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TRIBUNE



Sons of Union Veterans of the Civil War

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CIVIL WAR SUBMARINES (ALL INFORMATION IS FROM WIKIPEDIA)



The *Turtle* was the world's first submarine with a documented record of use in battle. It was invented in Old Saybrook, Connecticut in 1775 by American Patriot David Bushnell as a means of attaching explosive charges to ships in a harbor. Bushnell designed it for use against British Royal Navy vessels occupying North American harbors during the American Revolutionary War.

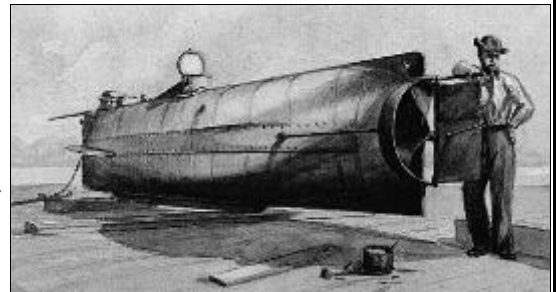
Connecticut Governor Jonathan Trumbull recommended the invention to George Washington; although the commander-in-chief had doubts, he provided funds and support for the development and testing of the machine.

Several attempts were made to use the *Turtle* to affix explosives to the undersides of British warships in New York Harbor in 1776. All failed, and her transport

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on page
2)

death of her inventor, Horace Lawson Hunley, the submarine was named for him shortly after she was taken into service under the control of the Confederate Army (continued on page 3)

H. L. Hunley was a submarine of the Confederate States of America that played a small part in the American Civil War, but a large role in the history of Naval warfare. *Hunley* demonstrated both the advantages and the dangers of undersea warfare. She was the first combat submarine to sink an enemy warship, although the vessel was not completely submerged and was lost at some point following her successful attack. The Confederacy lost 21 crewmen in three sinkings of the *Hunley* during her short career. Following the



Drawing of the *H. L. Hunley*. Based on a Photograph taken in 1863 by George S. Cook/

THE TURTLE (CONT.)

(Continued from page 1)

death of ship was sunk later that year by the British with her aboard; Bushnell claimed to eventually recover the machine, but its final fate is unknown. Modern functional replicas of the *Turtle* have been constructed; the Connecticut River Museum and the Royal Navy Submarine Museum have them on display.

DEVELOPMENT

In the early 1770s, Yale College freshman David Bushnell began experimenting with underwater explosives. By 1775, with tensions on rise between the Thirteen Colonies and Great Britain, Bushnell had practically perfected these explosives.^[2]

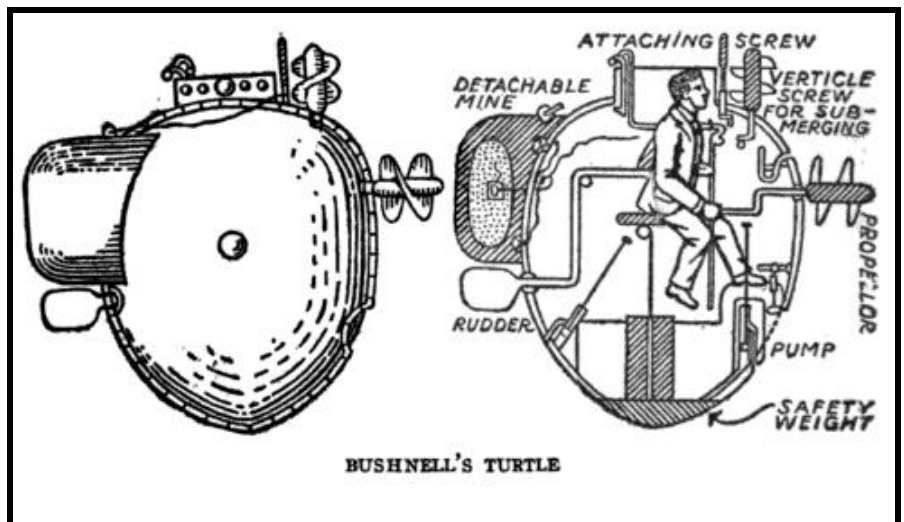
That year he also began work near Old Saybrook, Connecticut on a small manned submersible craft that would be capable of affixing such a charge to the hull of a ship. The charge would then be detonated by a clockwork mechanism that released a musket firing mechanism, probably a flintlock, that had been adapted for the purpose. Bushnell's work began to receive wider attention in August 1775, when Benjamin Franklin was informed of his work.^[3] According to Dr. Benjamin Gale, a doctor who taught at Yale, the firing mechanism and other mechanical parts of the submarine were manufactured by a New Haven clockmaker named Isaac Doolittle.^[4]

Named for its shape, *Turtle* resembled a large clam as much as a turtle; it was about 10 feet (3.0 m) long (according to the original specifications), 6 feet (1.8 m) tall, and about 3 feet (0.9 m) wide, and consisted of two wooden shells covered with tar and reinforced with steel bands.^[5] It submerged by allowing water into a bilge tank at the bottom of the vessel and ascended by pushing water out through a hand pump. It was propelled vertically and horizontally by hand-cranked propellers. It also had 200 pounds (91 kg) of lead aboard, which could be released in a moment to increase buoyancy. It was manned and operated by one person. It contained enough air for about thirty minutes and had a speed in calm water of about three miles per hour (5 kph).^[5]

Six small pieces of thick glass in the top provided natural light.^[5] Illumination while submerged was provided by a piece of cork that gave off a fungus-powered bioluminescent foxfire. During trials in November 1775, Bushnell discovered that this illumination failed when the temperature dropped too low. Although repeated requests were made to Benjamin Franklin for possible alternatives, none were forthcoming, and the *Turtle* was sidelined for the winter.^[6]

PREPARATION FOR USE

In spite of Bushnell's insistence on secrecy surrounding his work, news of it quickly made its way to the British, abetted by a Loyalist spy working for New York Congressman James Duane. On November 16, 1775, a coded message to William Tryon, the last royal governor of the Province of New York, brought



A 19th century diagram showing the side views of the *Turtle*. The diagram incorrectly depicts the propeller as a screw blade; as seen in the replica photographed above and reported by Sergeant Lee, it was a paddle propeller blade.^[1]

(Continued on page 11)

THE H. L. HUNLEY (CONT.) [http://en.wikipedia.org/wiki/H._L._Hunley_\(submarine\)](http://en.wikipedia.org/wiki/H._L._Hunley_(submarine))

(continued from page 1)

at Charleston, South Carolina.

H. L. Hunley, nearly 40 feet (12 meters) long, was built at Mobile, Alabama, and launched in July 1863. She was then shipped by rail on August 12, 1863 to Charleston, South Carolina. On February 17, 1864, *Hunley* attacked and sank the 1240-short ton (1124 metric tons)^[1] screw sloop USS *Housatonic* on blockade duty in Charleston's outer harbor. Soon after, *Hunley* sank for unknown reasons, killing all eight of her third crew. 136 years later, on August 8, 2000, the wreck was recovered. On April 17, 2004, the DNA-identified remains of the eight *Hunley* crew were interred in Charleston's Magnolia Cemetery with full military honors.

HISTORY

Hunley and two earlier submarines were privately developed and paid for by Horace Lawson Hunley, James McClintock, and Baxter Watson.

PREDECESSORS TO HUNLEY

Hunley, McClintock, and Watson first built a small submarine named *Pioneer* in New Orleans, Louisiana. *Pioneer* was tested in February 1862 in the Mississippi River and was later towed to Lake Pontchartrain for additional trials. But the Union advance towards New Orleans caused the men to abandon development and scuttle *Pioneer* the following month. The poorly documented *Bayou St. John* Confederate submarine may have been constructed about the same time as *Pioneer*.

The three inventors moved to Mobile and joined with machinists Thomas Park and Thomas Lyons. They soon began development of a second submarine, *American Diver*. Their efforts were supported by the Confederate States Army; Lieutenant William Alexander of the 21st Alabama Infantry Regiment was assigned oversight duty for the project. The men experimented with electromagnetic and steam propulsion for the new submarine, before falling back on a simpler hand-cranked propulsion system. *American Diver* was ready for harbor trials by January 1863, but it proved too slow to be practical. One attempted attack on the Union blockade was made in February 1863 but was unsuccessful. The submarine sank in the mouth of Mobile Bay during a storm later the same month and was not recovered.

CONSTRUCTION AND TESTING OF HUNLEY

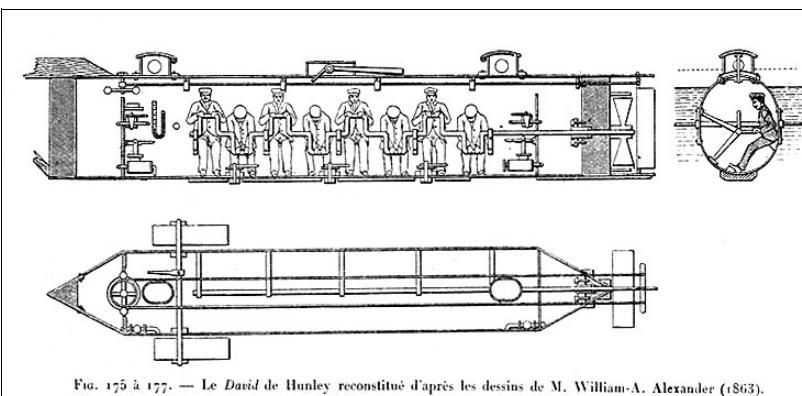


FIG. 175 à 177. — Le *David* de Hunley reconstitué d'après les dessins de M. William-A. Alexander (1863).

Inboard profile and plan drawings, after sketches by W.A. Alexander (1863).

Construction of *Hunley* began soon after the loss of *American Diver*. At this stage, *Hunley* was variously referred to as the "fish boat," the "fish torpedo boat," or the "porpoise." Legend long held *Hunley* was made from a cast-off steam boiler—perhaps because a cut-away drawing by William Alexander, who had seen the real boat, showed a short and stubby machine. In fact, *Hunley* was purpose-designed and built for her role, and the sleek, modern-looking craft shown in R.G. Skerrett's 1902 drawing is an accurate representation. *Hunley* was designed for a crew of eight: seven to turn the hand-cranked propeller and

one to steer and direct the boat. Each end was equipped with ballast tanks that could be flooded by valves or

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COMMANDER'S COMMENTS:



It looks like it is my turn once again to provide a *Commander's Comments* so here goes:

First I would like to thank everyone for their understanding and patience. When I started running for Commander I was not aware that I would be on dialysis so soon. Between having to give up my job and go out on a disability retirement and having all the associated paperwork that goes with it and a week stay in the hospital when my heart decided to jump up to 180-190 beats per minute during a dialysis session I have had to cut back on many activities for a while.

I am finally to a point where I am getting back into the groove and starting to accomplish some of the tasks that had to go on hold. I want to say a big THANK YOU to all the Department of CO/WY officers who have assisted me through all of this and I would like to thank each of you for your understanding and to reassure you that I intend to get back with the program and get some thing accomplished that we set out to do originally.

I want to remind all the officers of the Department and the camps that I extended a challenge to all of you, myself included, to take the SUVVCW leadership course and to have as many of us as possible receive our certificates at next years Department Encampment or before. Only Bro. James Barker, Commander of Centennial Camp 100, has completed this course so far and he is to be commended for his efforts. Many of us were unaware that this course existed but now that we are we are obliged to take it and get it completed in order to better serve the membership of the organization. This is an excellent course for any of our members and is available to all the membership. I hope that everyone that can will take advantage of it.

Bro. Eric Richhart, PCC, Senior Vice Commander for the Department, is still busily working on getting the GAR Highway in Utah recognized by the Utah legislature and has held several meetings with various legislators to that avail. At the same time he has been working on many other projects within the Department and Utah and is a great asset as well as a good friend. Also, Bro. Eric is responsible for the Department website and dose a magnificent job of maintaining and updating it.

Bro.'s Garry Brewer, PDC and Gary Parrott, PDC, have both been busy working on a variety of projects that will provide the Department with a much more complete history as well as some new, or replacement, monuments within the Department. They have done the lions share of work on updating the Department history. Bro. Bill Buvinger, PCC, has done a substantial amount of work on the Department history as well.

My hat goes off to Bro. Jim Davenport for providing the excellent photos and information about GAR monuments within the Department most of which have been posted on the website (I still have one or two that I have not gotten to as yet but will within the next few weeks and get them added to the website as well).

Many others have been working within their respective camps to accomplish a variety of goals and my thanks to each of you for your efforts.

If any of you have information regarding Department history, photos of past commanders or other Department related photos or information please forward a copy to me, Bro. Brewer, Bro. Parrott, or Bro. Buvinger so that we can continue to add to the Department history and make it as complete as possible.

Rhy Paris, Commander, Department of CO/WY

THE H. L. HUNLEY (CONT.) [http://en.wikipedia.org/wiki/H._L._Hunley_\(submarine\)](http://en.wikipedia.org/wiki/H._L._Hunley_(submarine))

(Continued from page 3)

pumped dry by hand pumps. Extra ballast was added through the use of iron weights bolted to the underside of the hull. In the event the submarine needed additional buoyancy to rise in an emergency, the iron weight could be removed by unscrewing the heads of the bolts from inside the vessel.

Hunley was equipped with two watertight hatches, one forward and one aft, atop two short conning towers equipped with small portholes and slender, triangular breakwaters. The hatches were very small, measuring 14 by 15¾ inches (36 by 40 centimeters), making entrance to and egress from the hull very difficult. The height of the ship's hull was 4 feet 3 inches (1.2 meters).

Hunley was ready for a demonstration by July 1863. Supervised by Confederate Admiral Franklin Buchanan, *Hunley* successfully attacked a coal flatboat in Mobile Bay. Following this demonstration, the submarine was shipped to Charleston, South Carolina, by rail, arriving August 12, 1863.

The military seized the vessel from its private builders and owners shortly after its arrival in Charleston, turning it over to the Confederate Army. *Hunley* would operate as a Confederate Army vessel from this point forward, although Horace Hunley and his partners remained involved in the submarine's further testing and operation. While sometimes referred to as CSS *Hunley*, the Confederate government never officially commissioned the vessel into service.

Confederate Navy Lieutenant John A. Payne of CSS *Chicora* volunteered to be *Hunley's* skipper, and a volunteer crew of seven men from *Chicora* and CSS *Palmetto State* was assembled to operate the submarine. On August 29, 1863, *Hunley's* new crew was preparing to make a test dive to learn the operation of the submarine when Lieutenant Payne accidentally stepped on the lever controlling the sub's diving planes while the crew were rowing and the boat was running. This caused *Hunley* to dive with her hatches still open, flooding the submarine. Payne and two others escaped, while the remaining five crewmen drowned.

On October 15, 1863 *Hunley* failed to surface during a mock attack, killing Hunley and seven other crewmen. In both cases, the Confederate Navy salvaged the vessel and returned her to service.

ARMAMENT

Hunley was originally intended to attack by means of a floating explosive charge with a contact fuse (a torpedo in Civil War terminology) towed behind it at the end of a long rope. *Hunley* would approach an enemy vessel, dive under it, and surface beyond. As she continued to move away from the target, the torpedo would be pulled against the side of the target and explode. However, this plan was discarded as impractical due to the danger of the tow line fouling *Hunley's* screw or drifting into *Hunley* herself.

The floating explosive charge was replaced with a spar torpedo, a cask containing 90 pounds (41 kilograms) of gunpowder^[2] attached to a 22-foot (6.7 meter)-long wooden spar, as seen in illustrations of the submarine made at this time. The spar was mounted on *Hunley's* bow and was designed to be used when the submarine was some 6 feet (1.8 meters) or more below the surface. The spar torpedo had a barbed point, and would be stuck in the target vessel's side by ramming. The spar torpedo as originally designed used a mechanical trigger attached to the attacking vessel by a cord, so that as the attacker backed away from her victim, the torpedo would explode. However, archaeologists working on *Hunley* have discovered evidence, including a spool of copper wire and components of a battery, that it may have been electrically detonated. Following Horace Hunley's death, General Beauregard issued an order that the submarine was no longer to attack her target underwater. In response to this order, an iron pipe was attached to the bow of the submarine and angled downwards so the explosive charge would still be delivered under sufficient depth of water to make it effective. This was the same method developed for the earlier "David" type surface craft so successful

(Continued on page 6)

THE H. L. HUNLEY (CONT.) [http://en.wikipedia.org/wiki/H._L._Hunley_\(submarine\)](http://en.wikipedia.org/wiki/H._L._Hunley_(submarine))

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against the USS *New Ironsides*. *The Confederate Veteran* of 1902 printed a reminiscence authored by an engineer stationed at Battery Marshall who, with another engineer, made adjustments to the iron pipe mechanism before *Hunley* left on her last mission on the night of February 17, 1864. A drawing of the iron pipe spar, confirming its "David" type configuration, was published in several early histories of submarine warfare.

ATTACK ON HOUSATONIC

Main article: Sinking of USS Housatonic

Hunley made her first and only attack against a live target on the night of February 17, 1864. The vessel was the USS *Housatonic*. *Housatonic*, a 1240-ton (1.1 million-kilogram)^[1] steam-powered sloop-of-war with 12 large cannons, was stationed at the entrance to Charleston, South Carolina harbor, about 5 miles (8 kilometers) out to sea. In an effort to break the naval blockade of the city, Lieutenant George E. Dixon and a crew of seven volunteers attacked *Housatonic*, successfully embedding the barbed spar torpedo into her hull. The torpedo was detonated as the submarine backed away, sending *Housatonic* and five of her crew to the bottom in five minutes, although many survived by boarding two lifeboats or by climbing the rigging until rescued.

LOSS OF HUNLEY

After the attack, *Hunley* failed to return. There is evidence that *Hunley* survived as long as an hour after the attack, which took place at approximately 8:45 p.m. The commander of Battery Marshall reported the day after the attack that he had received "the damn signals" from the submarine indicating she was returning to her base. The prearranged signal, from a blue carbide gas signal lantern^[3], was received at around 9:00 p.m. at Fort Moultrie on Sullivan's Island. The signal was also seen by crew members of *Housatonic* who were in the ship's rigging awaiting rescue. This type of lantern cannot be seen at distances beyond about one and a half miles, indicating that the submarine had come fairly close to shore after the attack on *Housatonic*.^[4]

After signaling, Dixon would have taken the sub underwater to try to make it back to Sullivan's Island. What happened next is unclear.

One possibility is that the torpedo was not detonated on command, but rather malfunctioned due to damage incurred during the attack. It was intended that the torpedo be detonated when *Hunley* had retreated, playing out its detonation rope, to approximately 150 feet (46 meters) from the target^[5], to minimize damage to the sub. However, witnesses aboard *Housatonic* uniformly stated that the submarine was no more than about 100 feet (31 meters) away when the torpedo detonated, and possibly as close as 75 feet (23 meters).

If the torpedo did not explode as planned, then shock damage from the torpedo and from *Housatonic's* magazine explosion might have opened the sub's seams and allowed water to enter.^[6] Her crew may have failed to realize that the submarine was slowly going under. Submerging again would have put enough water aboard that her crew would likely have driven her into the shallow bottom, blocking the ballast intakes and making it impossible to pump her back out.

In October 2008, scientists reported that they had found that *Hunley's* crew had not set the pump to remove water from the crew compartment, which might indicate that it was not being flooded. "It now really starts to point to a lack of oxygen making [the crew] unconscious," the chairman of the South Carolina Hunley Commission said. "They may have been cranking and moving and it was a miscalculation as to how much oxygen they had."^[7]^[dead link]

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THE H. L. HUNLEY (CONT.) [http://en.wikipedia.org/wiki/H._L._Hunley_\(submarine\)](http://en.wikipedia.org/wiki/H._L._Hunley_(submarine))

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Her crew perished, but *H.L. Hunley* had earned a place in the history of undersea warfare as the first submarine to sink a ship in wartime.^[8]

THE WRECK

The *Hunley* discovery was described by Dr. William Dudley, Director of Naval History at the Naval Historical Center as "probably the most important [American underwater archaeological] find of the [20th] century."^[9] The tiny sub and its contents have been valued at over \$40 million, making its discovery and subsequent donation one of the most important and valuable contributions ever to South Carolina.

The *Hunley* discovery is claimed by two different individuals. Underwater Archaeologist E. Lee Spence, president, Sea Research Society, reportedly discovered *Hunley* in 1970.^{[10][11]} and has a collection of evidence^[12] claiming to validate this, including a 1980 Civil Admiralty Case.^[13]

On September 13, 1976, the National Park Service submitted Sea Research Society's (Spence's) location for *H.L. Hunley* for inclusion on the National Register of Historic Places. Spence's location for *Hunley* became a matter of public record when *H.L. Hunley*'s placement on that list was officially approved on December 29, 1978.^[14] Spence's book *Treasures of the Confederate Coast*, which had a chapter on his discovery of *Hunley* and included a map complete with an "X" showing the wreck's location, was published in January 1995.^[15]

Diver Ralph Wilbanks claims to have found the wreck in April 1995 while leading a NUMA dive team funded by novelist Clive Cussler,^[16] who announced the find as a new discovery^[17] and first claimed that it was in about 18 feet (5 meters) of water over a mile inshore of the *Housatonic*, but later admitted to a reporter that that was false.^[18] The wreck was actually offshore of the *Housatonic* in 27 feet (8 meters) of water at the location previously mapped and reported by Spence.^[19] Wilbanks claims to have located the submarine buried under several feet of silt, which had concealed and protected the vessel for over a hundred years. The divers exposed the forward hatch and the ventilator box (the air box for the attachment of a snorkel) to identify her. The submarine was resting on her starboard side at about a 45-degree angle and was covered in a ¼- to ¾-inch (0.6- to 1.9-centimeter) encrustation of rust bonded with sand and seashell particles. Archaeologists exposed part of the ship's port side and uncovered the bow dive plane. More probing revealed an approximate length of 37 feet (11 meters), with all of the vessel preserved under the sediment.^[20]

On September 14, 1995, at the official request of Senator Glenn F. McConnell, Chairman, South Carolina *Hunley* Commission,^[21] E. Lee Spence, with South Carolina Attorney General Charles M. Condon signing, donated the *Hunley* to the State of South Carolina.^{[22][23]} Shortly thereafter NUMA disclosed to government officials Wilbank's location for the wreck, which, when finally made public in October 2000, matched Spence's 1970s plot of the wreck's location well within standard mapping tolerances.^[24] Spence avows that he not only discovered the *Hunley* in 1970 he revisited and mapped the site in 1971 and again in 1979, and that after he published his location in his 1995 book that he expected NUMA (which was actually part of a SCIAA expedition directed by Dr. Mark M. Newell and not Cussler^{[25][26]}) to independently verify the wreck as the *Hunley*, not to claim that NUMA had discovered it. Interestingly, Dr. Newell has sworn under oath that he used Spence's maps to direct the joint SCIAA/NUMA expedition and credits Spence with the original discovery and credits his expedition only with the official verification.^[27] This is an ongoing dispute involving allegations of political manipulation, official misconduct, and other questionable behavior.

The "in situ" underwater archaeological investigation and excavation culminated with the raising of *Hunley*

(Continued on page 8)

THE H. L. HUNLEY (CONT.) [http://en.wikipedia.org/wiki/H._L._Hunley_\(submarine\)](http://en.wikipedia.org/wiki/H._L._Hunley_(submarine))

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on August 8, 2000. A large team of professionals from the Naval Historical Center's Underwater Archaeology Branch, National Park Service, the South Carolina Institute of Archaeology and Anthropology, and various other individuals investigated the vessel, measuring and documenting it prior to removal. Once the on-site investigation was complete, harnesses were slipped underneath the sub and attached to a truss designed by Oceaneering, Inc. After the last harness had been secured, the crane from the recovery barge *Karlissa B* hoisted the submarine from the sea floor.^{[28][29]} She was raised from the open waters of the Atlantic Ocean, just over 3.5 nautical miles from Sullivan's Island outside of the entrance to Charleston Harbor. Despite having used a sextant and hand-held compass, thirty years earlier, to plot the wreck's location, Dr. Spence's 52 meters accuracy turned out to be well within the length of the recovery barge, which was 64 meters long.^{[30][31]} On August 8, 2000, at 8:37 a.m., the sub broke the surface for the first time in over 136 years, greeted by a cheering crowd on shore and in surrounding watercraft. Once safely on her transporting barge, *Hunley* was shipped back to Charleston. The removal operation concluded when the submarine was secured inside the Warren Lasch Conservation Center, at the former Charleston Navy Yard, in a specially designed tank of fresh water to await conservation.

THE CREW

The crew was composed of Lieutenant George E. Dixon (Commander), Frank Collins, Joseph F. Ridgaway, James A. Wicks, Arnold Becker, Corporal C. F. Carlsen, C. Lumpkin, and a man named Miller, whose first name is still uncertain.^[32]

Apart from the commander of the submarine, Lieutenant George E. Dixon, the identities of the volunteer crewmen of the *Hunley* had long remained a mystery. Douglas Owsley, a physical anthropologist working for the Smithsonian Institution's National Museum of Natural History, examined the remains and determined that four of the men were American born, while the four others were European born, based on the chemical signatures left on the men's teeth and bones by the predominant components of their diet. Four of the men had eaten plenty of maize, an American diet, while the remainder ate mostly wheat and rye, a mainly European one. By examining Civil War records and conducting DNA testing with possible relatives, forensic genealogist Linda Abrams was able to identify the remains of Dixon and the three other Americans: Frank Collins, Joseph Ridgaway, and James A. Wicks. Identifying the European crewmen has been more problematic, but was apparently solved in late 2004. The position of the remains indicated that the men died at their stations and were not trying to escape from the sinking submarine.

On April 17, 2004 the remains of the crew were laid to rest at Magnolia Cemetery in Charleston, South Carolina.^[33] Tens of thousands of people attended including some 6,000 reenactors and 4,000 civilians wearing period clothing. Color guards from all five branches of the U.S. armed forces—wearing modern uniforms—were also be in the procession.^[34] Even though all but 2 of the crew were not from Confederate States they were all buried with full Confederate honors including being buried with a version of the Confederate national flag.^[35]

Another surprise occurred in 2002, when a researcher examining the area close to Lieutenant Dixon found a misshapen \$20 gold piece, minted in 1860, with the inscription "*Shiloh April 6, 1862 My life Preserver G. E. D.*" and a forensic anthropologist found a healed injury to Lt. Dixon's hip bone. The findings matched a legend, passed down in the family, that Dixon's sweetheart, Queenie Bennett, had given him the coin to protect him. Dixon had the coin with him at the Battle of Shiloh, where he was wounded in the thigh on April 6, 1862. The bullet struck the coin in his pocket, saving his leg and possibly his life. He had the gold coin engraved and carried it as a lucky charm.^{[36][37]}

(Continued on page 9)

THE H. L. HUNLEY (CONT.) [http://en.wikipedia.org/wiki/H._L._Hunley_\(submarine\)](http://en.wikipedia.org/wiki/H._L._Hunley_(submarine))

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TOURS OF THE HUNLEY

Visitors can obtain tickets for guided tours of the conservation laboratory that houses the Hunley at the Warren Lasch Conservation Center on weekends. The Center includes artifacts found inside the Hunley, exhibits about the submarine and a video.

IN POPULAR CULTURE

- The first episode of the 1963 TV CBS series, *The Great Adventure*, featured a dramatization loosely based on the events leading up to and including the *Hunley's* last mission. It starred Jackie Cooper as Lt. "Dickson".^[1]
- The original TNT Network made-for-cable movie "The Hunley" (1999) tells the story of the H. L. Hunley's final mission while on station in Charleston, SC. It stars Armand Assante as Lt. Dixon and Donald Sutherland as General Beauregard, Dixon's direct superior on the Hunley project.^[2]
- The Hunley is the inspiration of the Sons of Confederate Veterans H. L. Hunley JROTC Award presented to cadets on the basis of strong corps values, honor, courage and commitment to their unit during the school year.^[38]

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(Continued on page 10)

THE H. L. HUNLEY (CONT.) [http://en.wikipedia.org/wiki/H._L._Hunley_\(submarine\)](http://en.wikipedia.org/wiki/H._L._Hunley_(submarine))

(Continued from page 9)

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Editors Note: The forgoing article on submarines of the Civil War was taken directly from Wikipedia and they deserve full and complete credit for its contents



Lt. George Dixon, H. L. Hunley Commander



H. L. Hunley, suspended from a crane during its recovery from Charleston Harbor, August 8, 2000. (Photograph from the U.S. Naval Historical Center.)

THE TURTLE (CONT.)

(Continued from page 2)



Portrait of
Ezra Lee

Bushnell's work to British attention. The details of the report were highly inaccurate, implying that the *Turtle* was nearly ready to be deployed in Boston harbor against the fleet that was part of the British siege effort there. In fact Bushnell and his brother Ezra were still testing the machine in the Connecticut River.^[7] In the spring of 1776, after the British withdrew from Boston, Bushnell offered the submarine to General George Washington for use in the defense of New York City. Washington agreed, and provided some funding to the inventor to prepare the vessel for deployment.^[8]

In August 1776 Bushnell asked General Samuel Holden Parsons for volunteers to operate the *Turtle*, because his brother Ezra, who had been its operator during earlier trials, was taken ill.^[9] Three men were chosen, and the submarine was taken to Long Island Sound for training and further trials.^[10] While these trials went on, the British gained control of Long Island in the August 27 Battle of Long Island. Since the British now controlled the harbor, the *Turtle* was transported overland from New Rochelle to the Hudson River.^[10]

GOVERNORS ISLAND ATTACK

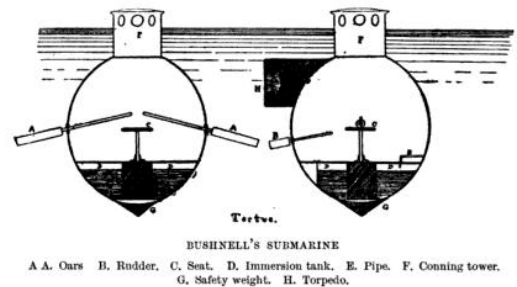
General Washington then authorized an expedition by the *Turtle* in the waters of New York Harbor.^[11] Late in the evening of September 6, one of volunteers, Sergeant Ezra Lee, took the *Turtle* out to attempt an attack on Admiral Richard Howe's flagship HMS *Eagle*.^[10] She was moored off what is today called Governors Island, which is due south of Manhattan.^[12] A common misconception was that Lee failed because he could not manage to bore through the copper-sheeted hull. Bushnell believed that Lee's failure was probably due an iron plate connected to the ship's rudder hinge.^[13] When he attempted another spot in the hull, he was unable to stay beneath the ship, and eventually abandoned the attempt. Lee reported that British soldiers on Governors Island spotted the submarine and rowed out to investigate. He then released the charge (which he called a "torpedo"), "expecting that they would seize that likewise, and thus all would be blown to atoms."^[13] Suspicious of the drifting charge, the British retreated back to the island. Lee reported that the charge drifted into the East River, where it exploded "with tremendous violence, throwing large columns of water and pieces of wood that composed it high into the air."^[13]

AFTERMATH

On October 5, Sergeant Lee again went out in an attempt to attach the charge to a frigate anchored off Manhattan. He reported that the ship's watch spotted him, so he abandoned the attempt. The submarine was sunk some days later by the British as it sat on its tender vessel near Fort Lee, New Jersey. Bushnell reported salvaging the *Turtle*, but its final fate is unknown.^[14] George Washington wrote of the attempt that it was "an effort of genius", but that "a combination of too many things was requisite" for such an attempt to succeed.^[15]

In 1777, Lee used floating mines in an attempt to destroy the British frigate *HMS Cerberus*, anchored in Niantic Bay. The explosion was said to have killed 3 sailors and destroyed a boat of a prize schooner astern of the *Cerberus* but failed to damage the ship.^[16] In 1778 Bushnell floated mines down the Delaware River in an attempt to destroy British ships off Philadelphia. The mines took longer to reach the area than expected,

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A diagram showing the front and rear of the *Turtle*

DEPARTMENT ELECTIONS & NEW OFFICERS (CONT.)

(Continued from page 11)

and there was a report that two boys investigating them were blown up. On January 5, 1778, one of the mines struck a British barge, killing four men and raising the alarm. The British response, in which virtually any piece of floating wood in the river became a target, was lampooned in a ballad called "The Battle of the Kegs".^[17]

VERACITY OF REPORTS

British documents contain no records of any attacks by a submarine or any reports of explosions on the night of the supposed attack on HMS *Eagle* (although records of Bushnell's other floating mine attacks do exist). The only British records are of an intercepted letter of a supposed description of the boat which was not taken seriously.^[18]

According to naval historian Richard Compton-Hall, the problems of achieving neutral buoyancy would have rendered the vertical propeller useless. The route the *Turtle* would have had to take to attack HMS *Eagle* was slightly across the tidal stream which would, in all probability, have resulted in Ezra Lee becoming exhausted.^[18] In the face of these and other problems it has been suggested that the entire story was fabricated originally as disinformation and later a morale boosting propaganda, and that if Ezra Lee did carry out an attack it was in a covered rowing boat rather than the *Turtle*.^[18]



Drawing of a cut-away view of *Turtle*'s interior.

REPLICAS

In 1976, a recreation was designed by Joseph Leary and constructed by Fred Frese as a project marking the United States Bicentennial. It was christened by Connecticut's governor, Ella Grasso, and later tested in the Connecticut River. This replica is owned by the Connecticut River Museum.^[19]

On August 3, 2007 three men were stopped by police while escorting and piloting a replica of the *Turtle* within 200 feet (61 m) of the *Queen Mary 2*, then docked at the cruise ship terminal in Red Hook, Brooklyn. The replica was created by New York artist Philip "Duke" Riley and two residents of Rhode Island, one of whom claimed to be a descendant of David Bushnell. The Coast Guard issued Riley a citation for having an unsafe vessel, and for violating the security zone around the *Queen Mary 2*.^[20]

FOOTNOTES

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|---|---|---------------------|---|
| 1 Rindskopf et al, p. 30 | 2 Diamant, p. 21 | 3 Diamant, p. 22 | 4 Diamant, p. 23 |
| 5 ^{a b c} Schecter, p. 172 | 6 Diamant, p. 27 | 7 Diamant, p. 26 | 8 DANFS <i>Turtle I</i> |
| 9 Diamant, p. 30 | 10 ^{a b c} Schecter, p. 173 | 11 Schecter, p. 171 | 12 Diamant, p. 31 |
| 13 ^{a b c} Schecter, p. 174 | 14 Diamant, p. 33 | 15 Diamant, p. 34 | 16 Torpedoes and torpedo warfare, p.290 |
| 17 Coggins, p. 97 | 18 ^{a b c} Compton-Hall, pp. 32-40 | | |
| 19 Connecticut River Museum – David Bushnell's Turtle | 20 Makeshift submarine found in East River | | |

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Special Notice

Brethren,

My most humble apologies for the long delay in getting this newsletter out to you. About a month ago my e-mail was hacked and many of you received fictitious messages that I was in Porte Rico, Wales, London and who knows where else and was in need of funds to get me back home. This was obviously a hoax but in addition the individual(s) that did this also stripped out my entire e-mail listing and sent all incoming e-mails to a Yahoo address of their own which meant that I did not receive any information back on my old e-mail listing.

I have had to recreate the entire e-mail database and reestablish the groups to send various information to. This has required a great amount of my time and efforts as there were over 300 e-mail listings which had to be redone.

I have created an entirely new e-mail to be used for business and other important information and request that it be limited to this use in order to keep the e-mails to a minimum. My new e-mail is phantomsgt@bresnan.net. Please use this for any necessary correspondence with me.

Again, my apologies for the long delay and here is the latest Department of CO/WY newsletter: the Fall 2010 edition.

F., C., and L.,

Rhy Paris
Commander
Department of CO/WY