marked off, the bulldozers moved in, and a city which reached a maximum of 75,000 inhabitants sprang up in a matter of months. The community was named Oak Ridge, for it lay along a crest known as Black Oak Ridge, and the whole establishment was called "Clinton Engineer Works," after the nearby town of Clinton.

The scientists from Columbia joined forces with the Union Carbide Corporation and set up an enormous plant for separating isotopes of uranium by means of their new gaseous diffusion process. The men from California joined with the Tennessee Eastman Company and erected a fantastic set of magnetic separators as an independent attack on the same job. The fourth plant was designed and constructed for the separation job also, but its process, based on thermal diffusion, was deemed less promising and the project was discontinued. The physicists and chemists from Chicago had a different kind of problem on their hands. They joined forces with the Du Pont Company, and it is their story that we wish to follow in particular.

Late in 1942 the Metallurgical Laboratory had succeeded in the controlled release of nuclear energy. Conditions had been found under which neutrons could propagate a chain reaction in uranium, burning the rare isotope U–235. This, however, was only the first step toward the wartime need. The chain reaction supplies extra neutrons which on being absorbed by the other uranium isotope, U–238, produces a new element, plutonium. Plutonium in kilogram quantities was the objective of the moment. However, it was unsafe to operate a high-powered nuclear chain reactor in the midst of Chicago, with little shielding and under the knowledge that the reaction had in it the power to go out of control and cause a disaster. Therefore the Metallurgical Laboratory established at its branch, "Clinton Laboratories" in Oak Ridge, a much larger chain reactor, air-cooled and originally designed to dissipate 500 kilowatts of heat from nuclear fission, but it was quickly raised to several times that level. This "X–10" reactor was the first nuclear reactor to be run at power; it gave mankind its first experience in the behavior of reactors when they are operated under other than cold conditions. And most importantly, it provided the plutonium needed to operate the pilot plant and show that the separations process to be used for full scale production at Hanford was workable.

Although the original purpose of Clinton Laboratories, later named the Oak Ridge National Laboratory, was met by mid-1945, these early years left an imprint which remains even today. There is an acceptance of the responsibility for pursuing goals in the national interest, and teams composed of many disciplines are willing to work together in achieving important objectives. There still exists the chemical and chemical engineering flavor of the Laboratory's first assignment, and it shows up in ORNL-developed processes used for fissionable material production throughout the Commission and for the recovery of uranium and thorium from ores. Even the ORNL power reactors, based upon the fluid fuel concept, follow this chemical tradition.

After the war there was a period of readjustment. Many of the scientists left for university posts, but a sufficient number remained to form the nucleus of what is now the Oak Ridge National Laboratory. The University of Chicago relinquished the responsibility of operation, to be followed by the Monsanto Chemical Company, and then by the Union Carbide Corporation, whose contract with the Atomic Energy Commission has been in force at the Laboratory since 1948. Thus the business and personnel policies of the Laboratory are those of the Union Carbide Corporation, but the research policies are determined by the Laboratory management in direct collaboration with the Atomic Energy Commission or other government agencies such as may be involved.

The Oak Ridge National Laboratory today provides a striking contrast to the original laboratory which cost $13 million and had a wartime peak staff of 1515 people. The now diverse program which encompasses almost every area of interest to the AEC—and other federal agencies as well—is carried out by a staff of more than 5400 people in facilities valued at $365 million. The annual operating cost of ORNL is about $100 million. About 87% of this represents programs of the AEC itself; the balance, work for other government agencies. Of the AEC portion, approximately 44% is devoted to reactor development and technology; 39% to physical research; 15% to the life sciences; 2% to radioisotopes development; and smaller amounts to nuclear education and training.

At ORNL, two approaches to organization are traditional. First, we have divisions which may be grouped somewhat homogeneously by discipline. Five divisions are primarily chemically oriented; six are mainly concerned with physics; and five are concerned one each with biology, health physics, mathe-