

EUREKA!

The Boats That Helped Win World War II

by Erin Levens Cundiff

IN THE EERIE glow of a foggy morning, just before dawn on June 6, 1944, thirty American soldiers stood huddled together in a rectangular plywood boat. Cold spray splashed the men's faces as the small

craft, which had no roof and looked a bit like an open shoebox, rolled up and down in the choppy waters of the English Channel. The men had just eaten breakfast and many began to feel seasick. Others hunkered down

Soldiers hunker down on D-Day as they head for the Normandy beaches in a Higgins boat.



under their netted metal helmets, trying to keep calm as they waited for first light to accomplish their mission.

The number painted on the side of the boat was PA26-24. That meant it was twenty-fourth of the small landing crafts lowered into the water that morning by the USS *Samuel Chase* (APA26), a huge attack transport ship anchored eleven miles offshore. PA26-24 was one of 839 Higgins boats filled with young soldiers who would soon storm the beaches of Normandy, France. World War II was in its fifth year, and people all over the world wondered if it would ever end. More than 5,000 Allied boats and ships waited in the water with PA26-24. The Allied mission was to liberate France from Nazi Germany. It was a day of hope and terror that came to be known as D-Day.

The plan had taken years to form. Germany had defeated France in 1940, and since then had built up massive defenses along the French coast. As early as 1941, the Allies—Britain, the United States, and Canada—knew they somehow had to penetrate Germany’s coastal defenses in order to land a large army to retake occupied France and march to Germany. All the deepwater seaports, such as Calais and Cherbourg, were heavily defended. The Allies’ big warships and transports would be blown to pieces if they attempted to anchor at those ports. But if the ships could not use the ports, could they put troops and artillery ashore on the beaches between the ports? Although the beaches were less protected, how



could giant warships with hulls that drafted deep under the water get nearer than a few miles to a shallow beach?

What the Allies needed was a boat that could ferry men and supplies from large ships anchored safely out at sea onto a beach. A boat that heavily armed troops could exit quickly without climbing clumsily over the sides, becoming easy targets for the Germans. A nimble boat that could run up to within a few yards of a beach, disgorge the troops it carried in seconds, then reverse and turn back quickly into the rough surf before a wave capsized it. They needed a Higgins boat, and within a few years, over 20,000 would be ready for service.

Andrew Jackson Higgins was born on August 28, 1886, in Columbus, Nebraska. He was the youngest of ten children. His father, John, was a lawyer, judge, and newspaper editor. John Higgins died when Andrew was

HELMETS HAD NETTING SO SOLDIERS COULD STICK IN LEAVES AND TWIGS FOR CAMOUFLAGE.



HERE, **DRAFTED** MEANS HOW FAR DOWN A SHIP SINKS INTO THE WATER WHILE AFLOAT.

seven. Soon after, in 1893, Andrew's mother moved the family to Omaha, Nebraska. A strong and determined woman, Mrs. Higgins read widely in history, science, and literature and taught her children what she knew. Andrew had a big imagination and loved reading, but he did not like attending school. More than once, neighbors saw Mrs. Higgins marching Andrew down the street and back to school. Andrew was restless and full of ideas. He wanted to be out in the world working on a project. He loved learning by doing.

One day, Andrew and his friends spent all morning scavenging timbers and jacks from a local junkyard. He told his friends that he needed the equipment to knock down and rebuild a section of the basement wall of his house.

"We're twelve years old, Andrew," his friend said. "We can't knock out a wall of your house!"

"I need to," Andrew explained. "My new boat is in the basement, and it won't fit through the door or windows."

"You built another one?"

"Of course, I did," said Andrew. "The first one was too slow. This one's going to sail on ice."

By the time Mrs. Higgins returned from town that winter day in 1898, Andrew was sailing his iceboat, the *Annie O'*, across the frozen expanse of nearby Cutoff Lake. If his mom noticed the wet mortar between the bricks of her new basement wall, Andrew never knew. He was too busy reaching a speed of sixty

miles an hour in his homemade vessel, named after his mother, Annie Long O'Connor Higgins. When Andrew had an idea, he never sat still and wondered, "Is this even possible?" Instead, he jumped up and asked, "What will I need to do first?" Then he set to work.

After high school Andrew joined the Nebraska National Guard. During a training exercise, Andrew's regiment had to cross the Platte River on a temporary bridge supported by a series of pontoons—wooden floats that were like shallow boats. It was Andrew's first experience with an amphibious operation—one that took place both on land and on water. Andrew became fascinated with what boats could do based on their design and, inspired by his mother's example, read dozens of books on military history and strategy.

At age twenty, Andrew left Nebraska and moved to Alabama, where he bought a farm and an adjoining wooded area. "I came South because I loved boats and forestry," he later said. He took a course on modern farming at Auburn University and started up his own sawmill. He bought an old boat to transport his products and to buy wood from other areas. One day on a trip to Mobile, Alabama, Andrew met Angele Leona Colsson. They married in 1908 and would eventually have six children. Two years later, Angele and Andrew moved to New Orleans, where Andrew opened his own business, the A. J. Higgins Lumber and Export Company.

In Mississippi Andrew bought more timberland. The land came cheap because the

JACKS ARE DEVICES USED TO PROP...
UP HEAVY OBJECTS.



YAY! I LOVE AN
ENGINEERING PROBLEM. ...



PUTTERING AROUND IN
BOATS IS GOOD, TOO.

trees were in a swampy area that most people considered too difficult to log. The main problem was that boats powerful enough to drag the cut logs out of the swamp could not operate in such shallow water.

Instead of giving up, Andrew built a boat based on a design used in Holland for traveling on the shallow waterways behind the dikes. The propeller on this boat was tucked up under the hull inside a tunnel, instead of hanging down low at the back of the boat. Unfortunately, Andrew ran into some problems. Air became trapped in the propeller's tunnel. This caused the boat to lose power because a propeller turning in aerated water cannot generate as much power as a propeller turning in "solid" water. Frustrated, and fascinated, by the problem, Andrew enrolled in a correspondence course on naval architecture. He was determined to find a solution.

Over the next few years, Andrew turned the focus of his business to the manufacture and sale of boats. In 1930, he opened Higgins Industries on St. Charles Avenue in New Orleans. Many of his customers were trappers and oil companies needing boats that could move fast in shallow water while also running smoothly over obstacles, such as fallen trees, tangled vines, and sand bars. The boats had to be sturdy enough to carry workers and heavy equipment.

One of the boats Andrew designed during this time was the Wonderboat. Most boats have a pointed bow, or front. The Wonderboat had a rounded bow made of a solid piece of wood, making it the strongest part of the boat.

To reinforce the bow further, holes were drilled in it and plugged with wooden pegs that had been dipped in marine glue.

The strong, rounded bow helped the boat speed up onto riverbanks and over floating obstacles. Just as in his previous shallow-draft boats, the Wonderboat's propeller was housed in a tunnel, and aerated water still slowed it down. But with Higgins's new design, aerated water was trapped under the front section of the boat, allowing it to achieve faster speeds than before. The aerated water under the front also gave the boat the capability of turning quickly and sharply, as though it were floating on a cushion of air. Andrew was proud of the Wonderboat, but he was still frustrated by the problem of the propeller losing power in the partly submerged tunnel.

One day in the Higgins factory something went wrong with the machinery. Part of the mold used for shaping the hulls of Wonderboats was pulled loose, and the resulting boat had an odd shape. Instead of the V of the hull pointing down into the water, this boat's hull seemed inside out and the V pointed up.

"How could this happen?" Andrew thundered. But he insisted that the workers complete the strange boat anyway. Something about this new shape intrigued him. When the boat was finished, the workers nervously lowered it into the water. They were soon speeding along, faster than any Wonderboat had ever gone. They set up obstacles, such as tangled, long-stemmed water hyacinths and floating logs, and the new boat jumped right over them

HE TURNED A MANUFACTURING MISTAKE
INTO A BREAKTHROUGH! THAT'S GENIUS!



YOU DON'T HAVE TO
MAKE MISTAKES TO BE A
GENIUS. LOOK AT ME!



DO I
HAVE
TO?

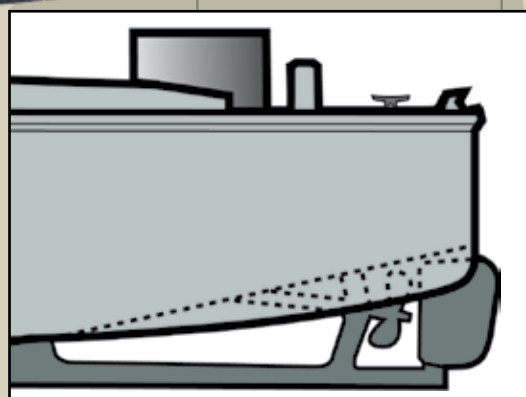


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as though it were hovering on the surface. Aerated water was now pushed out the sides from under the boat before it ever reached the propeller. Not only did this allow the propeller to rotate in completely solid water, but obstacles were pushed out of the propeller's path as well. What an amazing discovery! Andrew named this new boat the Eureka.

Before the start of World War II, Andrew knew that the Navy and Marines were looking for a special boat that excelled at amphibious landings. He was confident his Eureka was the answer. He entered it into Navy competitions and tests. The boat performed well, but the Navy wasn't interested. Higgins Industries was small and unknown, and no one had ever heard of this fiery, outspoken man who was competing with large manufacturers of great ships in the Northeast.

But Andrew did not give up. He continued to enter the Eureka into the competitions and to work on the design, modifying it



In Higgins's breakthrough design, the hull of the Eureka bellies outward under the front half of the boat in a deep V-shape, then curves upward into an inverted V-shape, forming a semitunnel for the propeller in the rear. This allows the front of the Eureka to ride on a cushion of aerated water while pushing floating objects away from the boat. The propeller is protected and completely submerged for greater power and agility.

to make it better every year. One change he made was to remove the solid bow and replace it with a ramp that dropped down like a drawbridge to unload men and supplies rapidly. The nimble Eureka could then turn away

EUREKA IS THE GREEK WORD FOR "I FOUND IT!" IT'S WHAT ARCHIMEDES SAID WHEN HE SOLVED AN IMPORTANT PROBLEM.



and speed quickly from a beach, unlike other, slower boats that might be capsized in mid-turn by a wave, dumping the crew into the water. After years of standing up to the Navy, Andrew was finally awarded a contract to make his modified Eureka boats, then called LCVPs (Landing Craft, Vehicle, Personnel).

When the United States entered World War II in 1941, Higgins boats, as the LCVPs were commonly called, were needed more than ever. Andrew went to work, eventually expanding his workforce to more than 30,000. Higgins Industries outgrew the building on St. Charles Avenue, and Andrew opened many more factories throughout New Orleans. In a time when women and African Americans were not often hired or paid equal wages, Higgins Industries had the first-ever integrated workforce in New Orleans with African Americans, women, and men all paid the same wages for the same work.

On D-Day, hundreds of Higgins boats landed more than 156,000 troops on a fifty-mile stretch of French beaches whose code names are now enshrined in history as Utah, Omaha, Gold, Juno, and Sword. The initial landing was followed by weeks of constant battle as Allied soldiers struggled to secure their hard-earned beachhead and move inland. Over 425,000 Allied and German troops, as well as a number of French civilians, were pronounced killed, wounded, or missing during the Battle of Normandy, which ended officially when the Germans were forced to retreat across the Rhine River

on August 30. Only twelve weeks after D-Day, on August 24, Paris was liberated. But it would be nearly another year before Germany was defeated and the end of the war in Europe declared on May 8, 1945.

Although he never fought in combat, Andrew Higgins's contribution to military victory in Europe cannot be overstated. Even Adolph Hitler was aware of the determined, feisty engineer and American businessman who'd manufactured so many thousands of boats, ridiculing Higgins as the "new Noah." After the war General Dwight Eisenhower, Supreme Allied Commander during World War II, stated that, without the Higgins boat, "The whole strategy of the war would have been different." He added in simple praise of Andrew Higgins, "He is the man who won the war for us." 🐜

After the front ramp of the Higgins boat drops, soldiers scramble through the surf to hit the beach.



AN ENGINEERING HERO!
WHAT A STORY.



EUREKA!