

MUSEUM

REVIEWING THE BEST MILITARY HISTORY EXHIBITIONS
WITH **CHRISTOPHER WARNER**

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VISIT

NATIONAL MUSEUM OF NUCLEAR SCIENCE & HISTORY

Open 9am-5pm daily

📍 601 Eubank Blvd SE, Albuquerque, NM 87123

🌐 <https://www.nuclearmuseum.org/>

☎ +1 (0) 505 245 2137

For a large chunk of its history, New Mexico was best known for its Native American heritage and the wild, wild west exploits of the notorious gunslinger Billy the Kid. But that would all change on July 16, 1945, when shortly before sunrise, the world's first atomic bomb exploded in a clandestine desert location in the southwest United States. The nuclear age had begun.

Today, New Mexico remains the nation's nuclear epicentre, reflected in its cutting-edge research and development laboratories, a cache of warheads (possibly the largest in the world), and even the nickname of its professional baseball team, the Isotopes. The state is also home to the National Museum of Nuclear Science & History, a Smithsonian Institute affiliate showcasing artefacts and exhibits related to atomic weapons and non-military uses of nuclear technology.

Located in Albuquerque, the state's largest city, the museum opened in 1969 and underwent several venue and name changes before settling into its current location.

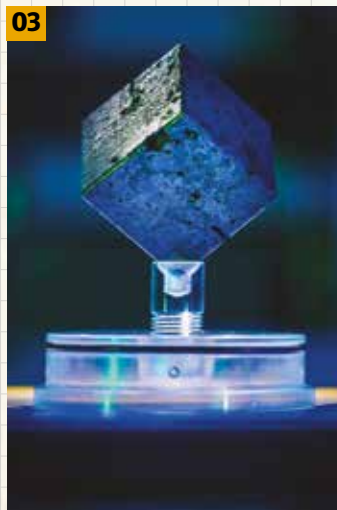
Among the many intriguing exhibits at the museum, 'Dark Cube: Heisenberg's Race for the Bomb' displays a two-inch charcoal-black cube made of pure uranium metal. The dense, heavy object was part of an experimental nuclear reactor discovered by Allied soldiers inside a cave beneath a medieval German castle.

In the battle for atomic supremacy, Germany's efforts were spearheaded by the so-called 'father of quantum mechanics', Werner Heisenberg. Although the heralded Bavarian scientist received the Nobel Prize for physics in 1932, his career would be repeatedly hamstrung by the ruling Nazi party, who accused him of being a 'weißer Jude' ('white Jew'). Fans of the TV show *Breaking Bad* will

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recognise the name 'Heisenberg' as the alter ego Walter White – and several scenes of the popular crime drama were filmed on location at the museum.

The story of the Manhattan Project, America's top-secret mission to develop the world's first functional nuclear weapon, is exhibited throughout the campus. Despite being code-named for the famous New York City borough, most of the work took place at the Los Alamos Laboratory in northern New Mexico. There, beginning in January 1943, theoretical physicist J Robert Oppenheimer, the subject of an upcoming film directed by Christopher Nolan, led a team of elite scientific minds tasked with weaponizing the power of a fission chain reaction.

The museum's presentation of the project includes the following exhibits:

CRITICAL ASSEMBLY, THE SECRETS OF LOS ALAMOS

Created by world-renowned sculptor Jim Sanborn – best known for creating the encrypted 'Kryptos' sculpture at CIA headquarters in Langley, Virginia – 'Critical Assembly' illustrates the day-to-day environment

of the Los Alamos Laboratory. The tableau includes original electronic instruments, hardware, furniture, tools, and materials used by the project scientists. Materials that Sanborn wasn't able to collect from the lab, he machined and fabricated himself.

According to the museum's website, the display is 'Evocative of both the brilliance of the collective human mind and the potentially devastating power of knowledge'. It goes on to say that 'this exhibition is about the allure of pure science and the ethical dilemmas scientific researchers have faced for decades.'

It's also worth noting that many of the key personnel working on the Manhattan Project were Jewish immigrants who had fled Europe to avoid persecution by the Nazi regime. Ironically, Hitler's maniacal desire for racial purity and global domination would ultimately give the Allies a significant advantage in the race to develop nuclear weapons.

DECISION TO DROP

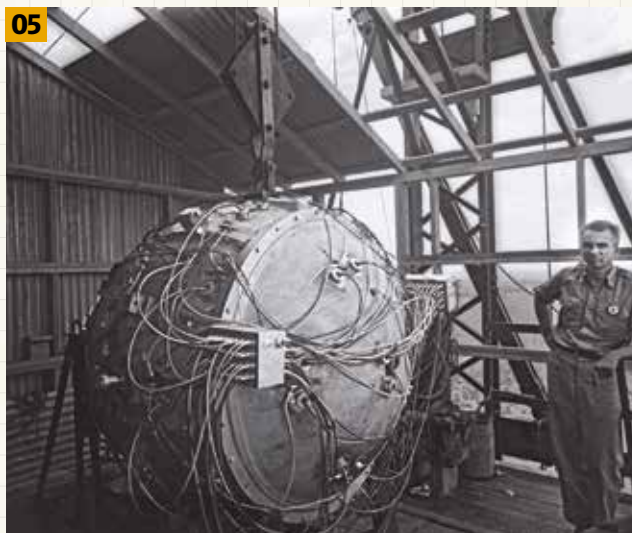
By the summer of 1945, despite severely depleted troops and resources, Japan's government showed no sign of capitulation. US President Harry S Truman faced a difficult choice: launch a costly American invasion of mainland Japan or authorise use of the world's first atomic bomb.

Severe American losses at the recent Battle of Okinawa (see MHM October/November 2020) weighed heavily on the minds of Truman and his military advisors, and intelligence intercepts revealed that Japan, if invaded, intended to execute all of its prisoners of war.

After brainstorming for over two years, the scientists in Los Alamos produced an explosive device nicknamed 'The Gadget'. The spherical



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bomb, a plutonium core surrounded by TNT and wrapped in electrical wire, looked more like a prop from a low-budget science fiction movie than an object of staggering historical import.

Under the direction of US Army Major General Leslie Groves, the test took place at the White Sands Missile Range. Oppenheimer dubbed the detonation site 'Trinity' after a John Donne poem about humanity, faith, and submission to God.

The bomb was placed atop a 100-foot (30.48 m) tall steel tower and exploded with an energy equivalent of around 20 kilotons of TNT. A brilliant flash of light illuminated the sky as air temperatures rose to over 9,000F (4982C). 'We knew the world would not be the same,' Oppenheimer later recalled.

'A few people laughed, a few people cried. Most people were silent. I remembered the line from the Hindu scripture, the Bhagavad Gita; Vishnu is

trying to persuade the Prince that he should do his duty and, to impress him, takes on his multi-armed form and says, "Now I am become Death, the destroyer of worlds." I suppose we all thought that, one way or another.'

In a matter of weeks, the dropping of atomic bombs ('Little Boy' and 'Fat Man') on Hiroshima and Nagasaki put an end to World War II. Replicas of these nuclear weapons and 'Gadget' are all displayed in the exhibit. Two other large artifacts include a 1941 Packard 'Clipper Six' limousine used by the project's senior scientists and military personnel and a 1942 Plymouth similar to the automobile that carried the plutonium core to the Trinity Site.

HIROSHIMA AND NAGASAKI

One of the museum's more sombre displays features photographs of Hiroshima and Nagasaki taken before,

during, and after the attacks. Estimates vary, but roughly 120,000 people were killed instantly by the blasts, and tens of thousands more would later die of radiation exposure.

Those who managed to survive found their post-war lives marred by health issues and becoming marginalised as 'Hibakusha' – an atomic bomb survivor.

At exactly 8:15 local time on August 6, 1945, a B-29 nicknamed Enola Gay released a uranium gun-type bomb over Hiroshima, a

manufacturing centre located about 300km from Tokyo. The 4400kg Little Boy exploded with 15 kilotons of force, causing a shockwave of destruction and a fireball exceeding temperatures hotter than the sun. Incredibly, the damage could have been far more destructive: only 1.09kg of the 64kg of uranium became energy.

The bomber's pilot, Colonel Paul Tibbets, and his crew witnessed 'a giant purple mushroom' rising to a height of 45,000 feet. 'Even more fearsome,' said Tibbets, 'was the sight on the ground below. At the base of the cloud, fires were springing up everywhere amid a turbulent mass of smoke that had the appearance of bubbling hot tar... The city we had seen so clearly in the sunlight a few minutes before was now an ugly smudge. It had completely disappeared under this awful blanket of smoke and fire.'

Three days later, the B-29 Bockscar unleashed a plutonium bomb on Nagasaki. Japan's Emperor Hirohito announced his country's unconditional surrender in a radio address on August 15, citing the devastating power of 'a new and most cruel bomb'.

The museum features a nine-acre outdoor Heritage Park with an extensive collection of military aircraft, rockets, missiles, and the sail of the James K Polk nuclear submarine. Expansion plans are also underway for a new Museum Artifacts Center (MAC), which will house the world's most extensive collection of unclassified nuclear weapon units, allowing visitors to view the materiel without getting arrested, irradiated, or vaporised.

In 2019, the museum forged a partnership with the Atomic Heritage

PICTURED ON BOTH PAGES:

1. The exterior of the National Museum of Nuclear Science & History in New Mexico. The history of the state has been closely linked with nuclear research and testing since 1945.

2. The museum's historic B-29 Superfortress, on display in its outdoor exhibit area. It did not see service during World War II, having been delivered on 9 August 1945, the same day another B-29, named the Bockscar, dropped the nuclear bomb on Nagasaki.

3. One of the highlights of the museum is the ominous 'Dark Cube', a dense object of pure uranium metal, hundreds of which were used by the Nazis in their unsuccessful effort to create the world's first atomic bomb.

4. J Robert Oppenheimer, the theoretical physicist who, from January 1943 onwards, led a team of scientists tasked with developing the atomic bomb at the Los Alamos laboratory. He is pictured here in 1946.

5. 'The Gadget', a spherical bomb developed by the scientists at Los Alamos, at the top of the Trinity test tower. Pictured standing next to it is Norris Bradbury, head of the bomb's assembly team for the test.

6. 'A new and most cruel bomb': the mushroom cloud following the attack on Nagasaki on 9 August 1945, which along with the Hiroshima bombing three days earlier, forced the Japanese empire into surrender, ending World War II.



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Foundation, a non-profit organisation in Washington DC dedicated to preserving the history of the Manhattan Project and the Atomic Age.

The agreement's goal 'is to provide the public not only a better understanding of the past but also a basis for addressing scientific, technical, political, social and ethical issues of the 21st century.'