

60 YEARS OF GREAT SCIENCE 1943 2003

Among the most cherished artifacts of Oak Ridge National Laboratory is a small unassuming logbook with pages yellowed by time. The book was used by a group of researchers doing classified work in 1943 to record experiments at the X-10 Pile, a facility that later became known throughout the American scientific community as the Graphite Reactor. The book's most famous entry is dated November 4, 1943, with scrawled handwriting that reveals the author's excitement. The entry records a historic event of profound significance that had taken place in the hours just before dawn. In the hills of rural East Tennessee, the world's first powerful nuclear reactor had gone critical, ushering in the age of nuclear power and forever changing our assumptions about how we view science and its impact on our lives.

The extraordinary scientific breakthrough was the first in what was to be a long and distinguished list of contributions from the staff at ORNL. On the occasion of the Laboratory's 60th anniversary, we thought it appropriate for the *ORNL Review* to reflect on many of ORNL's contributions in science and technology that have improved people's lives. Our list is unavoidably an arbitrary one. Still, I believe the following pages capture both the scope of scientific research and the enormous influence of that research on a broad field of human endeavor. From nanophase materials research conducted at the atomic level, to the galactic scale of our experiments in astrophysics, ORNL for six decades has pushed the frontiers of science for the betterment of humankind.

The cover of the *Review's* anniversary edition pictures three lab directors who in many ways personify the evolution of ORNL's mission from a singular focus on developing nuclear weapons in 1943 to a broad and diverse center for world class scientific research in the 21st century. Alvin Weinberg, as research director and later as laboratory director, was among the first to understand that the laboratory must be a living organism, able to accommodate changes in America's scientific priorities. His leadership was critical in developing energy and environmental research competencies that strengthened ORNL's role in the nation's scientific community during the 1960s and 1970s.

Alvin Weinberg's vision was complemented by Herman Postma, who guided the laboratory through the transition from the Atomic Energy Commission to the new Department of Energy. Much of the laboratory's current suite of scientific capabilities, including an international reputation in advanced materials, can be traced to the leadership two decades ago of Herman Postma. These capabilities were enhanced further in the 1990s when Al Trivelpiece

dreamed that ORNL could one day be home to the world's most powerful pulsed-neutron accelerator, the Spallation Neutron Source. Today atop Chestnut Ridge near the ORNL campus, the SNS has passed the halfway point in construction. When the SNS opens in 2006, ORNL will be the world's foremost center of neutron science research.

As we celebrate 60 years of great science and technology at ORNL, our challenge is to build on Alvin Weinberg's notion of a laboratory whose mission evolves and strengthens over time. To that end, we continue to build on ORNL's historic competencies in energy, life sciences, neutron sciences and advanced materials while adding new research missions in the areas of national security and high-performance computing. Equally important, we are literally rebuilding ORNL by undertaking a \$300-million modernization program that will maintain our laboratory as one of the world's leading scientific research centers.

As we move into our new facilities, we will provide a place of distinction for that unassuming logbook that chronicled some of our earliest contributions. We do so knowing that this great event was only the first of many chapters in a story of success that will continue for years to come.

Wilhelm Madia



Bill Madia,
ORNL Director

OAK RIDGE NATIONAL LABORATORY

REVIEW

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