

# The Revolutionary Turtle

By Sid Moody, Associated Press

There were many Yankees in the American Revolution, but there was not too much ingenuity. The war was fought with weapons tried and true. But one night in the waters of New York harbor, there was a most remarkable technological breakthrough.

David Bushnell was one of that happy breed for whom gunpowder was invented. He loved to make things go bang. He was also a constant tinkerer and read anything he could lay his eyes on, which interest led him to enroll at Yale even though he was 31.

While his younger classmates were passionately arguing the cause of liberty, Bushnell was thinking: British fleet, gunpowder; gunpowder, British fleet. His curiosity aroused, he went to a pond near New Haven and submerged two ounces of gunpowder in a cannister to see if he could ignite it under water. Bubble-bang! British fleet, British fleet, gunpowder, gunpowder...

WHEN THE NEWS of Lexington and Concord reached New Haven, Bushnell went back home to Old Saybrook on the Connecticut River. He was

going to build the world's first submarine.

To put any Tories off his trail, he told the world he was going fishing and retired into a shed on the river where he kept his nets. Instead he began shaping what looked like a giant egg coated with tar with two pipes out the top, a rudder, a 700-pound lead keel and two fin-like paddles.

"It was of a capacity to contain one engineer" who would climb in, close the hatch, look where he was going through one of six tiny windows and begin paddling through watertight joints.

He had two pumps, one to expel water and one to let it in to submerge. Part of the keel could be jettisoned "if the pumps should get deranged" so the craft would bob to the surface. He even had a compass and a glass tube with a cork in it to indicate the depth.

BUSHNELL FIGURED THE "engineer" could make three knots in short bursts cranking the paddles with one hand and steering the rudder with the other and pumping water in or out with one foot.

Its armament was also egg-shaped, a keg



The world's first submarine, called the America turtle, surfaces in New York harbor in September 1775. It was designed and built in Connecticut by David Bushnell.

containing 150 pounds of powder fired by a clock work and a flint gunlock. Arriving at his target, the engineer screwed the charge into the bottom of the hull with an auger and then cranked himself to safety. Bushnell christened his invention American Turtle and let it be known he was ready.

Bushnell took Turtle to New York. He thought he was too frail to man Turtle in combat and nominated his

brother Ezra to be engineer.

**EZRA CONVENIENTLY** came down with a fever. Sgt. Ezra Lee, a 27-year-old from Connecticut, who had volunteered to man a fire ship, agreed to become history's first submariner. He made some trial runs in Long Island Sound, then Saturday night, Sept. 7, Turtle was launched into the Hudson near South Ferry. Lee climbed in and was towed out into the stream by two whale boats. They brought him as near as they dared to Eagle, and Lee began cranking. The current was ebbing, so it was almost dawn before he came up under the stern of a man-of-war.

"I could see the men on deck and hear them talk," Lee reported.

"I then shut down all doors, sunk down and came up under the bottom of the ship. I pulled along to try another place, but deviated a little to one side and immediately rose with great velocity and came above the surface, then sunk again like a porpoise.

"I hovered about to try again, but on further thought I gave up, knowing that as soon as it was light, the ship's boats would be rowing

in all directions, and I thought the best generalship was to retreat as fast as I could, as I had four miles to go . . . The enemies' attention was drawn toward me from Governor's Island . . . at length a number came down to the shore, shoved off a 12-oared barge and pulled for me.

"I eyed them, and when they had got within 50 or 60 yards of me, I let loose the magazine in hopes that if they should take me, they would likewise pick up the magazine and then we should all be blown up together.

"But as kind Providence would have it, they took fright and returned to the island, to my infinite joy. I then weathered the island, and our people seeing me, came off with a whaleboat and towed me in. The magazine, after getting a little past the island, went off with a tremendous explosion, throwing up large bodies of water to an immense height."

Lee had been trying to bore his mine into Eagle, and Bushnell conjectured he had hit an iron underwater fitting. A month later a sloop carrying Turtle up the Hudson was sunk, but the submarine was recovered although her fate is a mystery. However, Bushnell persisted.

When William Howe captured Philadelphia in 1777, Bushnell tried floating kegs, loaded with powder and a time fuse, down the Delaware. They missed the British ships at anchor, but when they went off, they made a hell of a noise.