

Defender is underway in this undated photo probably from its earliest years, when it was known as Lake. LIBRARY OF CONGRESS

Found in the Sound

Divers discover the wreck of a submarine off Old Saybrook

Story by **JOHN RUDDY**
Graphics by **SCOTT RITTER**
Day Staff

The object shown on two marine surveys was long, cylindrical and unidentified. It wasn't the only mysterious thing on the bottom of Long Island Sound, but it was the right size and shape.

Richard Simon, a commercial diver who works out of Noank and New London, had been studying sonar and bathymetric surveys and eliminating other objects from consideration. This one appeared to be what he was looking for.

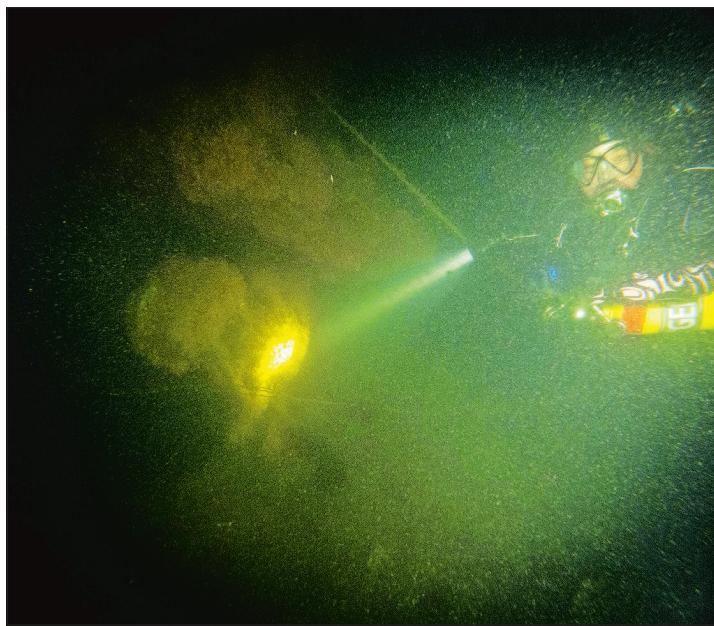
Last month, Simon and a team from his company, Shoreline Diving Services, went to a spot off Old Saybrook, and about 200 feet down they made a spectacular discovery: the wreck of a submarine.

The shape on the surveys was the remains of an experimental vessel from the early 20th century called Defender. Not a Navy boat, it was the product of a Connecticut inventor who played a role in early submarine development.

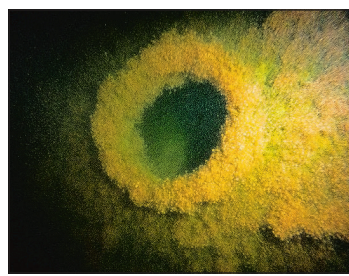
Simon Lake, who lived most of his life in Milford, was an engineer and naval architect who started making submarines in the 1890s. He held more than 200 patents and had a Bridgeport shipyard where he built 26 submarines for the Navy.

Defender wasn't one of them, but it still has a place in maritime history. Its curious story is largely about things that might have happened but didn't. Defender might have been the lead ship in a Navy submarine class. It might have been a pioneering salvage vessel. It might have sailed for the North Pole.

Simon, 35, said he had long known the obscure vessel was somewhere in the sound. Twenty years ago, he saw a list of



JOE MAZRAANI



JOE MAZRAANI

Top, diver Steve Abbate inspects one of Defender's propellers on April 16. **Above**, the forward hatch, like the rest of the hull, was covered by a yellow growth when the sub was discovered. **Left**, inventor Simon Lake, seen around 1923.

undiscovered local wrecks, and Defender was the only submarine among them. Intrigued, he wanted to find it.

"We just started looking one day," he said.

After researching how the boat went down and making preparatory dives, Simon's team went out on April 14. He said they

threw a grappling hook into the water and tried unsuccessfully to catch it on the wreck. Two days later they went back, dropping a line with a shot weight. Then two divers swam down and circled the area.

Five minutes into the search, there it was: Defender appeared in murky water, rising 12 feet

Editor's note: In addition to the sources cited, this story was drawn from "Going Deep" by Lawrence Goldstone, the files of the Submarine Force Museum and the archives of The Day.

from the bottom and resting on its port side.

The 93-foot vessel was still where it had landed 77 years ago when, long after outliving its potential, it was unceremoniously scuttled.



Simon Lake hadn't been able to sell his submarines to the Navy like his famous rival, John Holland. Fed up after several rejections, Lake went to Europe, where he made customers of Germany, Russia and Austria-Hungary.

But in 1906 he found a reason to again try his luck at home. Congress had sharply increased its appropriation for submarine construction to \$500,000. That was thanks largely to Theodore Roosevelt, who championed the undersea vessels after becoming the first president to ride in one.

From Europe, Lake decided to pursue the money. He designed a boat and, at his own expense, had it built by Newport News Shipbuilding in Virginia. The vessel, eventually known as Defender, was first called Simon Lake XV, then just Lake.

When the Navy secretary ordered competitive trials, with a contract on the line, Lake was all in. His new vessel would be up against one from Electric Boat, which had not yet arrived in Groton. Before the trials, Roosevelt upped the stakes by pushing for an even higher appropriation of \$3 million.

SEE SUBMARINE PAGE A4

Nuclear waste is in limbo

Waterford still wants Millstone's gone when national issue resolved

By **KEVIN ARNOLD**
Day Staff Writer

Waterford — If it were up to the operators of the Dominion Millstone Power Station, its spent nuclear fuel would not be stored on site.

Vice President Michael O'Connor said this past week that the plant can safely store all its spent fuel on site, as it has since Millstone began operating in 1970, but he would rather see it moved elsewhere.

"It is absolutely preferred to be off-site," O'Connor said of the spent fuel.

The Millstone plant currently has 52 large concrete containers, known as dry storage casks, of spent fuel, O'Connor said, in addition to nuclear waste stored in steel-lined concrete pools. O'Connor said the 52 dry storage casks could be shipped to another location, once one is available, and that fuel from the pools is periodically moved into casks.

Approximately 100,000 tons of spent nuclear fuel has been generated from commercial nuclear power generation in the country since 1950, and it is currently stored at more than 70 sites in more than 30 states.

The Nuclear Waste Policy Act of 1982 outlines the federal government's responsibility to site, build, and operate a permanent nuclear waste storage solution.

SEE MILLSTONE PAGE A6



DeSantis in Iowa warns of GOP's 'culture of losing'

Trump event sidelined by bad weather forecast

By **THOMAS BEAUMONT**
and **MICHELLE L. PRICE**
Associated Press

Sioux Center, Iowa — Warning of a Republican "culture of losing," Florida Gov. Ron DeSantis sought Saturday to weaken former President Donald Trump's grip on the GOP as he courted voters in battleground Iowa.

DeSantis, expected to announce his 2024 presidential campaign any day, briefly flipped burgers and pork chops at a picnic fundraiser in Sioux Center that drew hundreds of conservatives to the northwest corner of the state. At the podium, he highlighted his willingness to embrace conservative cultural fights and sprinkled his remarks with indirect jabs at Trump.

"Governing is not about entertaining. Governing is not about building a brand or talking on social media and virtue signaling," said DeSantis, who wore a blue button-down shirt without a tie or jacket. "It's ultimately about winning and producing results."

SEE DESANTIS PAGE A6

WEATHER

Today, sun, fair-weather clouds. High 67. Monday, mostly sunny and seasonable. High 68. **E6**

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NEW MENOPAUSE DRUG FOR HOT FLASHES GETS FDA NOD

Washington — U.S. health regulators on Friday approved a new type of drug for women dealing with uncomfortable hot flashes caused by menopause.

The Food and Drug Administration approved the once-a-day pill from Astellas Pharma to treat moderate-to-severe symptoms, which can include sweating, flushing and chills.

Astellas' drug, Veozah, uses a new approach, targeting brain connections that help control body temperature. The FDA said the medication will provide "an additional safe and effective treatment option for women," in a statement.

More than 80% of women experience hot flashes during menopause, the FDA noted, as the body gradually produces lower levels of reproductive hormones between the ages of 45 and 55.

— Associated Press

BOY USES SLINGSHOT TO SAVE SISTER FROM BEING ABDUCTED

Alpena, Mich. — A Michigan girl was able to escape an attempted kidnapping when her brother used a slingshot to strike the would-be attacker, authorities said this week.

Mlive.com reports that the Michigan State Police arrested the accused assailant Wednesday.

The 17-year-old's name has not been released though he has been charged as an adult with one count of attempted kidnapping/child enticement, one count of attempted assault to do great bodily harm less than murder, and one count of assault and battery.

Michigan State Police said in a news release that the 8-year-old girl was in her backyard when the alleged assailant came out of the woods, grabbed her and covered her mouth. Authorities said the girl's brother, 13, hit the alleged attacker in the head and chest using a slingshot.

— Associated Press

Eurovision wraps up

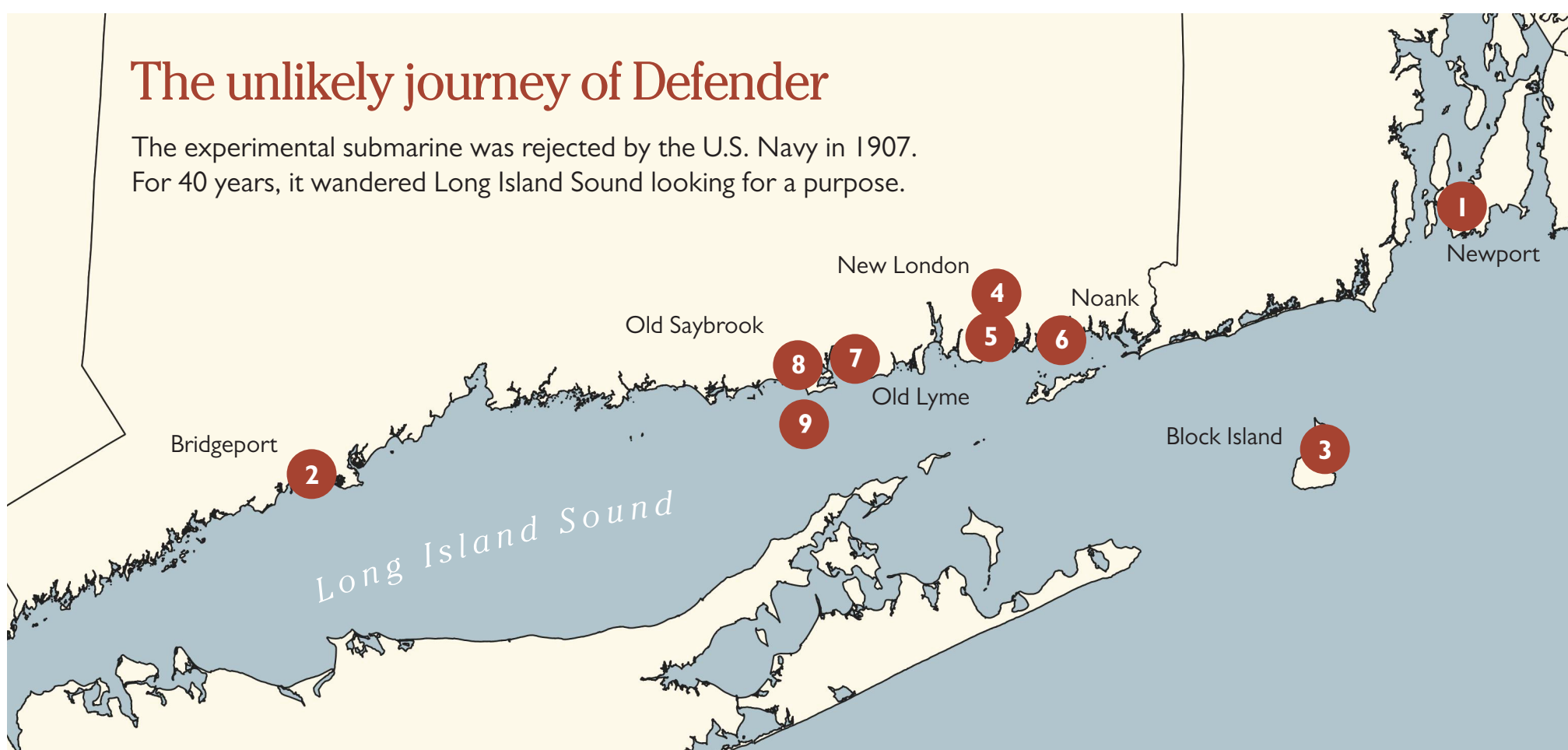


JON SUPER/AP PHOTO

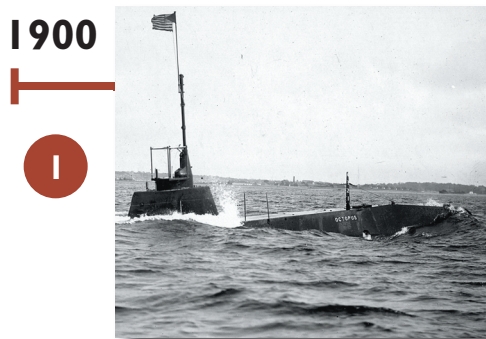
Fans react to the onstage acts as they watch on a giant screen outside the venue for the finale of the Eurovision Song Contest in Liverpool, England, on Saturday. **See A5.**

The unlikely journey of Defender

The experimental submarine was rejected by the U.S. Navy in 1907. For 40 years, it wandered Long Island Sound looking for a purpose.



Feb. 27, 1906: Lake is launched at Newport News, Va.



May 1907: Lake loses Navy trials to Electric Boat's **Octopus**, above, in Narragansett Bay, R.I.; is renamed **Defender**

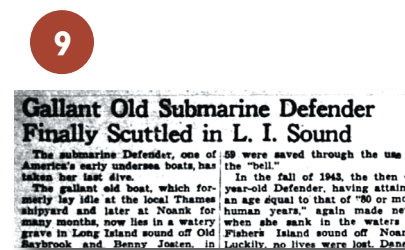
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1928: Defender retrofitted as a salvage boat in Bridgeport after S-4 disaster



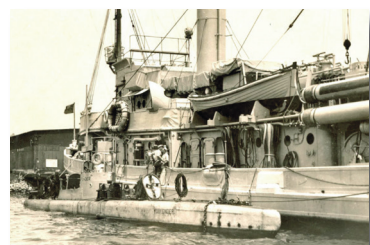
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Late 1929: Defender is laid up at the Thames Shipyard, New London



6
January 1939: Defender is towed to Noank, where it later sinks



9
February 1946: Defender is scuttled off Old Saybrook



3
Summer 1929: Undergoes Navy salvage tests at Block Island, R.I.

5
December 1937: Defender is moved to Shaw's Cove to be scrapped

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1944: Defender is towed to Old Lyme, where it sinks in a hurricane

8
1945: Defender raised from Connecticut River, towed to Old Saybrook

MAP AND GRAPHIC: SCOTT RITTER AND JOHN RUDDY | THE DAY
PHOTOS, CLOCKWISE FROM TOP LEFT: LIBRARY OF CONGRESS; SUBMARINE FORCE MUSEUM; SUBMARINE FORCE MUSEUM; THE DAY; COURTESY MYSTIC SEAPORT MUSEUM; U.S. NAVAL HISTORICAL CENTER

Submarine Defender kept falling short of the mark

FROM A1

The competition between Lake's self-named submarine and EB's Octopus was hyped by the press, one newspaper calling it an "aquatic battle royal." In May 1907 in Narragansett Bay, a Navy trial board judged each boat on speed, diving and other factors.

Things didn't go well for the Lake, which accidentally breached the surface 18 times.

"They had a great deal of difficulty in getting it to submerge, and then once it was submerged it tended to want to pop to the surface," said submarine historian David Johnston.

In virtually every category, the Lake was outclassed.

"It is the unanimous opinion of this board that the Octopus is the superior boat," the Navy's report said.

The Lake appeared to be finished, and it mostly disappeared from history for the next two decades. But it would get another shot with the Navy.



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AP PHOTO



JENNIFER SELLITI

Left, aviator Amelia Earhart suits up for her dive from Defender in July 1929 on Block Island. **Center,** Sloan Danenhower waves from the hatch of Defender in Bridgeport on Jan. 14, 1929. Danenhower, Simon Lake's business partner, was the captain of the submarine during the 1929 trials. **Right,** Steve Abbate, Richard Simon and Joe Mazraani shortly after the dive to Defender on April 16.

Six survivors trapped in the sunken submarine S-4 could communicate with the outside by tapping on the hull in Morse code.

"Is there any hope?" they asked.

But they ran out of oxygen while waiting to be saved. A howling storm had delayed the rescue.

The loss of S-4 in December 1927 was the latest in a series of submarine accidents that focused the Navy's attention on rescue and salvage. By then, Lake's career building for the Navy had come and gone. But he saw an opportunity.

Just after his boat had lost the 1907 trials, Lake converted it to a salvage vessel with an escape hatch for divers and wheels on the keel. He renamed it Defender and conducted experiments.

Much later, in 1928, Lake refitted Defender again for rescuing trapped submariners and contracted with the Navy for tests. The idea was to give divers an undersea base so they could work in all weather.

As the Navy watched, Defender spent the summer of 1929 at Great Salt Pond on Block Island, where a diver practiced exiting the sub underwater and working to raise a sunken pontoon.

Lake and his business partner, a former Navy skipper named Sloan Danenhower, had an associate: a publisher and promoter named George Palmer Putnam, who brought the tests some publicity.

In July, Putnam arrived with his future wife, aviator Amelia Earhart, who a year earlier had become the first woman to cross the Atlantic by plane. She dived from Defender's escape hatch, then recounted the adventure in "Cosmopolitan."

"When we flew across the Atlantic, much water was beneath us," Earhart wrote. "... But now I have experienced something new. I have been under the water, looking up!"

But there was strife behind the headlines. The tests had been delayed by a severed hawser, which caused anger and suspicion. Danenhower and the Navy supervisor fought and had to go to Washington to resolve their differences. Then the Navy ended the tests before Defender could perform in rough weather.

Despite Lake and Danenhower's protests, Defender was again judged a failure.

If the Navy was through with the vessel, Lake and Danenhower weren't. Even before Block Island, they were talking of using it for a voyage to the North Pole. Defender would travel beneath the polar ice, which had never been done.

"A superstructure of steel beams will enable the Defender to crash through the ice to come up for air," enthused "Popular Science Monthly."

But by 1930, even its owners had to admit Defender wasn't the sub for the job. Instead they adapted a decommissioned Navy boat, O-12. Renamed Nautilus and captained by

Danenhower, it carried explorer Sir Hubert Wilkins farther north than any vessel had gone but failed to reach the pole.

Then Lake decided to use Defender to explore an 18th-century frigate that had sunk in Hell Gate, near New York City. Legend had it there was gold aboard. But the plan fell through.

After that, Defender was parked at Thames Shipyard in New London with no real purpose. By 1932 the boat was leaking and had to be hauled out for repairs. The following year it was auctioned, apparently because Lake couldn't pay the storage bill. The shipyard bought it for \$500.

If Defender wasn't up to its past challenges, it turned out to be good at surviving. In 1937 Danenhower bought the boat back and moved it from a Thames River mud bank to a shipyard in Shaw's Cove, where it was to be scrapped.

For reasons unknown, that didn't happen, and in 1939 Danenhower had the boat towed to still another yard, in Noank. It sat there, partially submerged, until 1944, when it was towed to the Connecticut

River in Old Lyme, where Danenhower lived on a light-ship. The sub arrived just in time to sink in the Great Atlantic Hurricane that September.

Defender sat on the bottom for a year, outlasting its inventor, who died in 1945. Deemed a hazard to navigation, the boat was raised by the Army Corps of Engineers and towed to Old Saybrook. Even Danenhower was done with it by then, but it attracted curiosity seekers.

Finally, on Feb. 12, 1946, engineers took the tired old vessel in tow, brought it into the sound, and watched as it filled with water and disappeared.

Seventy-seven years, two months and four days later, the hull was covered with yellow sea flora when it was lit up by recreational diving lights. Steve Abbate and Joe Mazraani had just descended from Simon's vessel, R/V Integrity.

"I was surprised how intact the sub actually was," said Abbate, noting the hull was visible 15 feet in either direction from where the lights were shining.

The divers swam the length of the vessel over the starboard side. They saw port holes and the conning tower, and confirmed that the bow shape and other features matched Lake's design.

"Finding any shipwreck that no one has been on before, not many people have had that honor," said Abbate, who turned 60 the day after the dive. "It was a heck of a birthday present to find the sub."

Simon believes that while raising Defender is technically possible, it would be prohibitively expensive.

"I'd love to see it sit at (Mystic) Seaport or at the sub museum, but I don't think that's a reality," he said.

Instead he plans to document the vessel before releasing its exact position and is working with the state archaeologist. He's also researching the boat and plans to share all he finds with the public.

"It's all of our history," he said. "You think about New London and Groton. In my opinion we're the submarine capital of the world." j.ruddy@theday.com