

This is Major Young, the following information is for use in the commentary in Test Baker, it classified secret.

As scheduled at 0835, Bikini time on 25 July, a bomb of the Nagasaki type was detonated below the surface of Lagoon, the Lagoon at this point was 180 feet deep. The bomb was suspended from the LSM 60 near the center of the target array, the explosion was of predicted violence and is estimated to have been at least as destructive as 20,000 tons of TNT.

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The visible phenomena of the explosion was predicted with remarkable accuracy by civilian and Manhattan Project phenomenologists attached to Joint Task Force I. At the moment of explosion, a dome which showed the light of incandescent material within was upon the surface of the Lagoon. The blast wave was followed by an opaque cloud which rapidly enveloped about half of the target array, the cloud vanished in about two seconds to reveal, as predicted, a column of ascending water. A study of photographs taken from a certain angle indicate that the column of water lifted the 26,000 ton battleship Arkansas for a brief interval before the vessel plunged to the bottom of the Lagoon.

The diameter of the column of water was about 2,200 feet and it rose to the height of a little over one mile in a matter of a few seconds, spray rose to a much greater height. The column of water contained several millions tons of water. For several minutes after the column reached maximum height water fell back forming an expanding cloud of spray which engulfed about half of the target array, surrounding the base of the column was a wall of foaming water, several hundred feet high.

Waves outside the water column, about 1,000 feet from the center of explosion were 50 to 100 feet in height. These waves rapidly diminished in size as they proceeded outward, the highest wave reaching the beach of Bikini Island, which was over three miles from the point of explosion, were approximately 7 feet in height. Waves did not pass over the island and no material damage occurred there.

The explosion produced intense radioactivity in the waters of the Lagoon. Part of this was by reason of the neutron bombardment of the sodium in the salt, contained in sea water, but the water was further dangerously contaminated by fission, products from the bomb itself. Radioactivity immediately after the burst is estimated to have been equal to many hundred tons of radium. A few minutes exposure to this intense radiation at its peak, would, within a brief interval have incapacitated human beings and have resulted in their death in days or weeks.

Great quantities of radioactive water descended upon the ships from the column or were thrown over them by waves. This highly lethal radioactive water constituted such a hazard that after four days it was still unsafe for inspecting parties operating within a well established safety margin to spend any useful length of time at the center of the target area or to board ships anchored there.

As in test A, the array of target ships for test B, did not represent a normal anchorage but were designed instead, to obtain the maximum data from a single explosion. Of the 84 ships and small craft in the array, 40 were anchored within 1 mile, and 20 within about 1/2 mile of the point of explosion. Two major ships were sunk, the battleship Arkansas immediately and the heavy hull aircraft carrier Saratoga after seven and a half hours. A landing ship, a landing craft, and an oiler sank immediately. The destroyer Hughes in sinking condition and the transport Fallon, badly listing were later beached. The submerged submarine Apogon was sent to the bottom emitting air bubbles and fuel oil and one to three other submarines are believed to have sunk. Five days after the burst the badly damaged Japanese battleship Nagato sunk. It was found impossible immediately to inspect damage to hull, power plant, and machinery of the target ship, because of radioactive contamination.

The operation of Joint Task Force I in conducting the test has set a pattern for close effective co-operation of the armed services and civilian scientists in the planning and execution of this highly technical operation. Moreover, the tests have provided valuable training of personnel in joint operations requiring great precision in coordination of efforts.

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Although lethal results might have been more or less equivalent, the radiological phenomena accompanying the two burst were markedly different. In the case of the air-burst bomb it seemed certain the unprotected personnel within one mile would have suffered high casualties by intense neutron and gamma radiation as well as by blast and heat. Those surviving immediate effects would not have been menaced by radioactivity persisting after the burst.