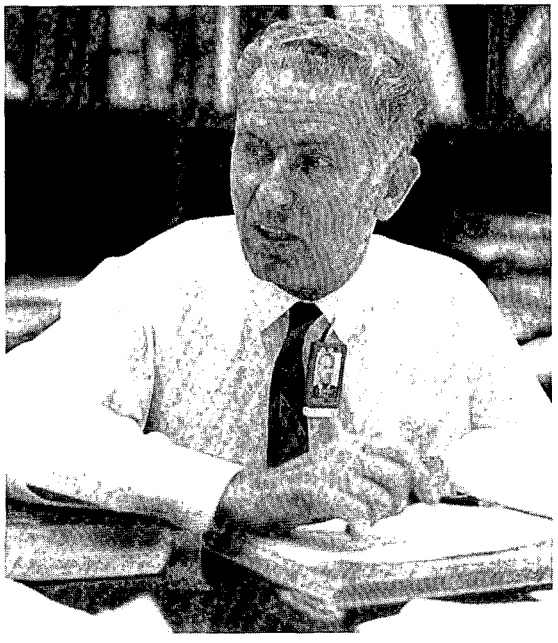

Francois Kertesz, an electrochemist from the Sorbonne, became the Laboratory's linguist and translator.

nuclear reaction underwater, and it provided superb training for those who were to serve subsequently as operators for the full-scale reactor in Idaho.

As its reactor program burgeoned, the AEC relaxed its previous plans to centralize reactor development and construction at Argonne National Laboratory and Idaho National Engineering Laboratory. In fact, the AEC allowed the Laboratory to upgrade the mock-up's shielding and cooling systems. These improvements raised the system's capacity to 3000 thermal kilowatts, only one-tenth of the Materials Testing Reactor's maximum power but still useful for experiments.

Labeled the "poor man's pile" by Wigner, the mock-up formally became the Low Intensity Test Reactor (LITR). Experiments conducted at the LITR established the feasibility of the boiling-water reactor, which later became one of the design prototypes for commercial nuclear power plants. Operated remotely from the Graphite Reactor control room, the "poor man's pile" served the Laboratory until 1968 when the AEC shut it down after a long, useful life.

"Experiments conducted at the LITR established the feasibility of the boiling-water reactor."

Flying Reactors

With funds drawn largely from the U.S. Air Force, the Laboratory's major entrance into reactor development during the 1950s came through efforts to design a nuclear airplane. British and German development of jet engines at the end of World War II had given quick, defensive fighters an advantage over slower long-range offensive bombers. To address the imbalance, General Curtis LeMay and Colonel Donald Keirn, both of the Air Force, urged development of nuclear-powered bombers. In 1946, they persuaded General Groves to approve Air Force use of the vacated S-50 plant near the K-25 Plant in Oak Ridge to investigate whether nuclear energy could propel aircraft.

The initial concept called for a nuclear-propelled bomber that could fly at least 12,000 miles at 450 miles per hour without refueling. Such range and speed would enable nuclear weapons to be delivered via airborne bombers anywhere in the world. The aircraft, however, would require a compact reactor small enough to fit inside a bomber and powerful enough to lift the airplane into the air, complete with lightweight shielding to protect the crew from radiation.

Under Air Force contract, the Fairchild Engine and Airplane Corporation then established a task force at the S-50 plant to examine the feasibility of nuclear aircraft and arranged with Wigner to receive scientific support from the Laboratory. Initial studies conducted by the Fairchild Corporation at the S-50 plant showed promise and, in 1948, the AEC asked the Massachusetts Institute of Technology (MIT) to evaluate the feasibility of nuclear-powered flight. MIT sent scientists to Lexington, Massachusetts, for a summer's appraisal, and they reported that such flight could be achieved within 15 years if sufficient resources were applied to the effort. In September 1949, the AEC approved Laboratory participation in an aircraft nuclear propulsion project. Weinberg was made project director and Cecil Ellis coordinator. Raymond Briant, Sylvan Cromer, and Walter Jordan later served as directors of the Laboratory's Aircraft Nuclear Propulsion (ANP) project.