



U.S. Coast Survey was pivotal in the bombardment and surrender of Fort Jackson and Fort St. Philip

Hydrographers and geodesists with the U.S. Coast Survey were involved in several of the major Union successes in the Civil War. One of the most revolutionary contributions was their role in the six-day mortar bombardment – with the subsequent surrenders – of Fort Jackson and Fort St. Philip, a decisive battle for possession of New Orleans in April 1862.

U.S. Coast Survey teams mapped the terrain and charted rivers and coastlines for military action during the Civil War, but their creative and even daring use of science and engineering went beyond what we normally consider to be “surveying.”

Coast Survey Assistant Ferdinand Gerdes was one of Coast Survey’s heroes of the war, and rebel troops at Fort Jackson literally felt the repercussions produced by his ingenuity and use of science-based principles. Gerdes would give coordinates to Union flotilla gunboats so – for the first time, ever – they could aim their weapons without seeing the target. Instead of judging target distance by sight, they would rely on mathematical calculations, using survey coordinate points established by Coast Survey teams.

New Orleans, the largest city in the Confederacy, was defended by Fort Jackson and Fort St. Philip, located at a short bend in the Mississippi River, 60 miles below the city. To capture the city, and open the Mississippi River to Union forces, Commander [David Dixon Porter](#) got President Lincoln’s approval for a daring plan to disable the guns at the forts. Porter, who had spent seven years with the U.S. Coast Survey, charting the country’s waterways prior to the war, now asked his former colleagues for assistance. His plan was to use a flotilla of mortar schooners in what was likely the first instance of “blind firing” artillery, targeting with coordinates rather than judging distance by sight.

Coast Survey teams triangulate for artillery fire

Operations began in earnest on April 12, 1862, when Assistant Gerdes moved his vessel, the SACHEM, into position at the “jump¹.” SACHEM was accompanied by the OWASCO (gunboat), and anchored amidst five or six other gunboats. The next day, the SACHEM led as the gunboats of the flotilla and other

¹ NOAA historians have been unable to determine the location of the “jump” that Gerdes and Porter refer to repeatedly.

Navy vessels proceeded upriver. Vessels included sloops-of-war ONEIDA, IROQUOIS, VERONA, and the gunboats CAYUGA, OSCEOLA, KENNEBECK, OWASCO, WESTFIELD, CLIFTON, and MIAMI.

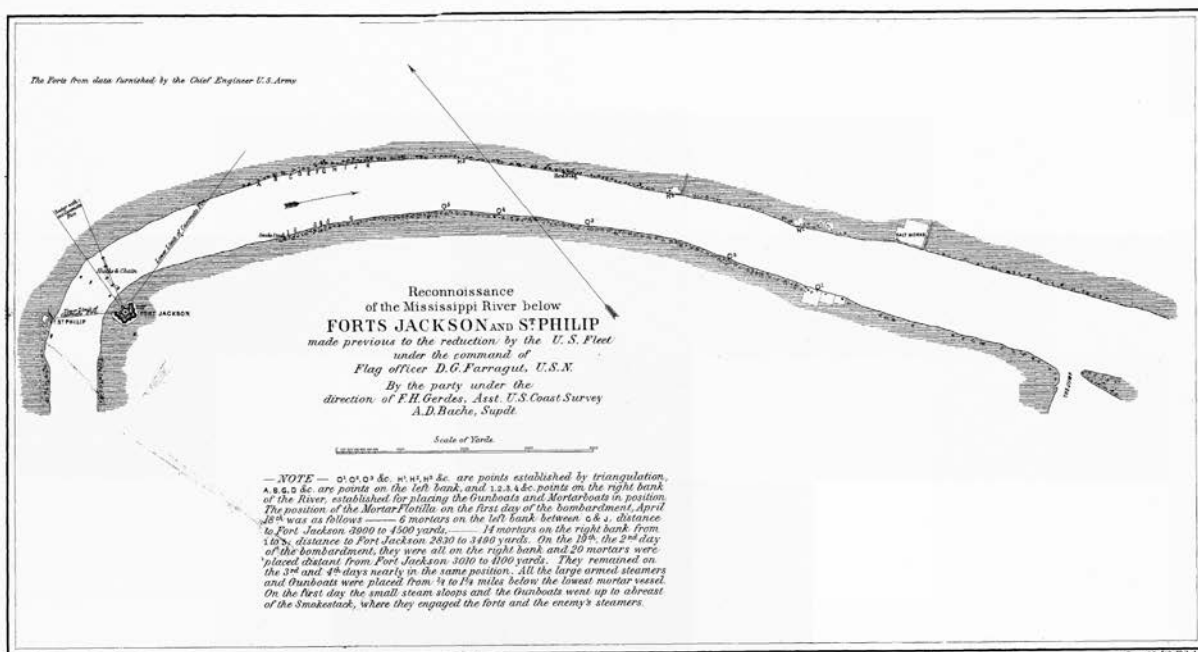
“The steamer SACHEM has an escort, as probably never a Coast Survey vessel experienced before,” Gerdes wrote in one of his reports back to Coast Survey Superintendent Alexander Bache.



Gerdes’ goal was to establish survey markers on the shore, which would serve as control points for indirect artillery fire into Forts Jackson and St. Philip from the mortar boats commanded by Porter. The Coast Survey crews, under Gerdes, [John G. Oltmanns](#), T.C. Bowie, and Richard Halter, took their measurements while the gunboats engaged the forts to distract them from the surveying operations.

“My plan was to measure a series of small triangles based upon the two points ‘Saltworks’ and ‘Jump,’ as we could get them best, and to operate on both sides of the river at the same time,” Gerdes explained. “We had agreed upon a system of signaling to each other, to know when to observe, and we succeeded in the operations admirably and reached within three miles of the forts when night fell.”

On April 14, crews went out again. The gunboats had been exchanging fire with the forts from three miles out the day before but, on this day, they took up positions two miles off the forts at a conspicuous point that Gerdes named “Porter Point,” in honor of David Dixon Porter. The gunboats “engaged the enemy to draw their attention from our boats. This, however, was only partially effective,” Gerdes wrote. “When Mr. Oltmanns passed Porters Point, he and his crew were fired on with eight or nine rifle shots but fortunately the whole damage consisted in breaking the blade of an oar. The fire was promptly returned by Messrs. Oltmanns and Bowie and by the crew.”



From the Image Archives of the Historical Map & Chart Collection, Office of Coast Survey/National Ocean Service/NOAA

Reconnaissance of the Mississippi River below Forts Jackson and St. Philip

Gerdes' map illustrates where Coast Survey teams established points for placing gunboats and mortar boats

The survey continued on April 15, with Oltmanns and Bowie getting to within one and a half miles of the lower fort and obtaining “intersections on the hulks and on the two flag staffs of the fortifications.”

Back at the SACHEM, meanwhile, Gerdes was converting the wardroom into a floating sub-office of the Coast Survey, making copies of the charts for the flotilla and the fleet.

On April 17, Gerdes delivered the charts to Porter and Flag Officer David G. Farragut on Farragut's flagship, the HARTFORD. Commander Farragut, who was in command of the Navy expedition, lauded the men of Coast Survey for their “intrepidity, determination, system, and dispatch,” and considered their services “of value to the fleet.”

The officers started refining their plans of attack. Porter asked Coast Survey to place points on shore, every 100 to 150 meters between certain survey points, to facilitate the placement of mortar boats. Oltmanns and Bowie took the west side of the river, and Harris took the east. They worked under fire.

“Several of the enemy's gunboats came out, and both our boats were fired on repeatedly; the fire was returned by the most advanced of the ships, and many of the shells and balls fell within ¼ mile of us,” Gerdes wrote.

Porter begins the bombardment

The Coast Survey crews finished their placements on April 17. Using the measurements acquired by Gerdes and his crews, Porter was able to situate his mortar boats and commence firing into the forts on April 18². On that first day, 1,500 shots were fired. Over the next five days, thousands of mortar shells

² Not all firing was “blind.” Mortar schooners stationed on the east bank of the Mississippi River had a clear line of sight to Fort Jackson. As the fort had an equally clear line of sight to the schooners on the east bank, Porter moved them to the west bank after the first day's operations to reduce potential casualties. The work done by the Coast Surveyors gave exact distances and directions to the forts from each designated boat location. Known distance allowed the mortarmen to adjust the angle of elevation of the mortars, but the slight variations in the headings of the schooners while tied up to the shore would cause shells to fly wide of the mark to left or right. To mitigate this, Joseph Smith Harris spent most of one day on the mast of one of the mortar boats, looking over the trees and spotting the location of mortar shell explosions. If wide of the mark, he would call down rudder commands to cause the boats to slightly vary heading to adjust firing direction. Although the boats were tied up, sufficient current existed to facilitate these minor heading changes. Harris described his role on the west bank:

“On being transferred to the right bank into a closer position to Fort Jackson I could see nothing for me to do but go to the masthead and report how our shot were falling, as I could see the Fort over the tops of the trees. While I sat there watching our shot which I could see very plainly till they commenced to fall rapidly, and watching the shots from the Fort which I could also see, I was struck by the sudden approach of one which came so near to me that I could almost have touched it by extending my arm. I watched it fall harmlessly in the water astern, and debated with myself whether I should stay where I was or get out, but I thought I might as well stay, and I did so for some hours. I could from my position direct the firing which I did, the vessel's head being turned by her rudder, if the previous shot showed that a change was necessary.” (*Autobiography of Joseph Smith Harris*. Unpublished autobiography archived at the U.S. Army Military History Institute, Carlisle Barracks, Pennsylvania.)

poured into the fort. When the Confederates discovered the location and started firing back at the mortar boats, the boats would have to move, which necessitated additional surveying, again, often under fire.

Gerdes noted some of the hits experienced by his crews. "One of the vessels on which Mr. Harris was engaged was struck by a round shot and another vessel where Mr. Oltmanns was in a boat alongside was sunk while he was speaking with the captain."

Porter's gunboats continued its bombardment, and the Coast Survey teams continued to produce surveys for new mortar boat positions throughout the battle.

On April 23, the Coast Survey role expanded as the SACHEM took on wounded men at the request of Admiral Farragut. "As he was preparing a severe night attack with the fleet, it would seem too hard to carry these poor crippled fellows with him," Gerdes explained.

Gerdes ferried the men to a safe place downriver. On his return trip, as he started upriver on April 24, Gerdes had a stroke of bad luck that happens to even the most able seamen. The SACHEM experienced an engine breakdown at Pilot Town.

Meanwhile, Farragut had commenced moving the fleet past the forts at 2:00 a.m. on the morning of April 24.

Unfortunately, in spite of a bombardment in which over 4,400 shells had burst in or over Fort Jackson out of 7,500 fired, many guns were still operational at both Fort Jackson and Fort St. Philip. The problem in taking out the guns was not accuracy, but mortar shell fuses that exploded prematurely or fired after they landed. In spite of this problem, the boats had inflicted tremendous disruption to the operations of the forts. Because of the damage, Farragut's vessels were able to get by the forts with only 37 men killed and 146 wounded. While any death is tragic, this was a light casualty total for the capture of New Orleans, and for the South's loss of access to the lower Mississippi River.

Coast Survey helps General Butler secure the surrender of Fort Philip

At some point, while the bombardment was underway, Coast Survey's John Oltmanns had undertaken a new assignment. He reconnoitered through the labyrinth of streams and bayous within a mile and a half of Fort Philip, to establish a passage that allowed Army General Benjamin Butler to place his troops in the rear of the fort.

On April 24, Gerdes also assigned Richard Halter to General Butler:

"Please repair at once onboard the MIAMI gunboat, and state to the Captain that I send you for the purpose of going with the expedition of General Butler to the rear of Fort Philip. Your thorough knowledge of the locality will be of the greatest use..."

Halter staked out the channel and hoisted five lamps for night transportation of Butler's troops, who were preparing for an attack on the forts.

On the night of April 27, Confederate troops at Fort Jackson mutinied, reflecting the demoralization of days of bombardment by the mortar fleet. At daybreak of the 28th, Porter met with officers from the forts and accepted their surrender.

“The surrender of both forts was made to the mortar fleet,” Gerdes pointed out, “and it is positively stated by the commander of the enemy that only to them he would have surrendered as he was conquered by them...”

(It appears that General Butler – who acquired a less than stellar reputation – later took complete credit for taking Fort Philip. On January 22, 1863, Gerdes added a postscript on a report to Bache: “P.S. The enclosed notice I found in the N.Y. express of yesterday. I wonder when Gen. Butler commenced his geog. discoveries, or who sounded the channels or buoyed them out with lamps so that the troops were transported even by night. Did he ever give us credit for anything?”)

Gerdes surveys the damage at Fort Jackson

On the next day, April 29, Gerdes accompanied Porter on an inspection of the battered Fort Jackson. “We inspected closely for several hours the damage done by the mortars, and I cannot understand to this minute how the garrison could have possibly lived so long in the enclosure. The destruction goes beyond all description; the ground is torn up by the shells as if a thousand hogs had rooted it up, only that the holes are from 3 to 8 feet deep; they are very close together and sometimes within a couple of feet. All what was wood in the fort is completely consumed by fire, the brick work is knocked down, the arches stove, guns are dismounted, gun carriages burned, and the whole presents such a spectacle of destruction as never an eye witnessed.”

In addition, Porter wrote, “Mr. Gerdes has been indefatigable in superintending the work, laboring at night in making charts and providing the officers in command of ships with them, marking the positions of obstructions in the channel, and making all familiar with the main way. No accident happened to any ship going through, notwithstanding the gentlemen in the forts thought the obstructions impassable.”



NOAA's Office of Coast Survey is presenting a special digital collection of 400 charts, maps and sketches from the Civil War. To explore the collection, go to www.nauticalcharts.noaa.gov/history/CivilWar.

