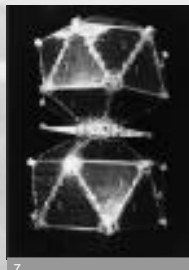




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the stewardship of **NUCLEAR WEAPONS**

The Stewardship of Nuclear Weapons



1 D building was the site of plutonium processing at Los Alamos during World War II. Plutonium was first manufactured in 1941 in cyclotrons. Its material properties were almost completely unknown at the start of the Manhattan Project. Los Alamos scientists were able to determine many of those properties in less than two years.



2 The "gadget," the first nuclear test device, was assembled at the base of the tower at Trinity site on July 15, 1945. Norris Bradbury is standing at right. This was the prototype of the weapon dropped on Nagasaki on August 9, 1945.



3 The first thermonuclear device, Mike, is shown clad in cryogenic plumbing on Elugelab island in 1952 with Laboratory scientists and officials of American Car and Foundry, the company largely responsible for fabricating the device. The extensive cryogenic equipment required to liquefy the deuterium and tritium fuels in Mike gave rise to the modern cryogenics industry.



4 "Mike" was detonated on Halloween, 1952. Its yield was 10 megatons—an order of magnitude larger than the yield of the largest fission weapon of the time..

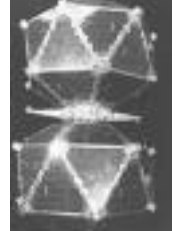


5 The first deliverable thermonuclear weapon, the Mark 17, was the largest weapon ever deployed by the U.S. military—it weighed 21 tons. It remained in the stockpile only two years before being replaced by smaller, lighter, and more easily handled



6 This 280-millimeter artillery shell enclosed a Mark 19 warhead, which was produced from 1955 to 1956. In reaction to the Korean War and the Soviet threat in Europe, the military saw a need for such tactical nuclear weapons.

7 The Vela satellites, deployed in support of the Limited Test Ban Treaty of 1963, carried sensors designed at Los Alamos to detect nuclear explosions in the atmosphere and in space. Between 1969 and 1972 Laboratory scientists found the first evidence of gamma-ray bursts in data from these satellites. The question of whether these extremely intense bursts originate inside or outside our galaxy is now hotly debated by astrophysicists in the Laboratory and around the world.



8 B-61 bombs are being loaded into a military aircraft. The B-61, which has been extensively modified since it was first introduced into the stockpile, is one of the most versatile bombs ever designed at Los Alamos.



9 President Ronald Reagan and Soviet Premier Mikhail Gorbachev signed the treaty eliminating intermediate-range nuclear weapons on December 8, 1987. This treaty was the first of a series that, together with the demise of the Soviet Union, ended the nuclear arms race.



10 The Joint Verification Experiment in August and September 1988 at the Nevada Test Site and the Soviet test site at Semipalatinsk demonstrated the effectiveness of CORTEX (continuous reflectometry radius-time experiment), a system developed at Los Alamos to measure the hydrodynamic yield of an underground nuclear experiment. CORTEX helped with the enforcement of the Threshold Test Ban Treaty of 1974.



11 A nuclear weapon is being unloaded for dismantlement. Los Alamos and the other weapons laboratories have responsibility for removing nuclear weapons from the stockpile and dismantling them.

