist with the Office of Scientific Research and Development, working on infrared detection.

Dr. Snyder was known as one of the discoverers of the "strong-focusing" or alternating-gradient principle which was so successfully applied in the design of the multibillion-volt proton synchrotrons now operating at the CERN Laboratory in Switzerland and at the Brookhaven National Laboratory. The alternating-gradient approach offered a means of circumventing the energy limitation imposed by the size and cost of the magnets required in the construction of ultra-high-energy accelerators. The concept of focusing the beam of accelerating particles by alternating the gradient of the magnetic field, which was proposed in December 1952 in a *Physical Review* paper by Courant, Livingston, and Snyder, led to the use of ring magnets of large diameter but small cross section and made feasible the construction of the CERN proton synchrotron and the Brookhaven AGS.

Apart from his work on accelerator design, Dr. Snyder's research interests included problems in general relativity, the theory of elementary particles, plasma physics, and controlled thermonuclear reactions. He was a fellow of the American Physical Society.

**Andrew E. Douglass**, emeritus director of the Steward Observatory of the University of Arizona, died in Tucson on March 20. Born in Windsor, Vt., in 1867, he received his AB degree from Trinity College (Connecticut) in 1889 and then became an assistant at the Harvard Observatory, serving for the next several years as a member of an expedition to Peru which was organized by Harvard. He was appointed first assistant at the Lowell Observatory in 1894.

In 1903 he was named probate judge for Coconino County in the Arizona Territory, but left the bench in