

E. C. Singer and the H. L. Hunley

By Henry Wolff, Jr.

Most anyone who has any interest at all in the Civil War has surely by now heard of the Confederate submarine H. L. Hunley that had the distinction of sinking the Union's sloop of war *Housatonic* to become the first sub ever to have sunk an enemy ship. It all happened on the night of February 17, 1864, off Charleston, South Carolina, and such an accomplishment by a submarine would not happen again until World War I.

While much has been made of the promoter H. L. Hunley's role in the development of the crude little submarine since its recovery from the waters off Charleston Harbor in the year 2000, less is said of E. C. Singer, a mechanical engineer from Ohio who had moved to Port Lavaca on the Texas coast where he became engaged with a group of associates in the development of water mines and torpedoes for the Confederacy including the one that was used to sink the *Housatonic*.

The so-called torpedo that sank the Union warship was nothing more than a rather simple contact mine that was attached to a spar mounted on the submarine, it being designed to ram an enemy vessel with the torpedo attached at the end. There had been attempts to drag a torpedo beneath a vessel and strike at the bottom in that way, but the spar seemed to be a more efficient method and was already being used on some naval vessels in surface warfare.

I had first heard of Singer and the Civil War torpedoes right at a hundred years after the sinking of the steam-powered *Housatonic* after I had moved to Victoria in the early 1960s. This was after I had come across a book of local history and lore by Sid Feder, a *Victoria Advocate* columnist in the 1950s who had a flair for writing about the unusual. Titled "Longhorns and Short Tales of Old Victoria and the Gulf Coast," the collection of some of his favorite columns included one titled "The Torpedoes of Port Lavaca and Its' Pants-Patching Kin," he indicating

the Port Lavaca torpedo man Edgar Collins Singer to have been some kin to the sewing machine inventor Isaac Merritt Singer.

Other sources indicate that he was a nephew of the sewing machine man and they certainly did share some inventive aptitude.

As a young boy growing up during World War II, I spent quite a lot of time in school drawing war pictures including German and Japanese vessels being torpedoed by our submarines, so my idea of a torpedo was pretty much the first definition in the dictionary as “a cigar-shaped, self-propelled underwater projectile . . . designed to detonate on contact with or within the vicinity of a target.” There is another definition, as well, though I was not aware of it at the time, that a torpedo could be “any of various submarine devices, especially a submarine mine.”

That would seem to pretty much describe the torpedo at the end of the spar when the H. L. Hunley rammed the Housatonic.

The definition also includes some kind of fish of the genus *Torpedo*, but that’s beside the point.

In his colorful way of writing about any subject, Feder explained that Singer became involved when the Union Navy was attempting to blockade Gulf Coast shipping including the ports of Indianola and Lavaca.

“Indianola fell right enough,” he said, “but Port Lavaca said try and get us, or words to that effect. And the Northerners stood off shore and opened a naval bombardment that was well on the way to blasting the town to bits, brick by brick. In the garrison there was this Captain Singer.

“ Captain Singer marched into the front office of the garrison there, when those navy guns were making little ones out of big ones with artillery shells on Port Lavaca, and remarked as how he figured he could do something about it.”

Obviously Feder was one to use a bit of journalistic license, but this was what he had heard from the local folks and folklore often includes a fair share of fact.

“Now,” he continued, “the torpedo had been experimented with for some years by that time, but practically no one really knew anything about these things. So, when Captain Edgar asked for men, gun-powder and empty beer kegs, and he’d boil up a torpedo or two against the Union gunboats, the officers in charge looked at him as if maybe he was bucking for a Section 8, or whatever the Civil War word was for “a soldier a bit off his rocker.”

Anyhow, according to Feder, Singer wouldn’t take no for an answer and made such a pest of himself that he was finally given some soldiers and some dynamite. He soon came up with a homemade torpedo.

“The records get a bit cloudy over just how good they were,” Feder continues. “Some places you are told they put a great big hole in one Federal boat. Some say no . . . that he had a perfect record of all misses.”

At any rate it is an interesting bit of Civil War lore and at least I learned a bit about E. C. Singer and that torpedoes can come in a variety of shapes and sizes, though it would be interesting to know just where Feder came up with the story about the beer kegs. Whatever attempts were first made by Singer and associates to develop such devices, he certainly had an important role in the future of contact mines, torpedoes and submarines.

Some of the most definitive work on Singer was done by the late George Fred Rhodes, a longtime Lavaca and Calhoun County historian, the results of which include a Texas state

historical marker on the bay front at Port Lavaca where the “Civil War Torpedo Works” was located. The inscription on the 1998 marker is as follows, unfortunately with a G instead of a C in Singer’s initials:

“In February 1863, local inventor E. G. Singer developed and tested a torpedo with a unique spring action ignition system on the shores of Lavaca Bay. With nine other Lavaca citizens – including Singer’s financial partner Dr. J. R. Fretwell and Captain David A. Bradbury, who was soon placed in charge of Confederate torpedo operations – Singer received authority to provide the new technology to Confederate forces in the vicinity. Several types of underwater and land mine torpedoes were manufactured at the experimental torpedo works in Lavaca. The devices were quickly installed in rivers throughout the South, including the Yazoo in Mississippi, and in Mobile Bay in Alabama. Singer’s torpedo mines were instrumental in the defense of the Matagorda Bay area throughout 1863.”

Rhodes presented a number of papers on Singer and “The Hunley: The Confederate Secret Weapon,” including presentations at the John W. Stormont Lecture Series on South Texas at Victoria College and at the Sons of Confederate Veterans organization in Victoria. He also gives Singer and associates considerable credit for the development of the submarine that became the one that would finally do the job of sinking an enemy vessel, going so far as saying that the historic sub “was created by Texans.”

While it has come to be known that Singer was mostly involved with the torpedo development and as an investor in the first sub to have ever sunk an enemy ship, Rhodes seems to have thought that the Port Lavaca inventor and the group from Lavaca had actually built the vessel, possibly because they had become known as The Singer Submarine Corps, Singer’s

Secret Service Corps and Singer's Torpedo Corps, it being unclear just when or how these designations came about.

“Records from that turbulent era are sometimes scarce,” Rhodes admitted, “but Singer apparently operated a machine shop in Port Lavaca for many years. He died in his 90s sometimes between 1916 and 1919.”

Rhodes said he could remember the old machine shop before the hurricane of 1942 destroyed it.

He did note that Singer and “his Port Lavaca neighbors” got into the submarine business though a type of floating mine that was called a torpedo mine at the time of the Civil War.

“Singer invented and patented a torpedo mine in partnership with Dr. John R. Fretwell, a Port Lavaca physician,” he said “Singer, Fretwell and several other Port Lavaca residents were part of Major John Shea's battalion of light artillery. They fended off Union ships twice in 1862 during artillery exchanges at Port Lavaca. They first made their mines in early 1863 to protect Texas bays from Union blockade ships, but soon the Confederacy had the group placing their mines in harbors throughout the South.”

In a world submarine history timeline for NOVA that can be accessed on the Internet, the use of the word torpedo in conjunction with contact mines is credited by Captain Brayton Harris, U.S. Navy retired, to the American inventor Robert Fulton, who had become involved in early submarine building around the 1800s. As with Hunley and his associates in their first attempts during the Civil War, Fulton had experimented with towing the torpedoes beneath the surface to strike an enemy vessel.

This idea of submerged vessels was nothing new by the 1800s, with there being many inventions and attempted inventions much earlier with Harris listing some attempts as early as the late 16th Century and early 17th Century.

Among the Lavaca men involved in the Civil War project that Rhodes named in his presentation for the Sons of the Confederacy were James Jones, a Kentucky-born jeweler; J. D. Braman, a merchant originally from Connecticut; C. E. Frary, a carpenter born in Canada; David Bradbury, a contractor from Maine; B. A. (Gus) Whitney, a merchant originally from Massachusetts; and William Longnecker, a Ohio native in the livery business.

Considerable credit for the eventual development of the submarine that would carry H. L. Hunley's name is given to Whitney in Tom Chaffin's book, "The H. L. Hunley, The Secret Hope of the Confederacy." Chaffin, a professor of history at the University of Tennessee, has Braman spelled as Breaman, however, and Gus Whitney's initials as A.A. rather than B.A.

The history of the Hunley submarine began in 1862 when Horace Lawson Hunley, a 37-year-old attorney and assistant customs collector in New Orleans, and two associates, James McClintock and Baxter Watson, first built a small submarine they called the Pioneer. This vessel was scuttled in the New Basin Canal on the eve of Flag Officer David Farragut's arrival during the Union Navy's invasion of New Orleans in late April 1862.

Hunley, McClintock and Watson soon moved to Mobile, Alabama. There, they developed the 36-foot American Diver, a foot longer than the Pioneer. The Diver would sink in Mobile Bay in early 1863. It would be in April of 1863 that the Confederates would lose some submarine competition from the North when the U.S. Navy's *Alligator* sank during a storm off North Carolina's Outer Banks.

After two years and thousands of dollars had been lost with no bounties for sinking any Union vessels, Hunley was in dire need of new investors.

“Ultimately,” notes Chaffin in his book, “a new group of investors did step forward.”

That would be the group from Port Lavaca, particularly Singer, Whitney, Breaman, Dunn, Jones and Bradbury. He credits Singer as being among a handful of citizen torpedo inventors and manufacturers that were producing an acceptable product for the Confederacy.

“The ‘Singer torpedo’ (or ‘Fretwell-Singer torpedo,’ after co-designer John Fretwell), as it came to be known, possessed deadly simplicity,” Chaffin explains. “The mine itself consisted of a buoylike floating cone, two-thirds full of gunpowder – typically about sixty pounds. The weight of a saucerlike plate falling from a platform inside the cone jostled a safety pin, which, in turn, released a spring-loaded plunger. The plunger then struck a percussion cap, which detonated the gunpowder.”

While involved with a contract with the Confederate Navy to mine Mobile Bay, the Texans were solicited by Hunley and associates and became investors in development of another submarine, one that would eventually carry the name H. L. Hunley.

Rhodes believed it was the Singer-Fretwell mines that caused Admiral Farragut to say, “Damn the torpedoes, full speed ahead,” during the battle of Mobile Bay.

The timeline sometimes becomes a bit confusing but, according to Chaffin, in Mobile that spring of 1863 “with accounts settled among the partners and with the assistance from the Confederate military – work on the new boat speedily progressed.” He gives considerable credit for the design of the new boat to McClintock, a craft 40-foot long, four feet high at midship and three and a half feet at its beam. The new submarine would be manned by eight men, a captain along with seven crew members to crank the zigzag apparatus to propel the crude vessel. By

mid-July, trials had begun with the original intent still being to dive below an enemy vessel while pulling a floating torpedo.

First called the Fish Boat, the submarine boat would later be named for Hunley.

The Confederates decided that the Fish Boat could best be used at Charleston and it was hoisted out of Mobile Harbor and loaded onto two flatcars for shipment arriving there by August 12, 1863. By then, Whitney had also taken a lead role in development of the vessel for deployment at Charleston, according to Chaffin, and was given authority to obtain anything he needed for placing it in condition for service.

In his writings about the association of the Texans and the development of the submarine, Rhodes notes that in early 1863 that Gus Whitney – “along with E. C. Singer and most of the other members of Singer’s group of torpedo mine engineers” – had been transferred as enlisted men from Shea’s Battalion of Texas Light Artillery to the Confederate Engineering Department following Singer’s successful torpedo mine experiments.

After no success in engaging the enemy by August 1863, the Confederate Navy took charge of the craft and assigned Lieutenant John A. Payne as commander of an all-Navy crew. On August 29, 1863, while engaged in some practice maneuvers, the Fish Boat was accidentally swamped. Three men, Commander Payne, Lieutenant Charles Hazelwood Hasker and another crewman, William Robinson survived the accident. Five others died.

After the ill-fated sub was recovered, H. L. Hunley asked for and was given control of the vessel with a chosen crew from his past association with the submarine project. He also gave it his name, it then becoming the H. L. Hunley, but it remained under control of the Confederate military and Hunley agreed to accept a new commander, First Lieutenant George E. Dixon of the Confederate Army.

Soon the H. L. Hunley was in practice pulling a dummy torpedo beneath the CSS *Indian Chief* anchored in Charleston Harbor.

“On October 15, however,” Chaffin notes, “Dixon was for some reason unavailable to command the boat. “Horace Hunley, on that overcast morning somewhere near the mouth of the Cooper River, took the controls of his submarine boat.”

This time the submarine submerged, but failed to surface with Hunley and his crew of seven.

Once again it would be recovered, this time from a depth of some 42 feet, with the accident causing General Pierre G. T. Beauregard to comment that he would have nothing more to do with the submarine boat that he considered “more dangerous to those who use it than to the enemy.”

Fortunately, with urging from supporters of the Hunley including Lieutenant Dixon, the general reversed the decision allowing Dixon to resume command. There would be a major change in the method of operation, it was decided rather than towing the torpedo that it would be attached to a spar to ram into an enemy vessel, the torpedo boat *David* having already had some success in that respect when attacking the Union ironclad *New Ironsides*. Thus the Hunley was outfitted with a spar of some 17 feet – actually an iron pole – that had the torpedo at the end with a barbed blade and some 90 pounds of gunpowder. Once rammed into an enemy vessel, the sub would back off and the device would be triggered.

After a series of new trials and training runs for a new crew, including some disappointing nighttime patrols in search of an enemy vessel to attack, it would happen on February 17, 1864 when the Hunley encountered the 1,240-ton *Housatonic* at anchor behind a sandbar at the entrance to Charleston’s inner harbor. While the crew of the *Housatonic* spotted something

moving in the water – an object that the ship’s executive officer, F. J. Higginson, described as resembling a “ plank sharp at both ends,” Chaffin relates that revolvers, muskets and even a load of buckshot from a double-barreled shotgun was aimed at the unlikely object.

The *Housatonic* would be a total loss even though only five of its crew died, with 155 surviving, they being rescued by other Union ships from the vessel that was partially submerged in the shallow waters. On that night, the Hunley would also mysteriously disappear with its eight-man crew headed by Lieutenant Dixon.

The sinking would be the first in marine history by a submarine and there would not be another until the early part of World War I when on September 5, 1914, the German submarine U-21 sank the British cruiser *Pathfinder* with a torpedo more of the kind we generally envision today. The British lost 256 men that day with submarines to become as important to naval warfare as the ships that sail the surface.

In comparison to the submarines of World War I and since, there just wasn’t a whole lot to the Hunley. Though crude in operation, in appearance the vessel did look much as one would think a submarine should look. Basically, it was a four-foot, three-inch metal cylinder with a mercury gauge to tell the depth and with candles for light to let the crew know when oxygen was running low. Near 40-foot in length, the ends were equipped with ballast tanks that could be flooded by valves or emptied by hand pumps. There were also iron weights at the underside of the hull for extra ballast, it being possible to release these from inside the vessel. There were two watertight hatches on top of two coning towers, the hatches measuring only 14 by 15¾ inches.

Of some interest is the possibility that the Hunley might not have been completely submerged at the time of the attack on the *Housatonic*, which might explain the sightings

reported by members of the *Housatonic* crew before contact was made with the anchored 207-foot warship.

Much is yet to be learned about the sinking of the *Hunley*, now being preserved and studied at the Warren Lasch Conservation Center on the old Charleston Naval Base. Resting on its starboard side in sediment and covered with rust, it was recovered from 27 feet of water on August 8, 2000, after having been located by diver Ralph Wilbanks in April 1995 while leading a NUMA dive team led by novelist Clive Cussler.

There is a claim by underwater archaeologist E. Lee Spence that he discovered the *Hunley* in 1970, which he details in his book, "Treasures of the Confederate Coast," and whose efforts resulted in the location being included on the National Register of Historic Places in 1978.

While the first successful use of submarines in naval warfare began with the sinking of the *Housatonic* nearly eight decades before, there would again be a considerable amount of submarine activity off Charleston Harbor and the rest of the Atlantic Seaboard during World War II as German subs laid mines and attacked merchant vessels in bringing the war to the shores of the continental United States. It would be at Charleston where German survivors of the submarine U352 were taken as prisoners of war after the enemy vessel was sunk by the Coast Guard cutter *Icarus*.

Off the Texas coast not far from Port Lavaca where E.C. Singer and John R. Fretwell had their first success with torpedo mines, the German submarine U-171 sank the 4,300-ton Mexican freighter *Oaxaca* on July 26, 1942. It is doubtful that anybody involved at the time at either Charleston or Port Lavaca would have known that it was during America's War Between the States that it had all begun with a crude torpedo mine mounted on the spar of a small hand-cranked submarine that would become the first to successfully sink an enemy ship.

Or, that much of the responsibility for the success on that moonlit night of February 17, 1864, was the result of an enterprising inventor from Port Lavaca named Edgar Collins Singer.

Without him, it would not have been the night it happened.