

# ATTACK OF THE TURTLE

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In 1776, a 34-year old Yale graduate named David Bushnell came to George Washington with a plan. He wanted to build a craft to carry out an underwater attack on the British fleet then occupying New York harbor. "Although I wanted faith myself," Washington later wrote, "I furnished him with money and other aids to carry it into execution." Thus, the stage was set for the first submarine attack against an enemy warship,

The craft that Bushnell created was 7 feet long and 4 feet in diameter. She was made of chalked wooden planks held together by iron bands like a barrel. There were four portholes, three sleeved armholes, and a hatch on the top. Because the sides of the craft bowed outward so that it looked like two turtle shells glued together, the craft was named the TURTLE. (In some accounts, she is referred to as "AMERICAM TURTLE") She was built and tested in the waters of the Connecticut River off Old Saybrook, Connecticut.

TURTLE was built to accommodate a crew of one. By moving handles inside the craft, the driver operated two screw-like oars, one of which moved TURTLE forward and backward while the other helped the craft to go up and down. Diving and surfacing was also facilitated by foot-operated valves that allowed water to be pumped in and out of tanks in the hull.

Usually, TURTLE traveled through the water with about six inches of the craft, containing *inter alia* the tubes that allowed the driver to breath, extending above the surface. However, float-valves were placed over the breathing tubes so as to keep water out if TURTLE had to dive deeper.

TURTLE's armament consisted of a 150-pound keg of gunpowder with a time delayed flintlock detonator. The driver was to take the TURTLE under an enemy warship, drill a hole in its bottom, and attach the bomb with a chain to the hull. He was then to pull away before the bomb exploded.

When the time came for TURTLE to make her first combat mission, her regular driver, Ezra Bushnell, the inventor's brother, was ill and so Sergeant Ezra Lee of the Continental Army became the crew. On the night of September 6, 1776, Lee maneuvered TURTLE to a position near Liberty Island where he found HMS EAGLE, a 64-gun ship-of-the-line that was serving as Admiral Richard Howe's flagship. Although Lee was able to bring TURTLE underneath EAGLE, his drill was unable to penetrate EAGLE's hull, either because of metal plating on the ship's hull or because of the curvature of EAGLE's hull. When his air supply started to run out, Lee gave up.

That night also saw the first instance of anti-submarine warfare. A

group of British soldiers spotted TURTLE as Lee was attempting to leave the scene. The soldiers climbed into a 12-oar boat and gave chase. In what may be described as the first use of countermeasures, Lee released TURTLE's bomb which exploded near the mouth of the East River. The huge geyser of water deterred the British from any further pursuit.

A second attempt was later made to attack a British ship but TURTLE was detected before she could begin her attack and forced to flee. As Washington recalled, "[Bushnell] labored for some time ineffectively and, though advocates for his scheme continued sanguine, he never did succeed. One accident or another was always intervening." However, Washington concluded: "I then thought and still think that it was an effort of genius.