



BAKER'S BOAT

George Baker's submarine, shown here in dry dock in Detroit, sported dual side propellers which enhanced its maneuverability. Courtesy of the Burton Historical Collection, Detroit Public Library.

By Kathy Warnes

Submarine trials in the Rouge River? That's what **George Baker** came to Michigan in 1892 to perform. A Civil War veteran with a mechanical bent, Baker staked his personal fortune on a chance to supply the U.S. Navy with a viable submersible vessel—and earned the respect of his leading rival in the process.

George Collin Baker had always had confidence in himself and his ambitions. In 1862, at age 17, he enlisted in the Union Army. As a soldier in Company B of the 23rd Iowa Infantry, he participated in many crucial Civil War battles, including the sieges of Vicksburg and Fort Blakely.

After the war ended, Baker settled in Polk City, Iowa and worked in the mercantile business. In 1867, he married Mary Robinson, and they eventually had three sons.

To support his growing family, Baker established a hardware business. By 1879, he had invented a machine to make barbed wire and built a small factory to manufacture the product. But his leisure time was spent in an entirely different pursuit: designing submersible vessels.

In 1887, Baker moved his factory to Lockport, Illinois and set up an office in Chicago. The following year, he was one of several inventors to submit plans to a submarine design competition sponsored by the U.S. Navy's Bureau of Construction and Repair. (Submarines had been used in the Civil War, but many lives were lost in their operation. The government was very interested in improving on that track record.)

Baker heard rumors that John P. Holland, who had created a workable prototype seven years prior, had the inside track. But that didn't deter the Illinois man, who had amassed a substantial fortune in his business—enough to follow through with his dream.

With a change of administrations, from Grover Cleveland to Benjamin Harrison, the decision on the federal contract languished. This gave Baker time enough to work with a Michigan shipbuilder—the Detroit Boat Company—to bring his design to life. (This company was noted for using the products of Detroit Engine Works to power the vessels it constructed.)



Testing in Detroit

Initially, the prototype's wooden hull leaked, and the machinery that propelled it did not function as efficiently as expected. But, after conducting several experiments, Baker felt confident that he could correct all of the perceived failings.

The submarine was 46 feet long, weighed about 75 tons, and had room for at least six people. Its hull was made of wood, seven inches thick, and a small steam engine provided propulsion on the surface of the water. (A collapsible smokestack telescoped up when the boiler operated.) A 220-volt, 50-horsepower electric motor—driving dual side propellers—powered the so-called Baker Boat beneath the waves.

Unfortunately for Baker, his submarine was not accurately depicted in the press. One Milwaukee paper featured fanciful illustrations showing a vessel topped off by a huge

smokestack with smoke billowing out of its end. "Even if such a plan were possible, just see what a sure warning it would give an enemy of the approach of the boat. Scores of these things have appeared in print, and they will certainly do me more injury than good," Baker told a *Detroit Free Press* reporter.

The Illinois inventor also denied that he had built the submarine for the government, "unless they want to buy the boat in the event of its being successful. It is purely a private enterprise, and should it fail, nobody but myself shall be at a loss."

A Multi-Purpose Vessel

Baker had a visionary imagination as far as the utility of his submarine. Like his contemporaries, he acknowledged that it could be used to plant torpedoes beneath a war vessel, as the Civil War navies had intended. But Baker also believed that, properly equipped, submarines could be engaged



Left: During the first trial run, the newfangled submarine scraped the river bottom. Courtesy of the Burton Historical Collection. Above: George Baker spent six years trying to convince the U.S. government to use his design. Courtesy of Peggy Peterson.

in nonmilitary activities, such as locating shipwrecks, inspecting telegraphic cables, and surveying the bottoms of rivers, lakes, and seas. To assist in these tasks, he designed a powerful electric light that threw a bright beam 16 feet when the boat was underwater. The light was manipulated from an iron projection at the top of the boat, known as a conning tower. Baker described it further by saying, “The tower is much the size and shape of a stiff hat and is provided with peep-holes on all sides, the glass being heavy plate an inch thick.”

On Saturday, April 2, 1892, Baker conducted an experimental run of his submarine in the Rouge River near Detroit’s exposition grounds. He had counted on 15½ feet of water. But heavy northeast winds had blown for at least a day before the trial, and the vessel scraped the river bottom when it submerged. Undaunted, Baker planned another try. On April 29, he ran a successful trial with Walter Goddard, his construction foreman. They submerged the Baker Boat for an hour and 50 minutes.

The editor of the *Western Electrician* journal accompanied Baker and Goddard on the third trial of the submarine on May 20 in the Rouge. After that, the editor wrote, “Some little difficulty was found in depth keeping, however, and this was perhaps the chief fault of the boat. The twin propellers with their every-way gearing are distinctly novel and the Baker [Boat] is on the whole a great credit to her inventor.”

The Navy Takes Notice

The editor’s visit prompted Commodore William Folger of the Bureau of Ordnance in Washington, D.C. to send an expert to try out the Baker Boat. W. Scott Simms, the



designer of a torpedo boat, visited Detroit on June 25, 1892. Though he couldn’t inspect the vessel—then being repaired—he was impressed by its inventor. Simms later called the submarine “the first boat that has been made to ride on an even keel. ... It is navigable, easily

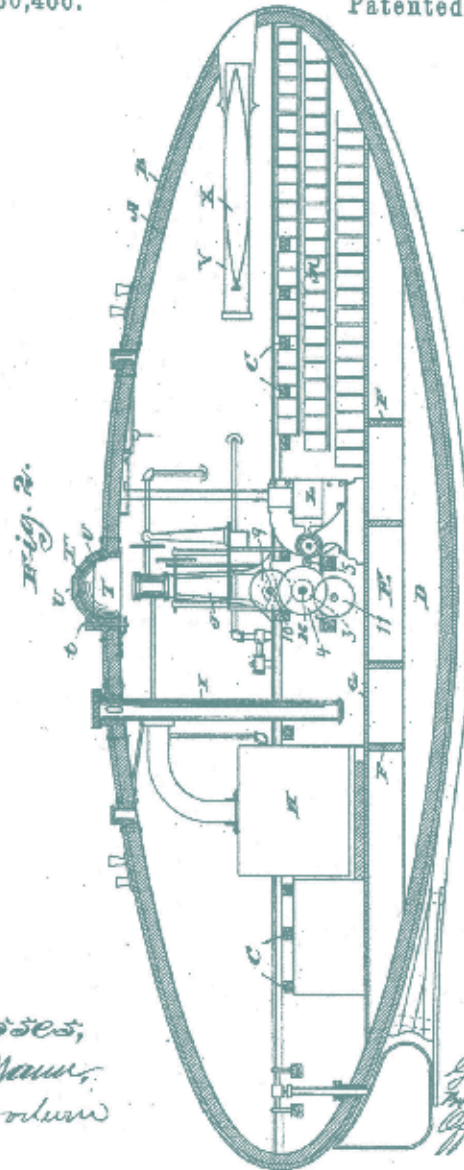
(No Model.)

G. C. BAKER, Dec’d.
M. R. BAKER, Administratrix.
SUBMARINE TORPEDO BOAT.

5 Sheets—Sheet 2.

No. 530,466.

Patented Dec. 4, 1894.



Witnesses,
J. S. Mann,
W. B. Goddard

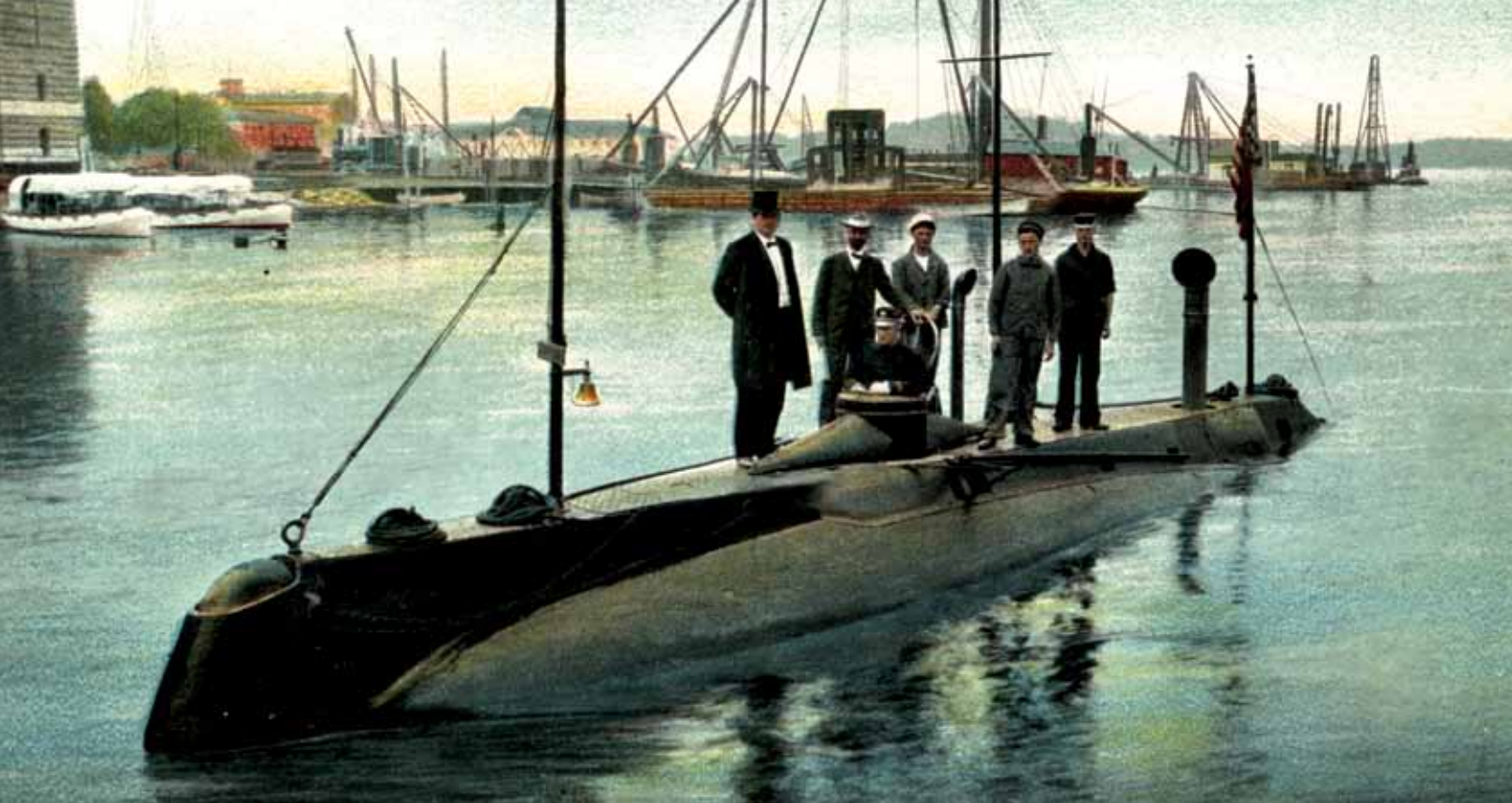
Inventor
George C. Baker
By J. B. Goddard, Attorney
Atty.

Left: John Holland, a New Jersey inventor, was Baker’s chief competition. Courtesy of the Paterson Museum. Above: Baker’s patent wasn’t approved until nine months after his death. Courtesy of Google Patents.

controlled, and of a powerful structure.”

This pleased Folger, who believed that a combination of Simms’ and Baker’s designs would make the perfect destroyer for the Navy.

In 1893, the Navy opened a new competition for a submarine torpedo boat. Baker had recently refined his submarine, so he seemed to be a lap ahead in the contest to win the contract. Still, John Holland was the better-known inventor, and in July of that year, *The New York Times* printed



Below: A *New York Times* article underscores the widespread interest in Baker's vessel. Above: Holland was eventually awarded the submarine contract. His *Holland VI* (later commissioned the *USS Holland*) is regarded as the Navy's first viable combat submarine. Courtesy of CardCow.com.

a rumor that his design would be chosen. But Holland didn't count on Baker's circle of influential friends in Washington.

U.S. Senator William B. Allison and Baker's lawyer, General C.N. Shelley, persuaded the Secretary of the Navy that—before a final decision was made—his sailors should put the Baker Boat through their own sea trials: this time

THE BAKER SUBMARINE BOAT.

W. SCOTT SIMS TO MAKE EXPERIMENTS WITH IT.

DETROIT, June 25.—Commodore William A. Folger, chief of the Bureau of Ordnance at Washington, has given directions to W. Scott Sims, the celebrated inventor, whose name is best known in connection with the Sims-Edison torpedo boat, to make experiments with the submarine boat invented and built in this city recently by George C. Baker.

Acting upon the recommendation of Commodore Folger, Mr. Sims visited Detroit yesterday for an interview with Mr. Baker and to inspect his submarine boat. He found it undergoing repairs rendered necessary by the recent explosion of the storage battery cells, and therefore did not have an opportunity of witnessing its practical workings.

"Commodore Folger," said Mr. Sims, "is greatly interested in the Baker boat and considers that the conjunction of the submarine craft with my torpedo will furnish all the requirements for a perfect destroyer. The combination furnishes all the deadliness, together with a minimum risk, which forms the ideal element of assault."

"In Mr. Baker's boat I feel confident that the problem has been satisfactorily solved. He has the first boat that has been made to ride on an even keel. Its submerging powers depend to a large extent upon its propellers. It is navigable, easily controlled, and of a powerful structure."

in Lake Michigan. In fairness to Holland, the Navy invited the designer to present a boat of his own. But Holland objected to these tactics because naval officials had assured him that the board judging the competition had already approved his design.

Hedging his bets, Holland offered Baker \$200,000 worth of his company's stock, if the latter would assign his patents "free of all encumbrances to the Holland interests." Baker refused.

A Blow to Baker

By mid-September 1893, the Navy had completed its tests on the Baker Boat. And they weren't as positive as its designer had hoped. As a result, newspapers again suggested that Holland's submarine would be the favored one.

In 1894, Baker made one last trip to Washington to argue his case. Shortly after, he suffered an attack of appendicitis and died. He was just 49 years old.

At his family's request, Baker's body was transported back to Des Moines, Iowa for burial. His obituary noted that the Governor's Guards fired a final volley at the ceremony for "a brave soldier, a good man, a tried & true friend, a man of courage, integrity and genius."

Though Baker didn't live to see it, his vision of submarines being used for scientific and technical purposes did come to pass. Underwater research—encompassing everything from the discovery of the *Titanic* to the work of the Great Lakes Research Center at Michigan Technological University—has its roots in the Baker Boat trials in the Rouge River.

Kathy Warnes is a writer and historian from Allendale. She grew up in Ecorse, the oldest Downriver community.