Confederate Submarine **H.L. Hunley**
First in History to Sink an Enemy Ship in Wartime

by Mark K. Ragan

If you knew anything about the Confederate submarine **H.L. Hunley**—prior to its discovery by adventure novelist Clive Cussler’s National Underwater and Marine Agency (NUMA) in 1995—chances are you had been informed that the vessel was little more than a crude monstrosity, fabricated from a discarded steam boiler by desperate rebels in the closing months of the Civil War. As has been proven from the vessel’s intact recovery, nothing could be further from the truth. In fact this first submarine to sink an enemy ship in wartime was the third such vessel fabricated in just two years by a group of dedicated southern engineers. Members of the Singer Secret Service Corps—one of the names the organization that fabricated the *Hunley* went by—took advantage of newly acquired knowledge, gained through trial and error with the first prototypes, and incorporated it into design and building of the *Hunley*.

The group’s first vessel, christened the *Pioneer*, was fabricated in New Orleans in 1861–62 by steam gauge manufacturers James McClintock and his partner Baxter Watson. During the early days of the venture, they were joined by wealthy attorney and fellow New Orleans native Horace Hunley. From a postwar letter written by James McClintock comes the following: “In the years 1861, ’62, and ’63, I, in connection with others, was engaged in inventing and constructing a submarine boat or boat for running under the water at any required depth from the surface. At New Orleans in 1862 we built the first boat, she was made of iron 1/4 inch thick. The boat was of a cigar shape 30 feet long and 4 feet in diameter.” With her only offensive weapon described simply as a “magazine of powder,” the three inventors applied for, and were granted, a letter of marque (privateer’s commission) from the Confederate government on 31 March 1862. Unfortunately, little is known regarding the testing of the *Pioneer*, other than the fact that the three partners are reported to have “made several descents…and succeeded in destroying a small schooner and several rafts.”

The Confederate privateer submarine *Pioneer*, as drawn by fleet engineer William Shock. The scuttled vessel was discovered soon after the collapse of New Orleans and was dragged ashore by Union sailors.
In mid-April 1862 Admiral Farragut’s federal fleet steamed up the Mississippi River past two Confederate strongholds, and after several days of heated negotiations with city officials, New Orleans surrendered on 29 April. With the Confederate army in retreat, the submarine partners McClintock, Hunley, and Watson hastily scuttled their invention in the New Basin Canal and fled to Mobile, Alabama, to continue their experiments.

With a privateering commission from the Confederate government in hand, the trio approached the military authorities of Mobile and was immediately granted facilities at the Park and Lyon Machine Shop on Water Street. Among the many soldiers placed on detached duty at Park and Lyon was Lieutenant William Alexander, a young English mechanical engineer. With the arrival of Watson, Hunley, and McClintock, Alexander’s superiors ordered him and his men to give their full attention to the unique project. From a letter written in September of 1863, we know that Horace Hunley financed the submarine’s construction from his personal accounts.

As evidenced in the following passages from McClintock’s postwar letter, it would appear that the group may have been attempting to fabricate a vessel far too technologically advanced for the times. “We built a second boat at Mobile...she was made 36 feet long, three feet wide and four feet high. Twelve feet of each end was built tapering or molded, to make her easy to pass through the water.” McClintock then went on to write the following incredible passage: “There was much time and money lost in efforts to build an electro-magnetic engine for propelling the boat.” McClintock went on to state that the electric motor designed and fabricated for propelling their second submarine “was unable to get sufficient power to be useful.” Unfortunately, McClintock remained silent as to how the group tested the electric motor, and it must therefore remain a mystery as to how close the partners actually came to producing the world’s first electrically powered submarine.

With the failure of the vessel’s electric motor, the undaunted inventors turned to a more practical means of propulsion—a small custom-built steam engine. This also proved to be a failure. With the removal of the failed steam engine, the partners reluctantly resorted to installing a propeller shaft designed to be turned by four men. By mid-January of 1863, the American Diver (as a Confederate deserter referred to her in his testimony) was ready for sea trials in Mobile Bay.

All we really know about the final fate of the American Diver comes from a postwar news article written by Lieutenant William Alexander, the engineering officer assisting McClintock, Hunley, and Watson in Mobile: “It [the submarine] was towed off Fort Morgan, intended to man it there and attack the blockading fleet outside, but the weather was rough, and with a heavy sea the boat became unmanageable and finally sank, but no lives were lost.”

Fortunately for the disappointed, out-of-work submarine designers, a small group of underwater explosives engineers was just then setting up shop in Mobile. Headed by Texan Edgar Singer, these new arrivals and staff were manufacturing what would become the most successful underwater mine developed during the Civil War. From contemporary documents, it is known that the three inventors were soon approached by the recently arrived Texans and offered membership in Singer’s unique torpedo organization, which would become known as Singer’s Secret Service Corps. While Mobile Bay was being surveyed and torpedo materials gathered, the three displaced Louisiana inventors discussed their past submarine operations with their new Texan colleagues in an effort to gain support for fabrication of yet a third vessel. With the Singer organization’s primary focus on the manufacture and deployment of underwater weaponry, it’s easy to see why the group enthusiastically backed the proposed venture.

With funding in place, construction on the daring project began immediately at the Park & Lyon machine shop. From the postwar article written by William Alexander, we get an invaluable firsthand description of this innovative diving machine soon to be christened the H. L. Hunley, named after Hunley, in recognition of his financial support and advocacy in making the project happen.

We decided to build another boat, and for this purpose took a cylinder boiler, which we had on hand, 48 inches in diameter and twenty-five feet long. We cut this boiler in two, longitudinally, and inserted two 12-inch boiler iron strips in her sides; lengthened her by one tapering course fore and aft, to which were attached bow and stern castings, making the boat about 30 feet long, 4 feet wide and 5 feet...
A longitudinal strip 12 inches wide was riveted the full length on top. At each end a bulkhead was riveted across to form water-ballast tanks, they were used in raising and sinking the boat...In operation, one half of the crew had to pass through the fore hatch; the other through the after hatchway. The propeller revolved in a wrought iron ring or band, to guard against a line being thrown in to foul it.

It was sometime during the construction of this third submarine that Lieutenant George Dixon, a pre-war steam engineer and officer in the 21st Alabama (William Alexander’s regiment), entered the story of the Hunley. Although practically nothing is known of Dixon’s early life, an interesting article concerning a lucky gold piece he carried appeared in the 15 November 1904 edition of the Mobile Daily Herald. According to the article, Dixon’s sweetheart had given him a twenty-dollar gold piece prior to his leaving for the war. At the battle of Shiloh, the gold piece deflected a bullet that would have shattered his leg. When the wreck of the Hunley was being excavated in 2000, the dented gold coin was discovered on Dixon’s body with the engraving “Shiloh April 6th, 1862. My Life Preserver.”

By mid-July 1863, the Hunley was completed and transferred to the Mobile River for trials. On the morning of 31 July, an old worm-eaten barge was towed to the middle of the river and anchored in front of numerous military officers, who had assembled to witness the destructive capabilities of the Singer group’s new diving machine.

By a stroke of fantastic luck, several eyewitness accounts that discuss this first demonstration have come to light in recent years. Confederate General James Slaughter wrote after the war: “In company with Admiral Buchanan and many officers of the CS Navy and Army, I witnessed her [the Hunley’s] operations in the river and harbor of Mobile. I saw her pass under a large raft of lumber towing a torpedo behind her which destroyed the raft. She appeared three or four hundred yards beyond the raft and so far as I could judge she behaved as well under water as above it.”

With the vessel’s destructive capabilities obvious to all, military commanders in Mobile agreed that the Hunley should be put into service as quickly as possible. Due to Mobile Bay’s relatively shallow water and strong harbor defenses, it was decided that Charleston should be the Hunley’s future base of operations. Within hours after Singer’s group had proven the military worth of the submarine boat, General John Slaughter offered the vessel to Charleston’s commanding officer, Brigadier General P. G. T. Beauregard, and within days the vessel was on its way to South Carolina aboard a railroad flatcar.

On the morning of 12 August 1863, the soot-covered locomotive that had hauled the small submarine and her crew from Alabama, slowly steamed into the busy Charleston railroad station. With the submarine now in the city, General Beauregard ordered the army’s engineering department to unload the vessel and transfer it to a mooring in the harbor without delay. Although information is sketchy, it would appear that by mid-August the Hunley was venturing past Fort Sumter in nightly excursions against the blockading fleet anchored outside the harbor.

Towing an explosive charge at the end of a long line trailing behind them, the newly arrived crew attempted several nocturnal sorties but, as we read in the following dispatches, these were apparently not enough to impress General Clingman, commander of Sullivan’s Island. “The torpedo boat started at sunset but returned as they state because of an accident, Whitney says that though McClintock is timid, yet it shall go tonight unless the weather is bad.” These nocturnal attempts by the Hunley crew were apparently regarded as ineffective by General Clingman, for several hours later he sent yet another unflattering message concerning the crew’s conduct. “The torpedo boat has not gone out, I do not think it will render any service under its present management.” With the sending of this last communication, the fate of the crew was sealed; for within twenty-four
hours, the *Hunley* was seized by the Charleston military and turned over to the Confederate navy.

With the *Hunley* seized, and then in the possession of the Confederate military, a call for naval volunteers to man the contraption was sent throughout the Charleston Squadron. Within hours after the request for volunteers went out, Lt. John Payne stepped forward to request command of the novel invention. One of his crew, Lt. Charles Hasker, later wrote about his experiences with the *Hunley*.

I was anxious to see how the boat worked and volunteered as one of the crew. We were lying astern of the steamer *Etowah*, near Fort Johnson, in Charleston Harbor. Lieutenant Payne, who had charge got fowled [sic] in the manhole by the hawser and in trying to clear himself got his foot on the lever, which controlled the fins...The boat made a dive while the manholes were open and filled rapidly. Payne got out of the forward hole and two others out of the aft hole. Six of us went down with the boat...The manhole plate came down on my back...Held in this manner I was carried to the bottom...Five men were drowned on this occasion. I was the only man that went to the bottom with the ‘Fish Boat’ and came up to tell the tale.

With no other viable offensive weapon at his command, General Beauregard decided to salvage the submarine, round up another volunteer crew, and put the *Hunley* back into service. The recovery of the forty-foot submarine was assigned to civilian divers Angus Smith and David Broadfoot. The two Scottish immigrants were successful in their efforts, for on the fourteenth of September the following dispatch was sent to General Beauregard: “General, I have the honor to inform you that the torpedo submarine boat was brought up to the city this afternoon and is in the vicinity of the RR wharf.”

At about the same time that the late crewmembers of the *Hunley* were being removed from their iron coffin, Horace Hunley was requesting command of his namesake vessel from General Beauregard. “If you will place the boat in my hands I will furnish a crew who are well acquainted with its management and make the attempt to destroy a vessel of the enemy as early as practicable.” The request was granted. Unfortunately, Horace Hunley apparently had little experience piloting the vessel, for within days after taking command of the submarine, it once again sank from operator error, killing all aboard—including Hunley himself. Charleston divers Smith and Broadfoot were again summoned to raise the vessel and a week later it was once again floating alongside the city docks.

After learning of the second fatal sinking, Lieutenants George Dixon and William Alexander—the two engineers then assigned to the Park and Lyon machine shop—were dispatched from Mobile to take charge of the vessel in Charleston, make necessary repairs, and return it to service. William Alexander later wrote: “We soon had the boat refitted and in good shape....The torpedo was a copper cylinder holding a charge of ninety pounds of explosive, with percussion and primer mechanism, set off by triggers...In experiments made with some old flat boats in smooth water, this plan operated successfully, but in a seaway the torpedo was continually coming too near our craft.” For these reasons the torpedo configuration was changed to one attached to a spar assembly.

From William Alexander’s descriptions, we are informed that the *Hunley* was relocated to Breach Inlet, at the northern tip of Sullivan’s Island.

Our daily routine, whenever possible, was about as follows: Leave Mount Pleasant about 1PM, walk seven miles to Battery Marshall on the beach, take the boat out and
practice the crew for two hours in the Back Bay... The plan was to take the bearings of the ships as they took position for the night, steer for one of them, keeping about six feet under water, coming occasionally to the surface for air and observation, and when nearing the vessel, come to the surface for final observation before striking her, which was to be done under the counter, if possible.

It was winter, therefore necessary that we go out with the ebb and come in with the flood tide, a fair wind and a dark moon.... On several occasions we came to the surface for air, opened the cover and heard the men in the Federal picket boats talking and singing. During this time we went out on an average of four nights a week... We continued to go out as often as the weather permitted, hoping against hope, each time taking greater risks of getting back.... On February 5, 1864, I received orders to report at Mobile. This was a terrible blow, both to Dixon and myself after we had gone through so much together... I left Charleston that night and reached Mobile in due course.

Within days after Alexander left for far-off Alabama, a new federal sloop-of-war was seen dropping her evening anchor just over three miles from the mouth of Breach Inlet. With orders to run down or destroy any blockade runner that attempted to pass, the steam sloop-of-war Housatonic rocked at anchor within sight of Breach Inlet. With a menacing new sloop-of-war anchored so close, it would appear that Dixon changed his tactics in favor of a bold new plan of attack. Since the vessel could be approached within a couple of hours after nightfall, it was decided that the Hunley crew would attack the sloop on the first calm evening, and, once clear, signal Battery Marshall for a fire to be lit at the mouth of Breach Inlet. Dixon would then steer for the light before the expected steam-powered federal picket boats could converge on the area.

On the evening of 17 February 1864, Dixon, with signal lantern in hand, squeezed through the forward hatch of the Hunley for the highly anticipated attack. As the dark cold interior became illuminated from a candle Dixon had lit, seven crewmen took turns climbing down through the narrow hatches and took their places beside the crankshaft. The events that took place aboard Dixon's submarine after it left Breach Inlet will unfortunately never be known; however, a good description of what happened once the submarine had reached her victim can be ascertained from testimony gathered at the court of inquiry held nine days later. From that document come the following testimonials:

I took the deck at 8PM on the night of February 17th. About 8:45PM I saw something on the water, which at first looked to me like a porpoise, coming to the surface to blow... It was about 75 to 100 yards from us through our starboard hatches...Looking again within an instant I saw it was coming towards the ship very fast. I gave orders to beat to quarters slip the chain and back the engine, the orders being executed immediately.

—Acting Master J. K. Crosby

While terrified union sailors leaned over the Housatonic's rail firing rifles and pistols at the strange-looking contraption, Executive Officer Higginson rushed on deck from his cabin.

I went on deck immediately, found the Officer of the Deck on the bridge, and asked him the cause of the alarm; he pointed about the starboard beam on the water and said 'there it is.' I then saw something resembling a plank moving towards the ship at a rate of 3 or 4 knots; it came close along side, a little forward of the mizzen mast on the starboard side. It then stopped, and appeared to move off slowly. I then went down from the bridge and took the rifle from the lookout on the horse block on the starboard quarter, and fired it at this object...I heard the explosion, accompanied by a sound of rushing water and crashing timbers and metal...The ship was sinking so rapidly, it seemed impossible to get the launches cleared away, so I drove the men up the rigging to save themselves. After I got into the rigging, I saw two of the boats had been cleared away, and were picking up men who were overboard. As soon as I saw all were picked up, I sent one of the boats to the Canandaigua for assistance.

—Executive Officer F. J. Higginson

From testimony given by numerous survivors (just five Union sailors were killed in the attack), it would seem that the Hunley was quite close to the Housatonic when the torpedo exploded. Seaman Robert Flemming was one of those who scrambled to safety up Housatonic's rigging. He later testified that, “When the...
Canandaigua got astern and was lying athwart, of the Housatonic, about four ship lengths off, while I was in the fore rigging. I saw a blue light on the water just ahead of the Canandaigua, and on the starboard quarter of the Housatonic.”

From a document filed just 48 hours after the attack, it appears that Flemming may have seen the faint beam from Dixon’s signal light; the commander of Battery Marshall, Lt. Colonel Dantzler, stated in his official report of the incident that the agreed signal from the Hunley was “observed and answered.” Whether or not Flemming actually saw Dixon’s signal light will perhaps never be known, for after successfully sinking the Housatonic, Lieutenant George Dixon, his submarine, and her entire crew disappeared without a trace, until the spring of 1995 when members of Clive Cussler’s NUMA dive team uncovered the hull, some 300 yards beyond the wreck site of the Housatonic. The intact vessel with all aboard was raised in 2000 and is now being conserved and is on display at the Warren Lasch Conservation Center in North Charleston, South Carolina. 

Mark K. Ragan was the Hunley Project historian during the excavation and raising of the submarine, who also worked as a recovery diver on the night shift. The movie rights to his first book, The Hunley, were purchased by Turner Network Television and used as the historical narrative for the TNT 1999 movie of the same title. Mr. Ragan is also the owner of Chesapeake Submarine Service, Inc., the only company in North America to offer mini-sub piloting classes in a K-350, a two-person dry submarine.

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