of shock and detonation hydrodynamics at the Institute for Advanced Study and subsequently became a member of the Technical Section of the Naval Attache's Office in the American Embassy in London, working on military operations research. Toward the end of the war Dr. Calkin joined the staff of the Los Alamos Scientific Laboratory as a member of the Manhattan Project, remaining until 1946 when he accepted a Guggenheim fellowship at the California Institute of Technology. He later taught at the Rice Institute in Houston before returning to Los Alamos in 1949 as a member of the theoretical division. In 1958, he accepted a consulting appointment at New York University and at Brookhaven National Laboratory and, in 1961, was named head, and then chairman of the Applied Mathematics Department.

Dr. Calkin was a member of the American Physical Society and American Mathematical Society.

Henry J. Bolger, C.S.C.

Henry J. Bolger, C.S.C., associate professor of physics at the University of Notre Dame, died of a heart attack on May 4 at the age of 63. Father Bolger headed the Notre Dame Department of Physics from 1937 until September 1963. Under his guidance, undergraduate and graduate physics major programs were developed, and the full-time teaching staff grew to a total of 23.

Father Bolger was a native of Portland, Wisconsin. He graduated from Notre Dame in 1924 and received a master's degree from the Catholic University of America in 1929. Later, he did additional graduate work at the California Institute of Technology. From 1929 to 1932, he served as an instructor in the Physics Department at Notre Dame. In 1936, he was appointed associate professor in the Department. During World War II, he worked on the Manhattan District Project, returning to Notre Dame after the war, where he remained until his death. He was a fellow of the American Physical Society.



Recent years have seen great strides in small parts fabrication. Sandia engineers are now applying these advances to the design of microminiature mechanical components such as switches, velocimeters and timers. Exploiting the unique physical properties of tiny, thin-metal elements, they are not only developing working components of the size shown above, but the tools and techniques of manufacture as well. The parts will be fabricated to fine tolerances by electroplating, stamping, coining and chemical milling; assembly will be automatic. A modular design feature will allow common piece parts for many applications. In addition to being smaller and lighter, these miniature components are expected to be more reliable, quicker to develop and easier to manufacture than conventional designs.

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