Naval War College Review

Volume 73
Number 3 *Summer 2020*

Article 19

2020

Reflections on Reading

The U.S. Naval War College

REFLECTIONS ON READING

Professor John E. Jackson of the Naval War College is the Program Manager for the Chief of Naval Operations Professional Reading Program.

This year marks the seventy-fifth anniversary of the end of World War II, the largest and most destructive war in human history—as many as eighty-five million people died as the result of combat, genocide, and disease. Throughout 2020, commemorations will recognize the commitment and courage of men and women of character, both in and out of uniform, who brought the conflict to a righteous end.

While thousands of books have been written about the war, there remain stories about innovative weapons developments that largely have been forgotten or relegated to the category of "things that cannot be believed." The paragraphs that follow shed light on two such almost-mythical subjects: bat bombs and balloon bombs!

Bat Bombs

When its welfare is threatened by an aggressive adversary, a nation energizes the talents and creativity of its industrial base and of individual citizens to design, manufacture, and employ innovative weapons to meet this aggression and carry the conflict to the enemy. Such was the case in the United States in the 1940s. The efforts of the massive Manhattan Project to develop the atomic bombs used against Japanese cities have been documented well.

But little is known about a different approach that sought an alternate method to destroy targets on the Japanese home islands. In January 1942, a Pennsylvania dentist named Lytle Adams sent a letter to President Franklin Delano Roosevelt suggesting that thousands of Mexican free-tailed bats, each with a tiny, time-delayed, incendiary bomb attached to its body, could be dropped in bomb-shaped canisters from long-range bombers. The bats were expected to seek shelter in the eaves and attics of Japan's wood-and-paper structures, and the subsequent ignition of the newly invented napalm would set massive fires across large areas.

FDR passed the idea on to the Army Air Forces for development with a note that said, "This man is not a nut. It sounds like a perfectly wild idea, but it is worth looking into." During tests conducted in May 1943 at the Carlsbad Army Airfield in New Mexico, a group of armed bats was released accidentally, resulting in the fiery destruction of the test range! The Army passed the project to the U.S. Navy in August 1943, and the U.S. Marine Corps assumed responsibility for Project X-ray in December 1943. Successful tests were conducted at the Dugway Proving Ground at the end of 1943.

However, despite the fact that the National Defense Research Committee concluded that the bat bomb could be "an effective weapon," Fleet Admiral Ernest J. King canceled the program when he learned it could not become operational until mid-1945, so plans to produce one million bat bombs were never executed. The project was relegated to the dustbin of history. Additional information can be found in the fascinating book *Bat Bomb: World War II's Other Secret Weapon,* by Jack Couffer, published by the University of Texas Press in 1992.

Balloon Bombs

While American scientists and engineers were working on the Manhattan Project and Project X-ray, their counterparts were hard at work on their own remarkable weapon: the *fu-go* balloon bomb. These thirty-three-foot-diameter hydrogen-filled balloons were constructed of strips of paper made from *kozo*-tree bark glued together with a starchy paste made from a potato-like vegetable. Suspended below each balloon was a lightweight metal ring that carried sandbags for ballast and both incendiary and antipersonnel bombs.

Launched from the Japanese home islands, the balloons would ride the jet stream eastward, crossing the Pacific in about three days. Daytime heating of the 17,000 cubic feet of gas combined with nighttime cooling caused the balloons to vary their altitude; they dropped ballast as necessary to stay aloft. After the final sandbag was dropped the bombs would be released, in hopes of starting forest fires in America's Pacific Northwest region. From November 1944 to April 1945, over nine thousand *fu-go*s were launched against the United States.

It is not known how many balloons crossed the Pacific, but the remains of at least three hundred balloons were discovered in the United States and western Canada. In an attempt to avoid public panic on the West Coast from silent bombs that were nearly impossible to detect and engage, the U.S. War Department imposed censorship on all reports about these mysterious weapons. This news blackout likely contributed to the deaths of one adult and five children who apparently discovered and disturbed an unexploded *fu-go* in the forest near Bly, Oregon. They were the only casualties attributed to the balloon-bomb attacks, and were the only civilians killed in the continental United States by enemy

action during the war. The *fu-go* bombs have the distinction of being the first intercontinental weapon ever used in warfare. A balloon was discovered in British Columbia in 2014—seven decades after the weapons were sent flying eastward on what have been described as "wings of paper."

Portions of a number of *fu-go* systems are on display in the Smithsonian Institution in Washington, DC; the National Museum of the United States Air Force in Dayton, Ohio; and the International Balloon Museum in Albuquerque, New Mexico. You can find more details about these attacks in *Fu-go: The Curious History of Japan's Balloon Bomb Attack on America,* by Ross Coen, published by the University of Nebraska Press in 2014.

The scientists and engineers of the twenty-first century are seeking equally exotic weapons today, including robots and flying cars. Necessity is, indeed, the mother of invention.

JOHN E. JACKSON