

= Raemer Schreiber =

Raemer Edgar Schreiber (November 11 , 1910 ? December 24 , 1998) was an American physicist from McMinnville , Oregon who served Los Alamos National Laboratory during World War II , participating in the development of the atomic bomb . He saw the first one detonated in the Trinity nuclear test in July 1945 , and prepared the Fat Man bomb that was used in the bombing of Nagasaki . After the war , he served at Los Alamos as a group leader , and was involved in the design of the hydrogen bomb . In 1955 , he became the head of its Nuclear Rocket Propulsion (N) Division , which developed the first nuclear @-@ powered rockets . He served as deputy director of the laboratory from 1972 until his retirement in 1974 .

= = Early life = =

Raemer Edgar Schreiber was born in McMinnville , Oregon on November 11 , 1910 , the son of Bertha (née Raemer) and Michael Schreiber . He was educated at Masonville Grade School and McMinnville High School . In 1927 he entered Linfield College in McMinnville , where he majored in physics and mathematics , and received his Bachelor of Arts degree in 1931 . He then earned his Master of Arts degree from the University of Oregon in 1932 . He married Marguerite Elizabeth Doak , a Linfield College French major in 1933 . They had two daughters , Paula and Sara .

Schreiber was a graduate assistant at Oregon State College from 1932 to 1935 , when he became an instructor at Purdue University . He was awarded his Ph.D. from Purdue in 1941 , writing a thesis on an " Investigation of Nuclear Reactions and Scattering Produced by Neutrons " . For his thesis , he constructed a neutron generator , and originally intended to discuss the possibilities of studying neutron diffraction in crystals , but this really only became possible with the development of nuclear reactors that produced large quantities of high energy neutrons . After the discovery of nuclear fission in 1939 , he became interested in the phenomenon , and re @-@ oriented his thesis to the study of neutrons emitted by fission .

= = Manhattan Project = =

From 1942 to 1943 , Schreiber was a researcher with the Purdue Research Foundation . He participated in early work for the Manhattan Project there using the university 's cyclotron . In 1943 , he joined the Los Alamos Laboratory , and moved to Los Alamos , New Mexico with his wife and 16 @-@ month @-@ old daughter . At Los Alamos , he worked on the Water Boiler , an aqueous homogeneous reactor . The Water Boiler group was headed by Donald W. Kerst from the University of Illinois , and consisted mainly of people from Purdue who had been working on calculations for Edward Teller 's thermonuclear " Super " bomb . The group designed and built the Water Boiler , which commenced operation in May 1944 . It was intended as a laboratory instrument to test critical mass calculations and the effect of various tamper materials . It was the first reactor to use enriched uranium as a fuel , and the first to use liquid fuel in the form of soluble uranium sulfate dissolved in water .

Schreiber worked on improved reactor designs until April 1945 , when he was transferred to Robert Bacher 's Gadget (G) Division as a member of the pit assembly team for the Trinity nuclear test . He observed the explosion from the Base Camp on July 16 . Nine days later , Lieutenant Colonel Peer de Silva , the official courier , and Schreiber collected another plutonium pit , which Schreiber carried in a magnesium case . They took it to Kirtland Army Air Field , where they boarded a C @-@ 54 transport plane on July 26 . Two days later , they arrived on the Pacific island of Tinian , where Schreiber helped assemble the Fat Man bomb that was used in the bombing of Nagasaki on August 9 . Comparing it with the firebombing of Tokyo by B @-@ 29 bombers that killed 100 @,@ 000 people in one night in March 1945 , Schreiber noted that :

Just the fact you could do the same thing with one airplane and one bomb proved the efficiency , but it didn 't change the effect very much . But the firebombing , the saturation bombing of the B @-@ 29s , was not bringing Japan to its knees , and the shock effect of one airplane being able to

wipe out a city , I think , is what finally convinced the Japanese military they had to give up .

= = Later career = =

After the war , Schreiber remained at Los Alamos , where he became a group leader in the Weapon (W) Division . His first assignment was to ready bombs for the Operation Crossroads nuclear tests at Bikini Atoll in the Pacific . During the preparations , he witnessed the accident in which Louis Slotin was exposed to a fatal dose of neutron radiation when a screwdriver Slotin was using during a criticality experiment with one of the plutonium pits for Operation Crossroads slipped and the core went critical . Slotin would die from radiation poisoning nine days later but his quick reaction saved the lives of Schreiber and the others in the room (see also : demon core) . Schreiber became an exponent of remote handling of dangerous substances , and designed remote @-@ control machines to perform such experiments with all personnel at a quarter @-@ mile distance .

He went on to lead the pit teams on Bikini Atoll in June and July 1946 .

Schreiber became the associate leader of W Division in 1947 , and then the head of the division in 1951 . During this time , W Division worked on the development of the hydrogen bomb . He was once again in charge of the pit crew for the Ivy Mike nuclear test on Enewetak Atoll in the Pacific , the first test of a thermonuclear device . Even the veteran Schreiber was impressed by the 10 @-@ megaton @-@ of @-@ TNT (42 PJ) explosion . " It really filled up the sky , " he recalled , " It was awesome . It just went on and on . "

In 1955 , Schreiber became the head of the Nuclear Rocket Propulsion (N) Division , which was responsible for Project Rover and NERVA . N Division developed nuclear rocket engines required for deep space exploration . He oversaw the first successful test of a nuclear rocket engine in 1959 , In this capacity , he greeted President John F. Kennedy during the president 's visit to Los Alamos in 1962 . That year , he became Technical Associate Director , with responsibility for the entire nuclear rocket propulsion program . He became Deputy Director of Los Alamos in 1972 , and served as a member of the United States Air Force Scientific Advisory Board and NASA 's Advisory Committee on Nuclear Systems .

= = Retirement = =

Schreiber retired in 1974 , but remained as a consultant until 1995 . He served as a member of the Laboratory 's History Advisory Council in the late 1980s , and assisted in the publication of Critical Assembly : A Technical History of Los Alamos during the Oppenheimer Years , 1943 @-@ 1945 (1993) . He also helped the Human Studies Project Team by reviewing its history of medical studies at the Laboratory .

Schreiber and Marguerite bought a property at Pajarito Village in the Española Valley in the late 1940s , where they built an adobe home on the weekends . They lived there from 1955 until 1972 , when they returned to Los Alamos . He died at his home there on December 24 , 1998 . He was survived by his wife Marguerite , daughters Paula and Sara , and his sister Anna . The Laboratory 's Advanced Nuclear Technology Group (NIS @-@ 6) named its conference room the Raemer E. Schreiber Room in his honor .