THE Hunt FOR THE Alligator

In a time of civil war, a secret weapon . . .

Within weeks of the beginning of the Civil War, the navies North and South turned to submarines. To the Confederates, these were a means to break the Union blockade; to the Federals, a way to destroy the underwater obstacles that barred their attacks from the sea upon the ports through which vital supplies from Europe flowed to arm the rebels. Submarines, along with underwater mines, were considered "infernal machines"—an ungentlemanly if not illegal means of waging war. Because of the secret nature of this first "war beneath the waves," the exploits of these early submariners are little known. However, the story of one boat and the men who crewed her is slowly coming to light .

The Civil War's first submarine (and the first such vessel accepted into the U.S. Navy), was designed by an immigrant Frenchman eager to help his new country. Brutus de Villeroi had a history of submarine experiments dating back to 1832 in France, where he first demonstrated a functional boat designed for salvage work. One month after the Civil War began, de Villeroi popped up in the waters off Philadelphia Navy Yard to show his most recent vessel to the Navy officers there; acting upon rumors of an unusual vessel possibly intent upon sabotage, the harbor police impounded the boat. But the Navy agreed to examine the vessel. Impressed by what they saw, de Villeroi was asked to build a larger submarine.

While the main role envisioned for Union submarines would be to clear obstructions, the Navy contracted for de Villeroi's boat for an entirely different reason. Rumors of a powerful Confederate ironclad building upon the remains of the burned out Merrimack had northern sailors rushing to find a means to meet this new threat. Three types of iron-plated vessels were rushed into production (*Galena*, *New Ironsides*, and *Monitor*); a squadron of civilian-owned transports was hired to ram the enemy ship; and, at the shipyard of Neafie & Levy in Philadelphia, constructors worked feverishly to complete the "submarine propeller" designed by de Villeroi.

One of the features that made this vessel so unique was the fact that it employed an air-scrubbing system to remove carbon dioxide from the interior environment of the boat. No other Civil War submarine had such a system. Unfortunately, the expense of the components of this system, the unfamiliarity of Navy officials with its workings, and, quite probably, the fact that neither the shipyard nor the Navy had ever dealt with a self-described "natural genius" before meant construction was delayed long after the threat of the CSS *Virginia* had been met. Completed in the spring of 1862, the Navy's new submarine was sent up Hampton Roads in Virginia for its first combat mission: to destroy a railroad bridge over Appomattox Creek and thereby cut a major supply line to Richmond.

About this time, the new submarine acquired its name—not in any official ceremony, but at the whim of a newspaper reporter who likened the progress of the green-painted boat through the water to that of an alligator. Although not recognized by the Navy, the new name stuck. The image was suggested not only by the color of the vessel, but also from the fact that this first version was propelled by banks of oars! De Villeroi had opted to discard the already-traditional propeller for individual oars that deployed and feathered with each stroke.

So, how does a submarine attack a railroad—especially in this early period when self-propelled torpedoes were still twenty years in the future? *Alligator's* mode of attack was advanced for its day. In addition to the crew of 14+ men and an officer, the submarine deployed a diver through a forward airlock. Exiting the boat, the diver could attach mines to a target, return to the boat, and detonate the mines by connecting an insulated copper wire from the mines to a battery in the vessel. Unfortunately, Alligator was denied this second chance to make history when local Navy officers warned of shallow water along the Appomattox; passing through this area would make the submarine easily visible and most likely simple to capture. In the hands of the Confederates, *Alligator* could be used to attack the blockading fleet and there would be little that the Union vessels could do to defend themselves. *Alligator* was towed back to Washington.

Over the summer and winter of 1862, the Navy replaced the civilian crew with one of its own, officered by Lieutenant Thomas Selfridge. Running extensive tests with the boat resulted in the substitution of a propeller for the unwieldy oars; this doubled the speed of the boat from two to four knots. After completing these tests and making it very well known that he thought little of submarine warfare, Lt. Selfridge and his men were transferred to the Mississippi Squadron and *Alligator* came under the command of Acting Master Samuel Eakins. This officer was a professional diver (who worked for the Czar of Russia in the years before the Civil War, trying to salvage Russian ships lost during the Crimean War). Eakins had a small conning tower with viewing ports added to *Alligator* over the winter of 1862-63.

In the early spring of 1863, *Alligator* was assigned a new mission to destroy underwater obstacles barring the waters around Fort Sumpter in Charleston harbor. Admiral DuPont intended to use his squadron of ironclads to destroy the fort and finally take the town, but knew he would be hampered by obstructions and minefields. In late March *Alligator* began the long voyage to South Carolina under tow by USS *Sumpter*. Its route took it around stormy Cape Hatteras, the "Graveyard of the Atlantic" which had already claimed USS *Monitor* and almost taken its fellow ironclad, USS *Passaic*.

On April 2, 1863, in a storm described as one of the most violent ever experienced by the captain of *Sumpter*, the lines connecting *Alligator* to its tow vessel began to part. As the small (47') submarine yawed back and forth in the violent waves, slowly filling with water from broken portholes and loosened iron plates, the decision was made to cut the remaining lines before the boat dragged down Sumpter as well. *Alligator* disappeared from the view of the men on *Sumpter* as they fought for their lives against the storm. Admiral DuPont's ironclad attack went in three days later, and was a dismal failure.

With the close of the war and de Villeroi's death in 1875, knowledge of this advanced submarine was all but lost. The United States, surrounded by protecting oceans, had little need to develop a submarine force at this point in its history.

Now, the hunt is on for *Alligator*. In a project spearheaded by the National Oceanic & Atmospheric Administration (NOAA) and including the Navy & Marine Living History Association (NMLHA), historical research as well as probes into the waters off Cape Hatteras are underway. The biggest find so far: a complete set of original plans drawn by de Villeroi in 1863 and sent home to France!

While finding *Alligator* would be interesting from an historical perspective, there are also compelling reasons to develop the technology to locate something so small in such deep waters. These include national defense for, in the words of Rear Admiral Cohen of the Office of Naval Research, 'If we can find *Alligator*, we can find anything!"

The ability to 'find anything" is also critical for protecting our seas and shores from environmental dangers: for more than a century, metal-hulled vessels have been sinking and taking down cargoes of lethal chemicals and fuels. Corroding in the salty waters of the oceans, those ships are a ticking time bomb that will eventually poison our coasts. Finding them and securing them before it is too late is absolutely necessary.

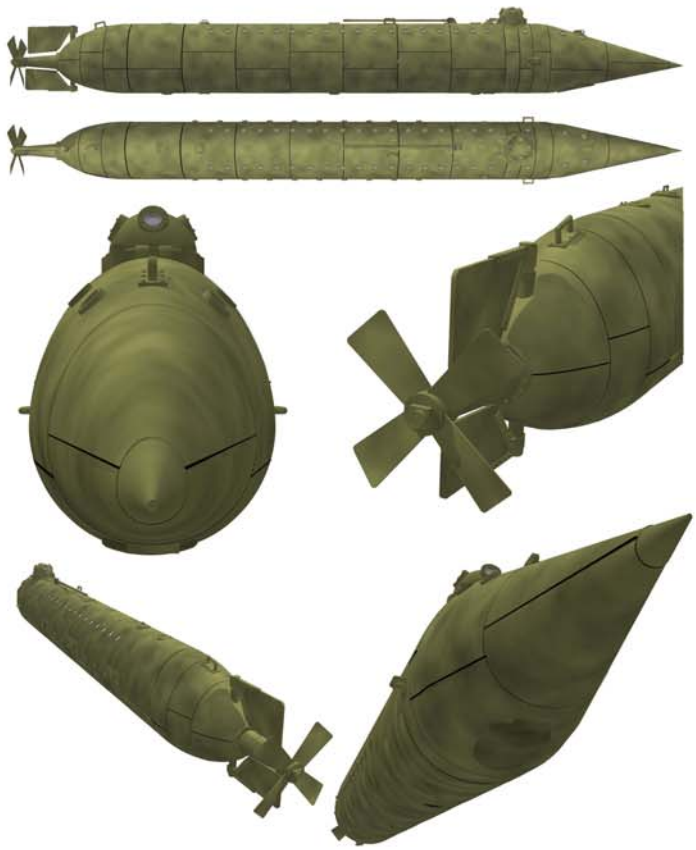
If you would like to be informed of developments in the Hunt for the *Alligator*, visit either the NOAA or NMLHA websites and sign up for email updates. We'll let you know when new information is posted to the sites.

"I propose to you a new arm of war, as formidable as it is economical. Submarine navigation, which has been sometimes attempted, but as all know without results, owing to want of suitable opportunities, is now a problematical thing no more."

-- Brutus de Villeroi in a letter to President Lincoln, 1862

Alligator 1863

Digital model by C. L. Veit, Navy & Marine Living History Association, 19 October 2005.



For updates on the progress of the Hunt for the Alligator, visit these websites:

http://www.navyandmarine.org/alligator/
http://www.sanctuaries.noaa.gov/alligator/

The Navy & Marine Living History Association, in cooperation with the Office of Naval Research and the National Oceanographic & Atmospheric Adminsitration