LA-UR-20-26145
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Title: Crossroads Baker "Helen of Bikini"

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Intended for: Report

Issued: 2020-08-11

Crossroads Baker

"Helen of Bikini"

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Test Baker, the underwater detonation of a Fat Man bomb nicknamed Helen of Bikini by an anonymous "Kilroy," took place on July 25, 1946. Encased in a bathysphere fashioned from a submarine conning tower and suspended ninety feet below the surface of Bikini's lagoon, Helen of Bikini was spectacular. Her energy burst through the lagoon surface at 11,000 ft. /sec pushing over two million cubic yards of radioactive seawater and sediment to a height of 4,300 feet within sixty seconds. Nine vessels were sunk and an additional five ships were physically destroyed, although still afloat. When it collapsed, the column of radioactive sediment and seawater spread over the surviving ships permanently contaminating them. Helen of Bikini destroyed the entire fleet of target vessels.

The first suggestion of using an atomic bomb underwater came in November 1943 when Navy Captain William S. Parsons suggested that Los Alamos develop a nuclear-tipped torpedo. Parsons' boss, J. Robert Oppenheimer, killed the idea, believing that the shock damage from an underwater detonation would not be effective, particularly in shallow water. After the war, Parsons, now leading a small U.S. Navy nuclear planning group, resurrected his idea, enlisting the services of mathematician John von Neumann to calculate the destructive effectiveness of an underwater burst. When von Neumann reported that an underwater blast would be effective, Parsons successfully argued for the inclusion of such a test at Crossroads. Initially, two underwater tests were approved: one in shallow water (Baker) and the second at a very deep depth (Charlie - later cancelled).

By 1946, as well, Los Alamos had become interested in an underwater test because, as Laboratory Director Norris Bradbury said, it could answer "the fundamental question of how an atomic bomb reacts with a water surround." Bradbury suggested detonating a device "at a depth of about 75 ft. plus or minus 15 ft.," with the warning not to place the device too close to the bottom of Bikini's lagoon because sediment uptake could skew diagnostic data. Bradbury's recommendation became the template for the Baker test.

For the Baker Test, an amphibious landing craft was modified by cutting large hole through the ship's bottom to given direct access to the lagoon. Anchored so that it would not move, the ship provided a stationary platform through which Helen of Bikini was lowered on a tether to a depth of ninety feet. This setup eliminated any possibility of the bomb detonating in the wrong place. The landing craft, of course, was vaporized by the explosion.

In his post shot evaluation, Parsons wrote: "The Navy's major postwar problem, previously only vaguely defined, is now more clearly posed. A sound basis has been created for designing ships offering considerably increased resistance to the fury of the world's most powerful weapon, the atomic bomb." Parsons, however, failed to state the obvious. Even if a warship physically survives a nuclear attack, radioactive contamination will, in all likelihood, render it useless.