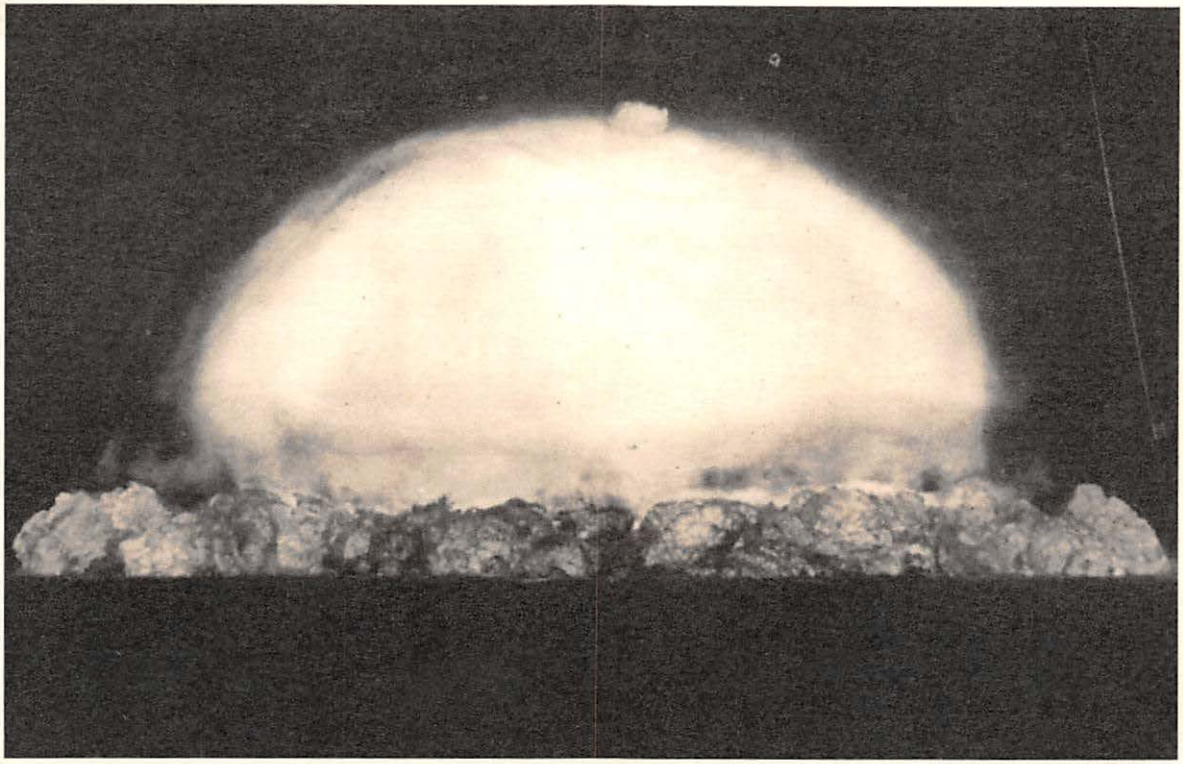
TRINITY SITE

July 16, 1945



"The effects could well be called unprecedented, magnificent, beautiful, stupendous and terrifying. No man-made phenomenon of such tremendous power had ever occurred before. The lighting effects beggared description. The whole country was lighted by a searing light with the intensity many times that of the midday sun."

-Brig. Gen. Thomas Farrell

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RADIATION BASICS

Radiation comes from the nucleus of individual atoms. Simple atoms like oxygen are very stable. Its nucleus has eight protons and eight neutrons and holds together well.

The nucleus of a complex atom like uranium is not as stable. Uranium has 92 protons and 146 neutrons in its core. These unstable atoms tend to break down into more stable, simpler forms. When this happens the atom emits subatomic particles and gamma rays. This is where the word "radiation" comes from -- the atom radiates particles and rays.

Atom Emissions

Health physicists are concerned with four emissions from the nucleus of these atoms. One of these radiations is the alpha particle which is relatively large and travels fairly slowly compared to other atomic particles. Alpha particles are composed of two protons and two neutrons. They travel about one to three inches in the air and are easily stopped by a sheet of paper.

Another radiation is the beta particle, basically a very light electron that moves at less than the speed of light. These particles are more energetic than alpha particles, but can be stopped by a thin sheet of metal or heavy clothing.

The third form of nuclear radiation is the gamma ray. This is a type of electromagnetic radiation like visible light, radio waves and X-rays. They travel at the speed of light. It takes at least an inch of lead or eight inches of concrete to stop them.

Finally, neutrons are also emitted by some radioactive substances. Neutrons are very penetrating but are not as common in nature. Neutrons have the capability of striking the nucleus of another atom and changing a stable atom into an unstable, and therefore, radioactive one. Neutrons emitted in nuclear reactors are contained in the reactor vessel or shielding and cause the vessel walls to become radioactive.

Radioactive elements emit these radiations until they have reached a stable state. For some man-made radioactive materials this occurs in a few seconds. For other elements a small amount can emit radiation for thousands of years. As they break down they turn into other elements.

At ground zero, the elements emitting gamma rays and alpha and beta particles are Europium, Cesium, Cobalt, Strontium and Plutonium.

Sources for information about radiation are the American Nuclear Society, www.ans.org, and the U.S. Nuclear Regulatory Commission, www.nrc.gov.

RADIATION AT TRINITY SITE

Radiation levels in the fenced, ground zero area are very low. The maximum levels are only 10 times greater than the region's natural background radiation. Many places on Earth are naturally more radioactive than Trinity Site.

A one-hour visit to the inner fenced area will result in a whole body exposure of one-half to one millirem. The levels vary from place to place, depending on the concentration of Trinitite buried at any one spot.

To put this in perspective, Americans receive an average of 620 millirems every year from natural and medical sources. For instance, the American Nuclear Society estimates we receive between 20 and 70 millirems every year from the sun, depending on what elevation we live. We receive about 40 millirems every year from our food. Living in a brick, stone, adobe or concrete house adds seven millirems of exposure every year compared to living in a frame house. Finally, flying coast to coast by jet gives an exposure of about two millirems.

One source of radiation exposure not considered in old calculations is from radon gas. Scientists now estimate that Americans average 200 millirems of exposure per year from radon.

Trinitite, the green glassy substance found in the ground zero area, contains several radioactive elements and is an alpha and beta particle emitter.

Although radiation levels at ground zero are low, some feel any extra exposure should be avoided. The decision is yours.

Typical radiation exposures per year for U.S. citizens according to the American Nuclear Society are listed in the chart below.

Facts about radiation

* **One hour at Trinity Site ground zero = one half mrem**
* **Cosmic rays from space = 47 mrem at Denver, 28 mrem at St. Louis**
* **Radioactive minerals in rocks and soil = 63 mrems on Colorado Plateau**
* **Radioactivity from air, water and food = about 240 mrem**
* **A chest X-ray = 10 mrem and a CAT Scan = 700 mrem**
* **Watching television = less than one mrem per year**
* **Wearing a plutonium-powered pacemaker = 100 mrem**
* **Coast to coast commercial flight = two mrem**

Trinity Site National Historic Landmark

Trinity Site is where the first atomic bomb was tested at 5:29:45 a.m. Mountain War Time on July 16, 1945. The 19-kiloton explosion not only led to a quick end to the war in the Pacific but also ushered the world into the atomic age. All life on Earth has been touched by the event, which took place here.

The 51,500-acre area was declared a national historic landmark in 1975. The landmark includes base camp, where the scientists and support group lived; ground zero, where the bomb was placed for the explosion; and the Schmidt/McDonald ranch house, where the plutonium core to the bomb was assembled. Visitors to a Trinity Site Open House are given the opportunity to visit ground zero and the ranch house. In addition, one of the old instrumentation bunkers is visible beside the road just west of ground zero.

The Manhattan Project

The story of Trinity Site begins with the formation of the Manhattan Project in June of 1942. The project was given overall responsibility for designing and building an atomic bomb. At the time it was a race to beat the Germans who, according to intelligence reports, were building their own atomic bomb.

Under the Manhattan Project three large facilities were constructed. At Oak Ridge, Tennessee huge gas diffusion and electromagnetic process plants were built to separate uranium 235 from its more common form, uranium 238. Hanford, Washington, became the home for nuclear reactors which produced a new element called plutonium. Both uranium 235 and plutonium are fissionable and can be used to produce an atomic explosion.

Los Alamos National Lab was established in northern New Mexico with a primary purpose of designing and building the bomb. At Los Alamos many of the greatest scientific minds of the day labored over the theory and actual construction of the device. The group was led by Dr. J. Robert Oppenheimer who is credited with being the driving force behind building a workable bomb by the end of the war.

The theory

Los Alamos scientists devised two designs for an atomic bomb--one using uranium 235 and another using plutonium. The uranium bomb was a simple design and scientists were confident it would work without testing. The plutonium bomb was more complex and worked by compressing the plutonium into a critical mass to sustain a chain reaction. The compression of the plutonium ball was to be accomplished by surrounding it with lense-shaped charges of conventional explosives. They were designed to all explode at the same instant. The force would be directed inward, thus smashing

the plutonium from all sides.

In an atomic explosion, a chain reaction picks up speed as atoms split, releasing neutrons plus great amounts of energy. The escaping neutrons strike and split more atoms, thus releasing still more neutrons and energy. In a nuclear explosion this all occurs in a millionth of a second with billions of atoms being split.

Building the test site

Project leaders decided a test of the plutonium bomb was essential before it could be used as a weapon of war. From a list of eight sites in California, Texas, New Mexico and Colorado, Trinity Site was chosen as the test site. The area was already controlled by the government because it was part of the Alamogordo Bombing and Gunnery Range which was established in 1942.

The secluded Jornada del Muerto was perfect as it provided isolation for secrecy and safety, but was still close to Los Alamos for easy commuting back and forth. In the fall of 1944 soldiers started arriving at Trinity Site to prepare for the test. Through-

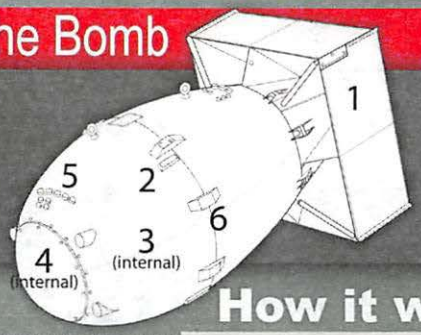
Fat Man

The Fat Man bomb case was built in the late 1940s, during World War II. It was used for training air and ground crews that handled nuclear weapons. The bomb dropped on Nagasaki, Japan August 9,1945. This type of bomb was tested at Trinity Site in southern New Mexico July 16, 1945.

- **Weight — 10,800 pounds**
- **Length — 128 inches**
- **Diameter — 60 inches**
- **Yield — equivalent to 21,000 tons of TNT**
- **Fissile material — Plutonium-239**

Fat Man was a complicated plutonium weapon. One of the two original bomb designs, Fat Man was named for Prime Minister Winston Churchill, the wartime British leader.

Parts of the Bomb



1. The wedge shaped fins at the back provided stability for the free-falling bomb. Because Fat Man was larger and fatter than Little Boy, it was subject to greater aerodynamic buffeting.

2. The four flanges are spaced evenly around the midsection anchored radar antennas, which bounced signals off the ground to determine altitude. When the bomb reached a preset altitude, the firing sequence was activated.

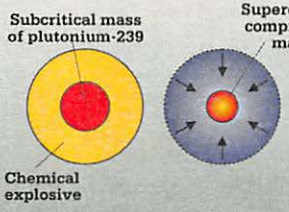
3. Fat Man was armed with multiple fuzing mechanisms, including a barometric trigger.

4. Four contact fuzes were installed in the nose in case the airborne triggers failed.

5. The small ports in the front of the bomb permitted electrical connections to the aircraft for various safety and diagnostic checks.

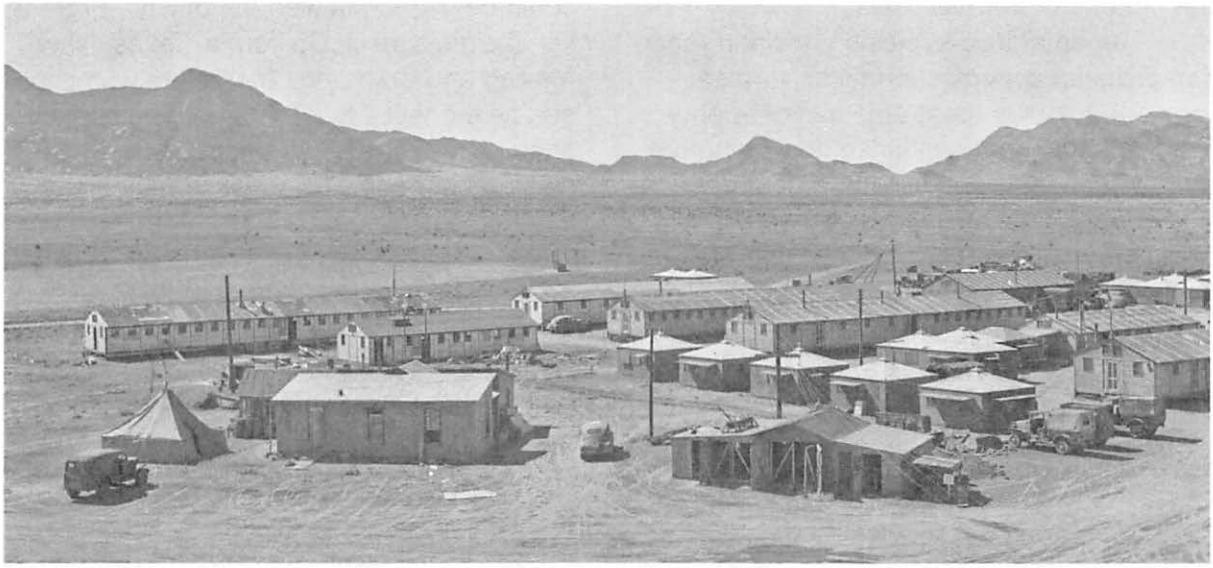
6. The latches held the two halves of the bomb together.

How it works



Fat Man, which was designed and built at Los Alamos, was an implosion-type bomb. It consisted of a core of plutonium-239 surrounded by explosive chemicals. When the explosives were detonated properly, the shock compressed the fissionable material at the core, increasing its density and making it supercritical, or able to sustain an explosive nuclear reaction.

Graphic courtesy of the Bradbury Science Museum, Los Alamos National Laboratory



A view of the east side of base camp. In the left foreground is the Dave McDonald ranch house, not to be confused with the George McDonald Ranch House where the bomb's core was assembled.

Camp engineers (from Sgt. Carl Rudder's scrap book) are labeled: 1st row: Kilmer, Frenchie, Bontley, Leary, Spry, Raub, Kemp, Stockton and Rauldolph. 2nd row; Corden, Cox, Harrison, King, Bres, Sigler, Matthews, "Weadle-Walve" and Capt. Gueary.

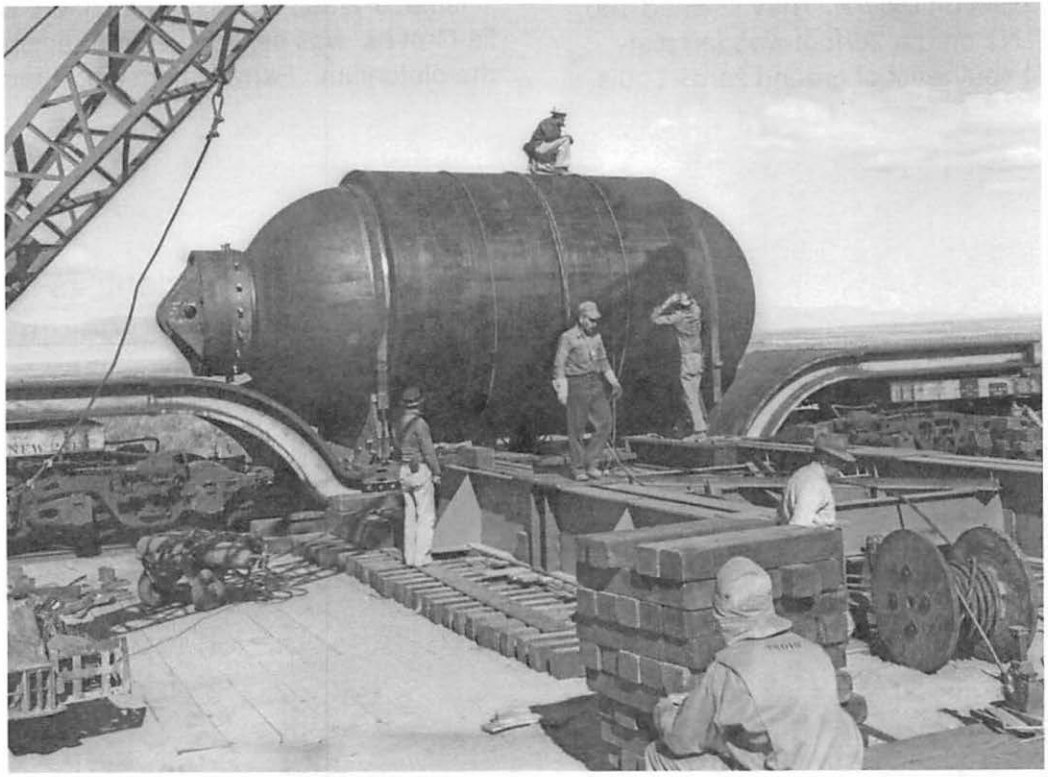
Jumbo

The bomb design to be used at Trinity Site actually involved two explosions. First there would be a conventional explosion involving the TNT and then a fraction of a second later, the nuclear explosion, if a chain reaction was maintained. The scientists were sure the TNT would explode, but were initially unsure of the plutonium. If the chain reaction failed to occur, the TNT would blow the very rare and dangerous plutonium all over the countryside.

Because of this possibility, Jumbo was designed and built. Originally it was 25 feet long, 10 feet in diameter and weighed 214 tons. Scientists were planning to suspend the bomb in the center of this huge steel jug because it could contain the TNT explosion if the chain reaction failed to materialize. This would prevent the plutonium from being lost. If the explosion occurred as planned, Jumbo would be vaporized.

Jumbo was brought to Pope, New Mexico, by rail and unloaded. A specially-built trailer with 64 wheels was used to move Jumbo the 25 miles to Trinity Site.

As confidence in the plutonium bomb design grew it was decided not to use Jumbo. Instead, Jumbo was placed under



Jumbo is unloaded at the railroad siding called Pope, N.M. Jumbo was manufactured in Ohio by Babcock and Wilcox.

a steel tower about 800 yards from ground zero. The blast destroyed the tower, but Jumbo survived intact.

Today Jumbo rests at the entrance to ground zero so all can see it. The ends are missing because, in 1946, the Army detonated eight 500-pound bombs inside it. Because Jumbo was standing on end, the bombs were stacked in the bottom and the asymmetry of the explosion blew the ends off.

To calibrate the instruments which would be measuring the atomic explosion and to practice a countdown, the Manhattan Project scientists ran a simulated nuclear blast on May 7. They stacked 100 tons of TNT onto a 20-foot wooden platform just southeast of ground zero. Louis Hempelmann inserted a small amount of radioactive material from Hanford into tubes running through the stack of crates. The scientists hoped to get a feel for how the radiation might spread in the atomic test by analyzing this test. The explosion destroyed the platform, leaving a small crater with trace amounts of radiation.

Bomb assembly

On July 12 the two hemispheres of plutonium were carried to the George McDonald ranch house two miles from ground zero. At the house, Brig. Gen. Thomas Farrell, deputy to Maj. Gen. Leslie Groves, was asked to sign a receipt for the plutonium. Farrell later said, "I recall

Scientists load the plutonium core into a Chrysler Plymouth. They drove two miles to ground zero to assemble the bomb on top of the 100-foot tower.

that I asked them if I was going to sign for it, shouldn't I take it and handle it. So I took this heavy ball in my hand and I felt it growing warm. I got a certain sense of its hidden power. It wasn't a cold piece of metal, but it was really a piece of metal that seemed to be working inside. Then, maybe for the first time, I began to believe some of the fantastic tales the scientists had told about this nuclear power."

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-Brig. Gen. Thomas Farrell

At the McDonald ranch house the master bedroom had been turned into a clean room for the assembly of the bomb core. According to Robert Bacher, a member of the assembly team, they tried to use only tools and materials from a special kit. Several of these kits existed and some were already on their way to Tinian, the island in the Pacific which was the base for the bombers. The idea was to test the procedures and tools at Trinity, as well as the bomb itself.

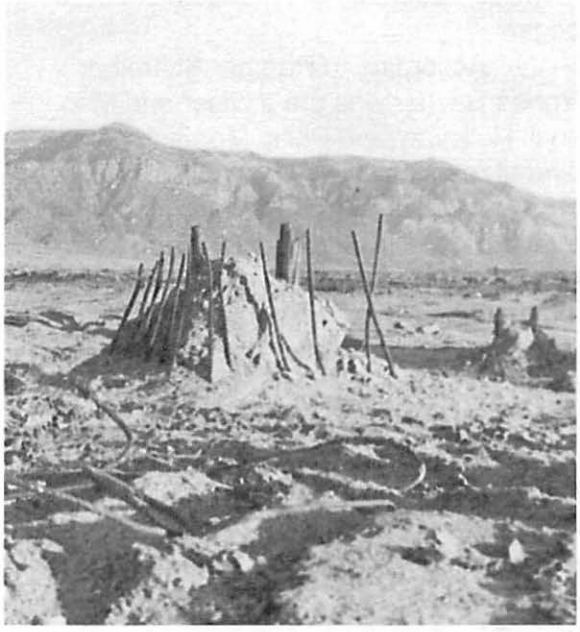
At one minute past midnight on Friday, July 13, the explosive assembly left Los Alamos for Trinity Site. Later in the morning, assembly of the plutonium core began.

According to Raemer Schreiber, Robert Bacher was the advisor and Marshall Holloway and Philip Morrison had overall responsibility. Louis Slotin, Boyce McDaniel and Cyril Smith were responsible for the mechanical assembly in the ranch house. Later Holloway was responsible for the mechanical assembly at the tower. In the afternoon of the 13th the core was taken to ground zero for insertion into the bomb mechanism.

The bomb was assembled under the tower July 13. The plutonium core was inserted into the device with some difficulty. On the first try it stuck. After letting the temperatures of the plutonium and casing equalize the core slid smoothly into place. Once the assembly was complete many of the men took a welcome relief and went swimming in the water tank east of the McDonald ranch house.

The next morning the entire bomb was raised to the top of the 100-foot steel tower and placed in a small shelter. A crew then attached all the detonators and by 5 p.m. it was complete.

The 100-foot steel tower at ground zero. At the top is a small shelter to protect the bomb during final assembly. The bomb was not dropped from the tower but was stationary at detonation. The tower was vaporized in the blast.



This Carl Rudder photo shows what was left of the footings from the 100-foot tower after the blast.

The test

Three observation points were established at 10,000 yards from ground zero. None of the manned bunkers are left.

These were wooden shelters protected by concrete and earth. The south bunker served as the control center for the test. The automatic firing device was triggered from there as key men such as Dr. J. Robert Oppenheimer, head of Los Alamos National Lab, watched.

Many scientists and support personnel, including Maj. Gen. Leslie Groves, head of the Manhattan Project, watched the explosion from base camp which was ten miles southwest of ground zero. All of the buildings at base camp were removed after the test. Most visiting VIPs, like Edward Teller, watched from Compania Hill, 20 miles northwest of ground zero.

The test was scheduled for 4 a.m. July 16, but rain and lightning early that morning caused it to be postponed. The device could not be exploded under rainy conditions because rain and winds would increase the danger from radioactive fallout and interfere with observation of the test. At 4:45 a.m. the crucial weather report came through announcing calm to light winds with broken clouds for the following two hours.

At 5:10 a.m. the countdown started and at 5:29:45 the device exploded successfully.

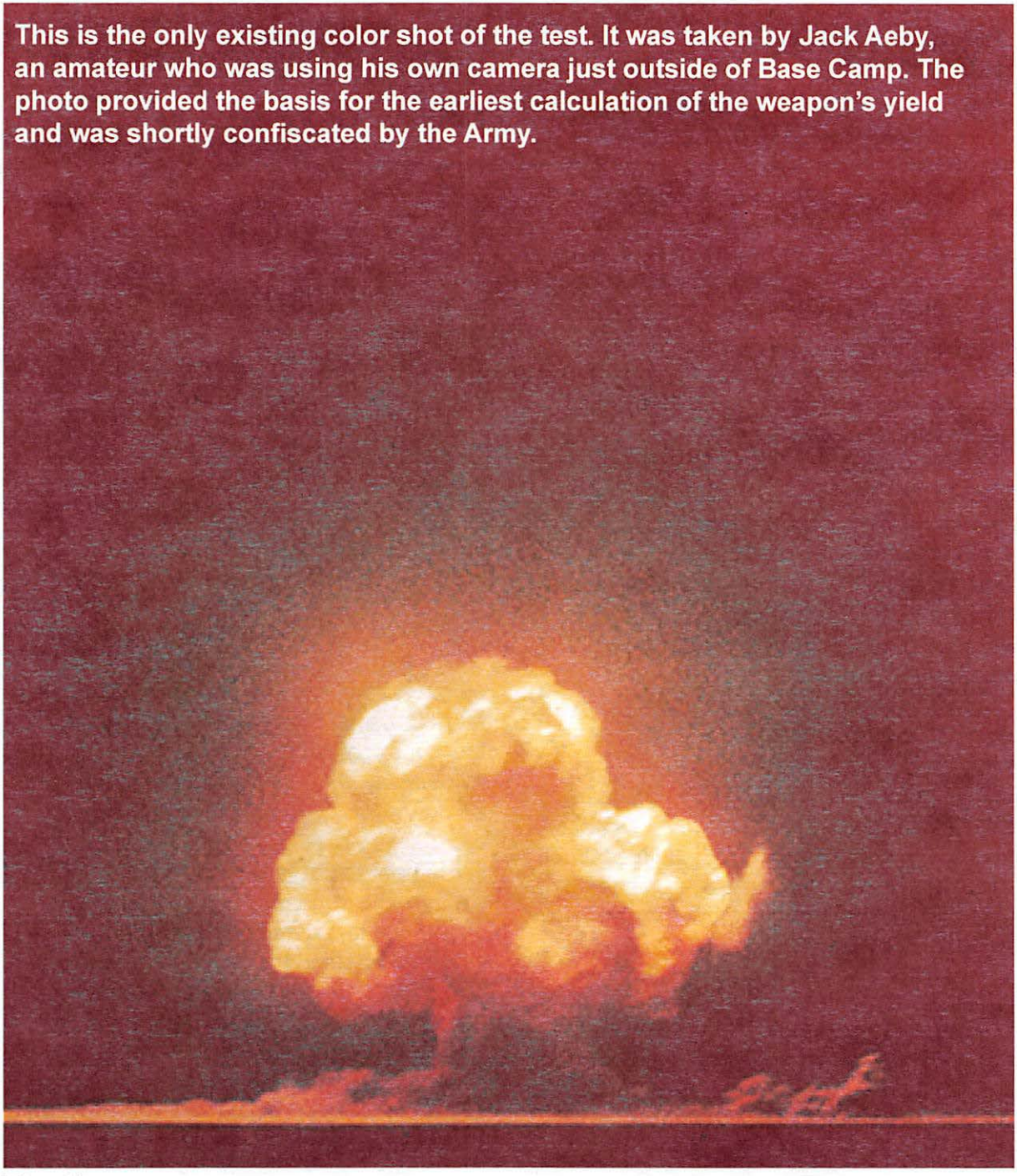
To most observers the brilliance of the light from the explosion watched through dark glasses overshadowed the shock wave and sound that arrived later. Many witnesses remember the sound bouncing off the mountains creating an echoing effect.

Hans Bethe, one of the contributing scientists, wrote "it looked like a giant magnesium flare which kept on for what seemed a whole minute but was actually one or two seconds. The white ball grew and after a few seconds became clouded with dust whipped up by the explosion from the ground and rose and left behind a black trail of dust particles."

Joe McKibben, another scientist, said, "We had a lot of flood lights on for taking movies of the control panel. When the bomb went off, the lights were drowned out by the big light coming in through the open door in the back."

Others were impressed by the heat they immediately felt. Military policeman Davis said, "The heat was like opening up an oven door, even at 10 miles." Dr. Phillip Morrison said, "Suddenly, not only was there a bright light but where we were, 10 miles away, there was the heat of the sun on our faces .... Then, only minutes later, the real sun rose and again you felt the same heat to the face from the sunrise. So we saw two sunrises."

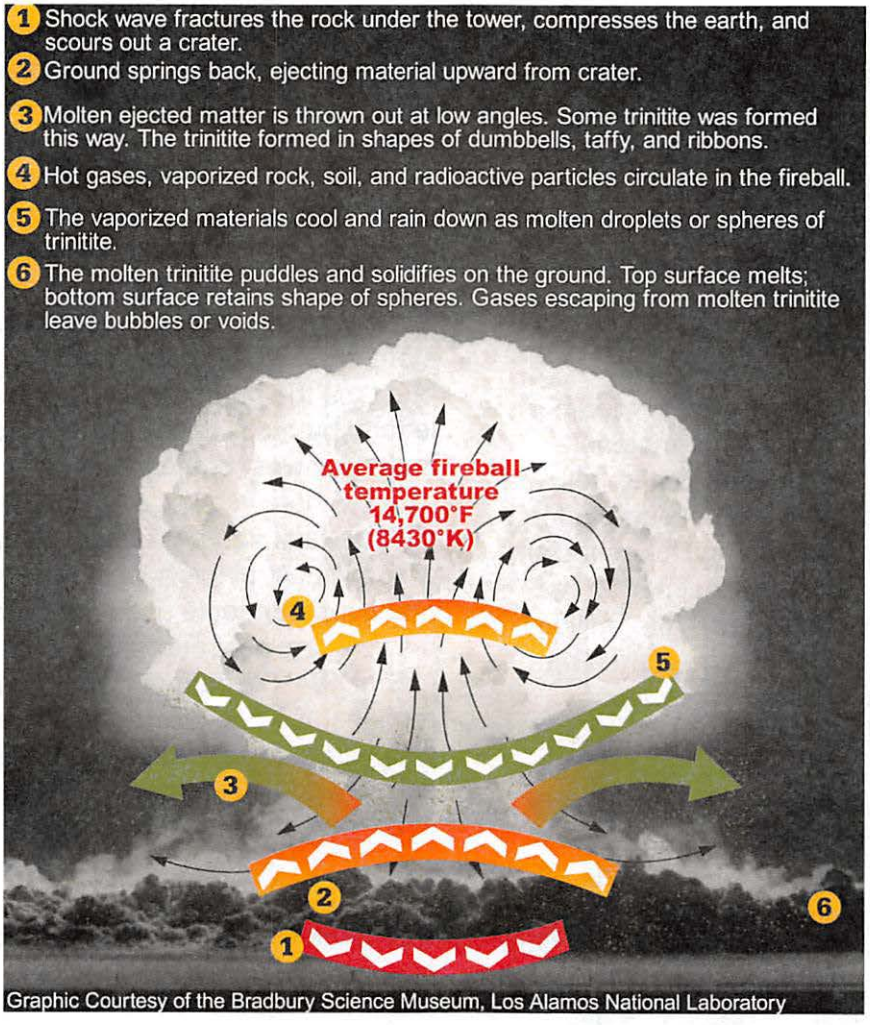
Visitors sometimes ask about soldiers watching the test from trenches. That took place during tests in Nevada, not at Trinity Site. Personnel were at least 10,000 yards from ground zero and they were in bunkers. The test was conducted to see if the bomb would work and to measure its yield.



This is the only existing color shot of the test. It was taken by Jack Aeby, an amateur who was using his own camera just outside of Base Camp. The photo provided the basis for the earliest calculation of the weapon's yield and was shortly confiscated by the Army.

After the explosion

Although no information on the test was released until after the atomic bomb was used as a weapon against Japan, people in New Mexico knew something had happened. The shock wave broke windows 120 miles away and was felt by many at least 160 miles away. Army officials simply stated that a munitions storage area had accidently exploded at the Alamogordo Bombing Range.



Graphic Courtesy of the Bradbury Science Museum, Los Alamos National Laboratory

The explosion did not make much of a crater. It was about four feet deep and 240 feet in diameter. Most eyewitnesses describe the area as more of a small depression instead of a distinct crater.

The heat of the blast vaporized the steel tower and melted the desert sand and turned it into a green glassy substance. It was called Trinitite and small pieces can still be seen in the area. At one time Trinitite covered much of the depression made by the explosion. Afterward the depression was filled and much of the Trinitite was taken away by the Atomic Energy Commission. To the west of the monument is a low structure which is protecting an original portion of the crater area.

In 2004, members of the missile range's Public Affairs Office began assisting Los Alamos National Lab scientists Robert

Hermes and William Strickfaden in a fresh look at Trinitite and how it was formed. The two published the results of their investigation in the Fall 2005 issue of "Nuclear Weapons Journal."

The two scientists were puzzled by spheroids within pieces of Trinitite. The spheroids looked like little droplets and suggested that instead of being baked below the explosion like a giant trinitite brulee, the desert sand was first scooped up into the fireball. Inside the fireball, the melted sand behaved just as water does in a regular cloud: tiny droplets aggregated into bigger droplets that became too heavy to remain suspended and fell as a rain of molten glass.

"Much of the layer was formed not on the ground but by a rain of material injected into the fireball that melted, fell back, and collected on the hot sand to form the observed puddles of Trinitite, especially within the radius of the hottest part of the event," the study concluded. "After falling to the ground, the top surface of the Trinitite layer was still heated somewhat by the fireball and thus developed a smooth surface."

"We calculated an average fireball temperature of 8,430 Kelvin," they reported. That's 14,710 degrees Fahrenheit.

The new theory explains the tiny spheres of glass found onsite as drops that cooled and hardened enough to keep their shape when they hit the ground. It also explains why there was Trinitite found on top of the outer edges of the asphalt used around the 100-foot tower and on some

Schmidt/McDonald House

The George McDonald ranch house sits within an 85'x85' low stone wall. The house was built in 1913 by Franz Schmidt, a German immigrant. An addition on the north side was constructed in the 1930s by the McDonalds. A display about the Schmidt family is in the house during each open house.

The ranch house is a one-story, 1,750 square-foot building. It is built of adobe which was plastered and painted. An ice house is located on the west side along with an underground cistern which stored rain water running off the roof. At one time the north addition contained a toilet and bathtub which drained into a septic tank northwest of the house.

There is a large, divided water storage tank and a Chicago Aeromotor windmill east of the house. The scientists and support people used the north tank as a swimming pool during the long hot summer of 1945. South of the windmill are the remains of a bunkhouse and a barn which was part garage. Further to the east are corrals and holding pens. The buildings and fixtures east of the house were stabilized to prevent further deterioration.

The ranch was abandoned in 1942 when the Alamogordo Bombing and Gunnery Range took over the land to use in training World War II bombing crews. The house stood empty until the Manhattan Project support personnel arrived in early 1945.

Inside the house the northeast room (the master bedroom) was designated the assembly room. Workbenches and tables were installed. To keep dust and sand out of instruments and tools, the windows were covered with plastic. Tape was used to fasten the edges of the plastic and to seal doors and cracks in the walls.

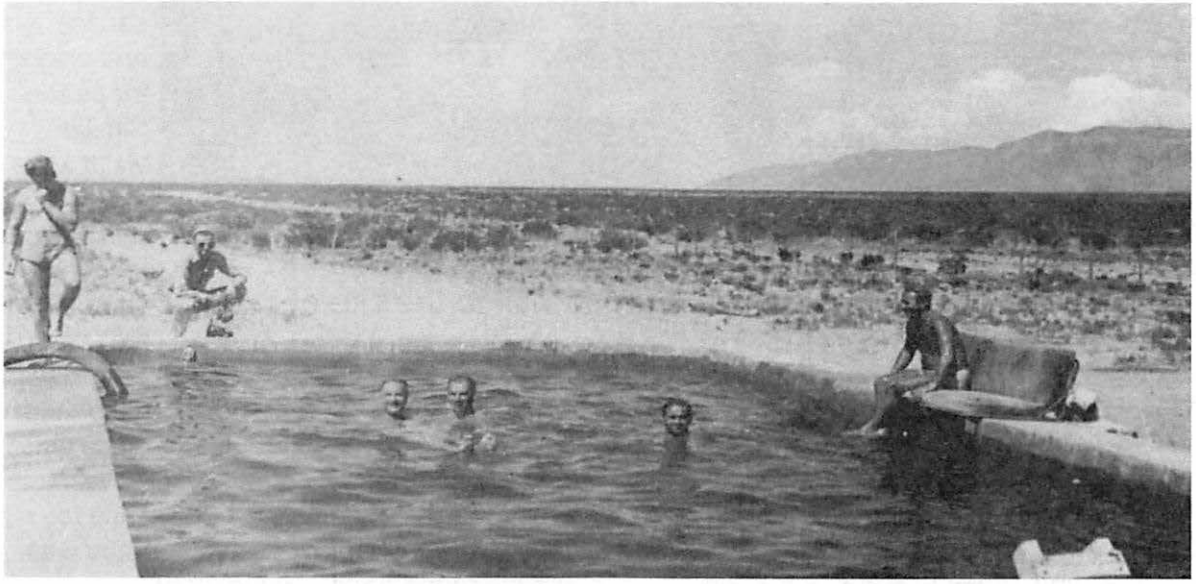
The explosion, only two miles away, did not significantly damage the house. Most of the windows were blown out, but the main structure was intact. Years of rain water dripping through holes in the roof did much more damage. The barn did not do as well. During the Trinity test the roof was bowed inward and some of the roofing was blown away. The roof has since collapsed.

The house stood empty and deteriorating until 1982 when the U.S. Army stabilized the house to prevent any further damage. Shortly after, the Department of Energy and U.S. Army provided the funds for the National Park Service to completely restore the house. The work was done in 1984. All efforts were directed at making the house appear as it did on July 12, 1945 when the house was used in the assembly process.

Afterward

The story of what happened at Trinity Site did not come to light until after the second atomic bomb was exploded over Hiroshima, Japan Aug. 6. President Truman made the announcement that day. Three days later, Aug. 9, the third atomic bomb devastated the city of Nagasaki, and on Aug. 14 the Japanese surrendered.

Trinity Site became part of what was then White Sands Proving Ground. The



Soldiers and scientists relax in the McDonald water tank.

proving ground was established on July 9, 1945, as a test facility to investigate the new rocket technology emerging from World War II. The land, including Trinity Site and the old Alamogordo Bombing Range, came under the control of the new rocket and missile testing facility.

Interest in Trinity Site was immediate. In September 1945 press tours to the site started. One of the famous photos of ground zero shows Groves and Oppenheimer surrounded by a small group of reporters as they examine one of the footings to the 100-foot tower on which the bomb was placed. That picture was taken Sept. 11. The exposed footing is still visible at ground zero.

General Groves and J. Robert Oppenheimer stand over a tower footing in the crater at ground zero, Trinity Site Sept. 11, 1945. They led a press visit to the site of the first atomic bomb explosion. The bomb was exploded on top of a 100-foot steel tower which was vaporized in the blast.

At first Trinity Site was encircled with a fence and radiation warning signs were posted. The site remained off limits to military and civilian personnel of the proving ground and closed to the public.

In 1952 the Atomic Energy Commission led a contract to clean up the site. Much of the Trinitite was scraped up and buried. In September 1953 about 650 people attended the first Trinity Site open house. A few years later a small group from Tularosa visited the site on the anniversary of the explosion to conduct a religious service and prayer for peace. Similar visits were made annually in recent years on the first Saturday in October.

In 1967 the inner oblong fence was added. In 1972 the corridor barbed wire fence which connects the outer fence to the inner one was completed. Jumbo was moved to the parking lot in 1979.

Trinity Site open houses are now conducted in April and October because it is generally very hot on the Jornada del Muerto in July.

White Sands Missile Range

White Sands Missile Range has developed from a simple desert testing site for the V-2 into one of the most sophisticated test facilities in the world. The mission of White Sands Missile Range begins with a customer, a service developer, or another federal agency, which is ready to find out if engineers and scientists have built something which will perform according to job specifications. It ends when an exhaustive series of tests has been completed and a data report has been delivered to the customer.

Between the beginning and the end of the test program, be it the Army Tactical Missile System or newly-designed automobiles, range employees are involved in every operation connected with the customer and the product. The range can and does provide everything from rat traps to telephones, from equipment hoists and flight safety to microsecond timing.

We shake, rattle and roll the product, roast it, freeze it, subject it to nuclear radiation, dip it in salt water and roll it in the mud. We test its paint, bend its frame and find out what effect its propulsion material has on flora and fauna.

In the end, if it's a missile, we fire it, record its performance and bring back the pieces for postmortem examination. All of the test data is reduced and the customer receives a full report.

For more information on White Sands Missile Range or Trinity Site contact:

Public Affairs Office
Bldg. 1782
White Sands Missile Range, NM
88002-5047

You can also email us at usarmy.wsmr-pao@mail.mil OR call (575) 678-1134.

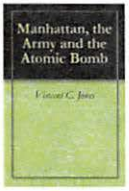
For more information or to plan your next visit to Trinity Site visit:

www.wsmr.army.mil

Click on the Trinity Site tab on the top left hand side to see videos on various topics and FAQs.

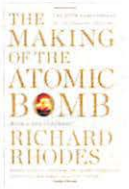
READING LIST

The Day the Sun Rose Twice
by Ferenc Szasz, University of New Mexico Press, 1984

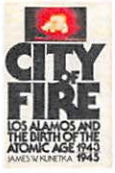


Manhattan: The Army and the Atomic Bomb
by Vincent Jones, Center of Military History, U.S. Army

Now It Can Be Told
by General Leslie Groves, Da Capo Press, 1975

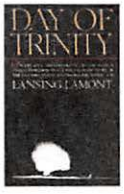


The Making of the Atomic Bomb
by Richard Rhodes, Simon and Schuster, 1986



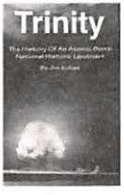
City of Fire: Los Alamos and the Atomic Age, 1943-1945
by James Kunetka, University of New Mexico Press, 1978

Day One
by Peter Wyden, Simon and Schuster, 1984



Day of Trinity
by Lansing Lamont, Atheneum

Los Alamos 1943-1945: The Beginning of an Era
Los Alamos publication (LASL-79-78)



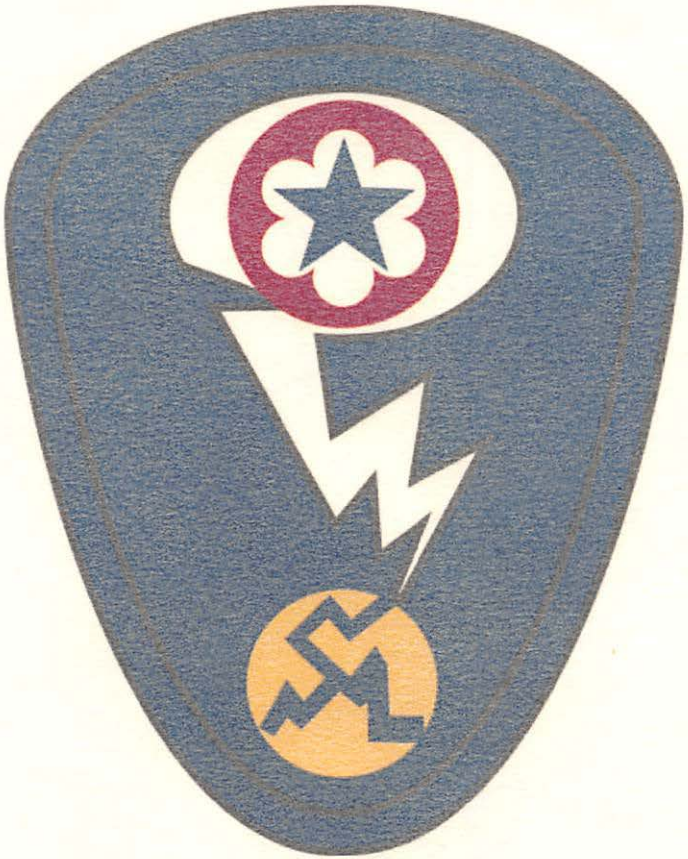
Trinity: The History of An Atomic Bomb National Historic Landmark
by Jim Eckles

LIFE Life Magazine
Aug. 20 and September 24, 1945

Time Magazine
August 13 and 20, 1945
TIME

Trinity-by Kenneth Bainbridge, Los Alamos publication (LA-6300-H)

Radiological Survey and Evaluation of the Fallout Area from the Trinity Test: Chupadera Mesa and White Sands Missile Range, N.M.-Los Alamos publication (LA-10256-MS)



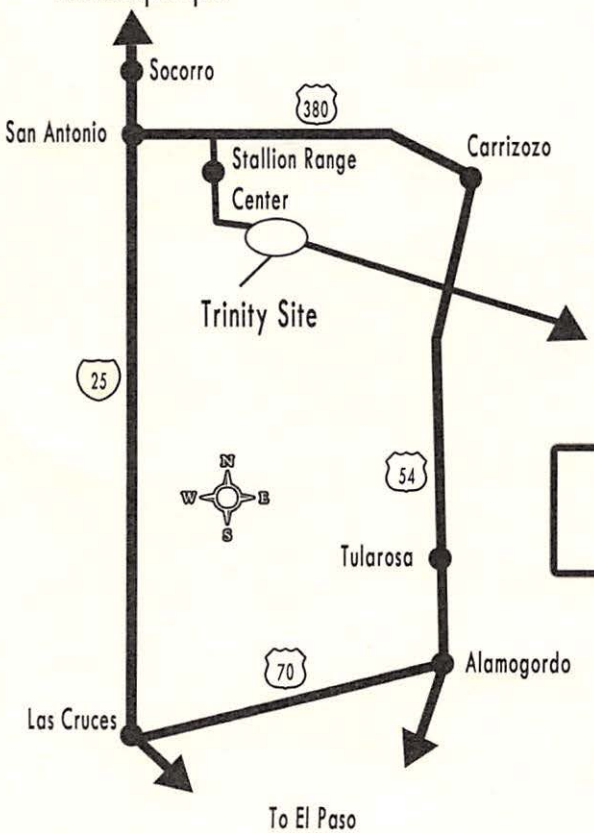
This is an image of the patch which was issued to military personnel who participated in the Manhattan Project.

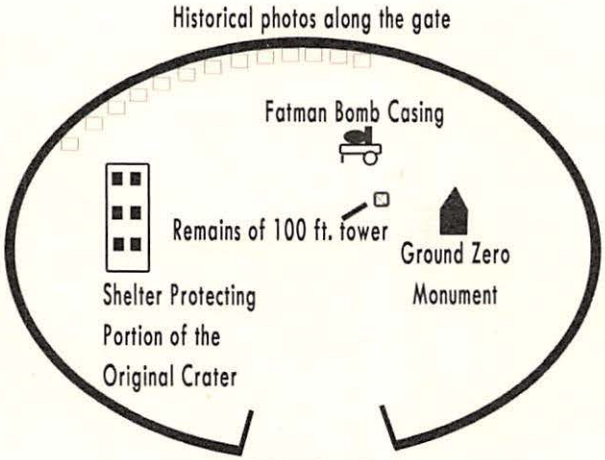
The background of the patch is blue to represent the universe. A white cloud and a lightning bolt form a question mark which symbolizes the unknown results and the secrecy surrounding the project. The lightning bolt extends down to split a yellow atom, which represents atomic fission and the expected success of the test.

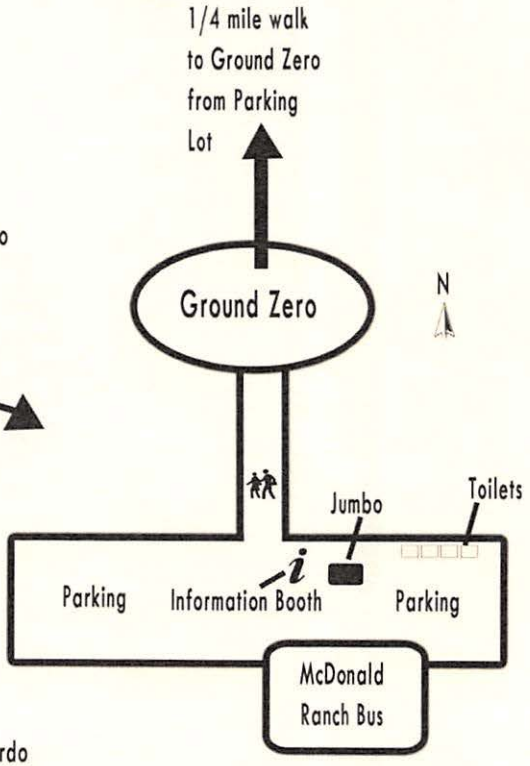
A red and blue star in the center of the question mark is the insignia for the Army Service Forces to which soldiers working on the Manhattan Project were assigned.

MILEAGE CHART

San Antonio to Stallion exit	12
Carrizozo to Stallion exit	53
Highway 380 to Stallion	5
Stallion to Trinity Site	17
San Antonio to Socorro	10
San Antonio to Albuquerque	81
San Antonio to Las Cruces	130
San Antonio to El Paso	175
Carrizozo to Tularosa	46
Carrizozo to Alamogordo	56
Carrizozo to El Paso	146
Trinity Site to Alamogordo (via caravan)	85







Removal of Trinitite is Prohibited