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The *Carl D Bradley* and Secret Mixed-Gas Dives of 1959

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The *Carl D. Bradley*.
Courtesy William
Lafferty Collection.

Lake Michigan's Secret Mixed-Gas Dives of 1959

The First Surface-Supplied Dives on the *Carl D. Bradley*

By Valerie van Heest

“**H**ave you heard of the *Carl D. Bradley*?” That question was posed to me recently by 74-year old Georgia resident, R. David Lewis, to whom I had been introduced by internationally acclaimed author Clive Cussler. Being a veteran Great Lakes’ wreck diver, I had of course heard about the tragic sinking of the 638-foot self-unloader in northern Lake Michigan on November 18, 1958.

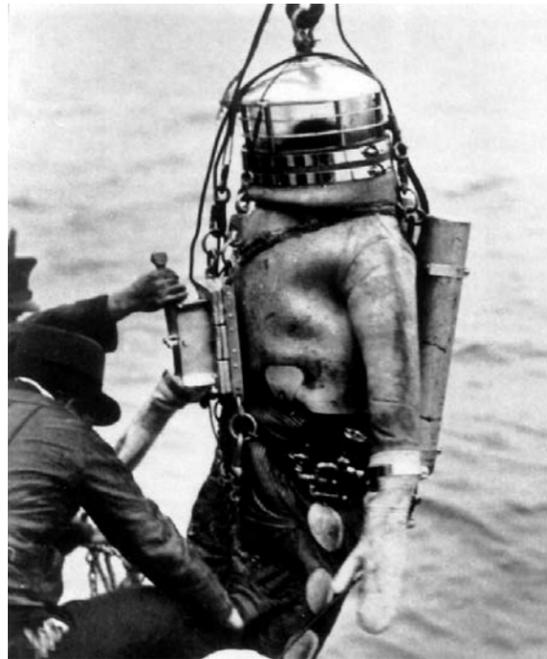
The *Bradley* had departed Gary, Indiana, the day prior, running in ballast on its

final leg of the voyage to Manitowoc, Wisconsin. Part of the aging fleet of self-unloaders built or converted in the 1920s and 1930s, its rusting cargo hold had been due for an \$800,000 replacement for over a year. However, its owner, Bradley Transportation Company, a division of U.S. Steel, pushed the work back until the end of the season.

A powerful low-pressure system had formed over the Pacific Ocean and by that morning had reached the Great Lakes region, but in running along Lake

Michigan’s western shore, the *Bradley* would be protected by the shore taking the building southwest seas on its stern. A radio call from headquarters ordered the vessel to take on an additional stone delivery before its lay-up. Despite reports of gale force winds and 30-foot seas, which compelled many other freighters to take shelter along Wisconsin’s shore, Captain Roland Bryan, known as a “heavy weather man,” decided to proceed ahead as fast as possible to Rogers City, heading northeast across the lake from the Door County

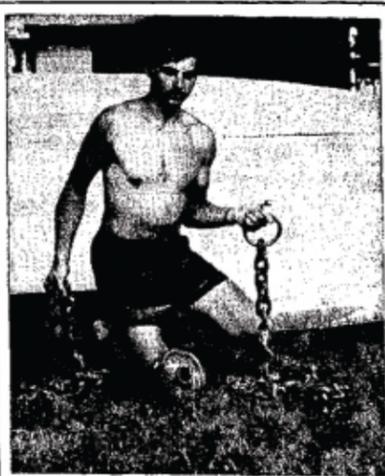
1937. Max Gene Nohl is lowered over the side of the dive boat to begin his 420-foot dive.



(Below) At 10 years old, young Dave fashioned his own diving helmet from scavenged parts. It is no wonder he grew to be an engineer.



HL WEDNESDAY, AUGUST 13, 1958



CHAINS RECOVERED FROM LAKE: David Lewis, 400 Parker, Benton Harbor, president of the Aqua-Pins skin-diving club, holds chains and a wheel recovered from Lake Michigan north of South Haven by the club. The chains and the wheel are believed to be part of an old lumber hauler's used to load ships at lake shore piers during the old logging days. The members of the club have made plans for extensive exploration of the shore in the near future.

peninsula towards the Straits of Mackinac and back to Rogers City, Michigan.

That decision would be fatal.

Seaman Frank Mays, 26 years old at the time, recalls the tragic night with clarity. "I was in the dunnage room when I heard a deafening thud. I rushed on deck to see the stern flapping up and down, whipping like a dog's tail."

Just minutes later, he hunkered down on the life raft, watching in horror as sparks flew when the huge steel deck plates tore apart and his crewmate John Fogelsonger, running towards the stern, disappeared between the two halves. Then he recalls being pitched into the air and landing in the icy water, where he struggled back onto the raft as the boat began its 370-foot plunge to the bottom of Lake Michigan.

By morning only he and First Mate Elmer Fleming were alive. They had spent a perilous night aboard a raft and had been rescued by the crew of the Coast Guard vessel, *Sundew*. Their 33 shipmates, including two of Mays' own cousins, perished, leaving behind 25 widows and 54 fatherless children. To add to Mays' grief after the accident, U.S. Steel and Bradley Transportation officials never acknowledged his eyewitness account of the sinking, and instead insisted the *Bradley* sank in one piece.

LEWIS'S TALE

"Well, I probably shouldn't talk about this, but I'm the only diver who has been down to the *Bradley*," said Lewis. Apparently, he had not heard about the recent dives to this wreck. In 1997, "Deep Quest" expedition leaders Jim Clary and Fred Shannon took survivor Frank Mays down to the wreck in a submersible and became the first team to record images of both halves of the ship and prove that Mays had been correct about the break-up. Following that, at least three teams of technical divers had made the 350-foot deep dive to the *Bradley* within the last few years on both the bow and stern sections.

On being informed about these dives Lewis was surprised to learn that it had become common knowledge that the wreck of the *Bradley* is in two pieces. He also seemed relieved. "I should have realized that in the last 50 years others would dive it," he said.

This sounded like Lewis was suggesting that he had made a dive to the *Bradley* right after it sank and knew then that it had broken in two pieces. At first, Lewis seemed somewhat hesitant to provide any details about his dives to the *Bradley*, but finally decided to share his story with me.

Lewis recounted, "It was black when I reached the 150-foot mark. Despite mounting anxiety, I followed the grapnel line down deeper than I had ever been before." Only the light from his closed-circuit television camera illuminated his descent.

"I had to keep hitting the purge button on the Scott Hydro-Pak mask to add the hydrogen-oxygen breathing gas into the mask." At the same time, the purge button sealed the exhaust valve, causing the extra gas to enter the hood of the drysuit.

For Lewis, this was the real thing, not a test dive in a chamber. "I was cold despite wearing two sets of thermal underwear. At about 300 feet my heart raced when I saw a reflection from the lights. I slowed my descent and my breathing rate. A minute later, I realized I had just reached the starboard rail of the *Carl D. Bradley*."

It was June 1959, just seven months after the *Bradley* was lost.

While few divers dared to make a dive this deep in 1959, it was certainly technically feasible at that time. In fact, 22 years earlier, pioneer deep-diver Max Nohl set a record with a 420-foot dive in Lake Michigan breathing self-contained heliox.

More interesting are the circumstances that led Lewis to make the dive. As Lewis told it, "In December 1958, I received a call from a man who had just heard that I was involved in raising a sunken dredge. The man said, 'I need an accomplished diver for a difficult job.'" If Lewis would agree to meet with him, he would explain the job.

Even at 25 years old, Lewis was an accomplished diver. Born in Chicago in 1934, he grew up on the water, literally. The depression hit his family hard, forcing them to sell everything except their 42-foot Alden schooner, *Fairmaid*, which became their home as they hopped from port to port over the next four years. They eventually settled in St. Joseph, Michigan, along Lake Michigan's eastern shore. His parent's love of the water defined Lewis's life. "For as much time as I spent on the water, I was immensely curious to learn what was under the water." Because of his family's meager shipboard existence for so long, Lewis learned how to scrounge or modify everyday objects to accomplish his goals, and he needed something to help him get underwater.

Lewis designed and built his first open helmet at the age of 10. Made of an inverted, cast-iron cooking pot, he drilled viewing portholes using a fly cutter, a circular saw. Using scavenged Plexiglas scraps from Truscott Boat Company (makers of PT boats for the war effort) he heated the material, curved it, and used a gasket made of inner-tube rubber and machine screws to seal the windows. A junkyard, gas-powered, washing machine engine served as his air pump. A compressor from a scavenged refrigerator and a garden hose completed the air supply system.

Lewis logged several hundred hours underwater with his homemade, surface-supplied dive system. At 12, Lewis salvaged several aviator oxygen bottles from a military bomber that had recently ditched off St. Joseph. In time he realized these would make excellent breathing units. He constructed his first self-contained, air-demand breathing apparatus, but he preferred surface-supplied diving, which allowed him to stay underwater longer.

He continued diving through high school, and took engineering classes at University of Michigan until funds ran out. He was hired by Heathkit Company in St. Joseph, later being promoted to Project Engineer in the Audio Engineering Department. He prototyped a scuba breathing apparatus in kit form, but product liability issues kept the company from producing it. To earn a little extra money, Lewis formed Meridian Divers Supply with fellow diver and businessman Jim Weaver to do commercial diving jobs, teach scuba at the local YWCA, and sell gear to the growing ranks of sport divers.

THE MYSTERIOUS MR. SMITH

In late November 1958 Lewis and another local commercial diver, Jim Bradley, were contracted to raise a dredge that had sunk in White Pigeon, Michigan. The successful completion of that job led to the phone call from a man calling himself Mr. Smith.

Lewis explained, "The next night Jim Weaver and I knocked on the door of the seedy Buena Vista Motel on US12 (now Red Arrow Highway) near Stevensville, Michigan, and were ushered into the sitting area of the unit. The man introduced himself as Mr. Smith, and explained that he was

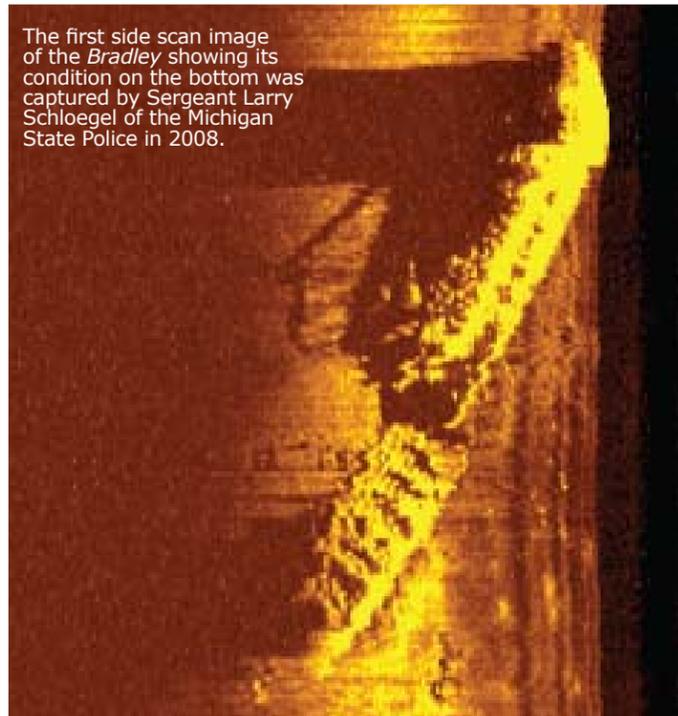


(Above) During the winter of 1959, Dave Lewis (kneeling) and Jim Weaver tested the drysuit they assembled for the Bradley dive in the ice encrusted Lake Paw Paw near their homes. This dive was done with a tank, but future dives would be surface supplied.





(Above) After 58 years of good living, Lewis no longer can comfortably fit into his suit, so his granddaughter, Anya Lewis, models it for him. Packed carefully away for a half-century, only the 10,000-volt lineman's gloves are deteriorated beyond repair. Because there were no water proof zippers in those days, and access was usually through a bundle of extra rubber at the waste, Lewis modified the suit for front entry by putting an inner seal of very stretchy rubber that could be clamped for water tightness and then closed in with a snap flap to protect the more fragile rubber. He also disconnected the standard hood and retrofitted his Scott Hydro-Pak mask.



The first side scan image of the *Bradley* showing its condition on the bottom was captured by Sergeant Larry Schloegel of the Michigan State Police in 2008.

acting for someone else who wished to remain anonymous. The door to the adjoining bedroom was cracked open and I was sure there was someone in there listening."

Mr. Smith questioned Lewis and Weaver at length about their diving qualifications. Finally, satisfied with their answers, he told them he needed an inspection of a ship that had recently sunk in northern Lake Michigan. Lewis explained that although they had the ability to make an inspection, they did not have the necessary boat and equipment. Instead Lewis suggested a larger local marine contractor.

Mr. Smith showed no interest. "We need total secrecy on this inspection and that would be impossible with a large corporation." In that case, Lewis explained, they would need to obtain a suitable boat, crew, and equipment. It would be very expensive. And they would need more details on the ship. It was a catch-22. Mr. Smith was not willing to provide details until they committed to the job, and the divers did not want to commit to the job until they understood what was being asked of them. Smith suggested they think it over.

Returning to Weaver's house, the two men stayed up most of the night discussing what little they knew of the job. Intrigued by the prospects of a challenge and the opportunity for good money, they decided to pursue the work. Lewis and Weaver met Mr. Smith the next night at the same motel and accepted the job, explaining that weather precluded them from diving until summer and they would need that time to make arrangements.

Only then did Smith reveal the job: "I need absolute proof of the present condition of the *Carl D. Bradley*." He provided an approximate location in 360 feet, at which time the divers realized that perhaps they had bitten off more than they could chew. "We told him we had never been below 200 feet, and never used heliox."

That didn't discourage Smith, "You have six months to prepare." Then he handed Lewis a wad of bills, asking "Will \$10,000 get you started?"

"I had more than a year's pay in my hand," Lewis recalled. "It was time to learn mixed-gas diving."

MAKING PREPARATIONS

Completely unaware of the brewing controversy between Frank Mays's report of the breakup of the *Bradley* and U.S. Steel's insistence that its boat had gone down in one piece, he and Weaver discussed the project, deciding they would need a sturdy, well-equipped boat, crew, camera, dive gear and the right gas mix. They would also need to arrange leaves from their jobs.

First Lewis approached his friend and occasional commercial dive partner, Jim Bradley from South Haven, for advice on the job. Today, Bradley recalls thinking that his friend was either concocting a publicity stunt or was suicidal: "I would not become involved in this wild diving misadventure, or worse yet, have another friend killed diving." Bradley was still distraught over losing buddy William Amrein in a diving accident just a year before.

Instead, Lewis turned to famed deep-diver Max Gene Nohl for advice. Lewis made arrangements to meet with Nohl at his home in Milwaukee, Wisconsin. Before the trip, he and Weaver approached Ferguson Welding Supply in St. Joseph to purchase the helium they would need for the job, but the supplier only had a small tank for filling balloons, and recommended hydrogen instead. Knowing that hydrogen had similar properties to helium but combined violently with oxygen if ignited, Lewis was hesitant. Nohl provided advice on gas mixing techniques, gas handling problems, and decompression tables. Since both helium and hydrogen are diluents in oxygen and take no part in respiration, Nohl felt the alternative gas would work, but he stressed testing it thoroughly before using it on the *Bradley* dive.

On their return trip, Lewis and Weaver stopped at Greer Marine

in Chicago to lease an underwater, closed-circuit television camera and monitor that they had seen at the last Chicago Boat Show. This system had been developed for surveillance during World War II and had just recently become commercially available. It could not, however, record images. To do that, Weaver would have to remain on the surface and snap pictures of the monitor with a Polaroid camera.

Needing a boat capable of supporting the equipment and making the 40-mile run in open seas, they decided a fish tug would do the job. Since the lamprey eel infestation had all but destroyed the commercial fishing industry on Lake Michigan, Weaver found a Muskegon, Michigan, father-and-son fishing company seeking an alternative way to make money. They owned a steel tug with a diesel engine and a late model commercial fathometer. It offered an enclosed cabin and a broad open stern which would facilitate diving. Both father and son agreed to the job and the cover story that they would be testing new deep diving equipment.

Lewis described the diving gear he designed for the job: "For a dive of that depth and time, the quantity of gas needed excluded self-contained equipment. I wanted communication with Jim on the surface for safety reasons, but I knew my voice would be distorted by the mix. Since we had a working divers' phone, I modified a Scott Hydro-Pak full-face mask with surface air supply and a transducer for communications. I attached a receiver to the headband over the right ear. The tilt-valve demand regulator on the Scott made it hard to breathe, but the mask was comfortable. We bought 500 feet of three-quarter-inch, double-braided, twin welding hose to supply the breathing mix, coupled with 500 feet of quarter-inch hose to serve as a pneumofathometer so that Jim could keep track of my depth. For thermal protection I modified a Bel Aqua front entry drysuit by rubber cementing the hood to the Scott Hydro-Pak mask. I attached the hood to a neck ring using the locking lid of a pressure cooker so that it and the attached mask could be sealed to the suit, but separated for donning purposes. I also installed double mushroom-type exhaust valves at each wrist and ankle to allow excess air to escape on ascent. The double valve reduced the chance of leaking, which could sap enough body heat to kill me."

Testing would be accomplished in Lewis and Weaver's personal recompression chamber. A few years earlier they had built it using two high-pressure, steam-generating tanks salvaged from Heathkit Company during a plant renovation. They converted the eight-foot long, three-foot diameter tank into the chamber and the smaller one into air storage to operate the chamber.

Lewis got into the chamber with all his gear and the breathing mix he would use. Weaver dogged the hatch and pressurized the chamber to the equivalent of 350 feet. During weeks of trial-and-error testing, Lewis experienced how the mix would allow him to maintain a clear head at depth, and more importantly, learned that it would sustain his life.

READY TO GO

After raising a dredge from the St. Joseph River in late May 1959, the divers took a leave of absence from Heathkit Company. They packed a leased step van with equipment, including borrowed cylinder racks, mixing manifolds and booster pump, and rendezvoused with the boat and crew in Charlevoix.

After a meeting with Smith in a local motel, where he reviewed their accounting and gave them another bundle of cash to cover the boat crew and work to date, the team headed 40 miles northwest from Charlevoix to the approximate location given them by Mr. Smith. With no satellite positioning, they used dead reckoning.

Once at the spot, they dropped an anchor connected to a barrel for reference, and then began running lanes watching the fathometer for a telltale lump. It would take over a week until they



The wheel of the *Carl D. Bradley*. Photo © Bill Prince.



The bell of the *Carl D. Bradley*. Photo © Bill Prince.



Three divers shine their lights on the superstructure of the *Carl D. Bradley*. Photo © John Janzen.

Lewis's Granddaughter models the Scott Hydro-pack mask that Dave wore on the *Bradley* dive. Over the right ear is the telephone receiver mounted in a brass dome, sealed to the hood. The receiver was pressure balanced by air from the inside of the hood. The electrical connection is tied into the dry side of the demand valve housing with a coiled cord. All connections for the comms were made inside the demand valve housing which was dry.



In the bottom of the demand valve housing is another pressure-tight connection where the comm line to the surface entered the housing. Lewis fitted the miniature microphone in the center of the glass faceplate and the tube allowed air pressure equal to the inside mask pressure to be fed to the back of the microphone diaphragm as well as feed the electrical wires to the mic. He also drilled two other holes on each side of the microphone and added two spring loaded arms to pinch the nose for equalization. The separable neck ring shown is the sealing portion of a Mirro-Matic pressure cooker body and lid. An eighth of a turn locked the hood to the suit.



RETURNING THE DEAD, a launch is hoisted back on board the Coast Guard buoy-tender *Sandew* with some of the eight bodies it recovered off Gull Island.

Clipping of a photo from *LIFE Magazine*.

finally found a target that might be the wreck, five miles southwest of the position Smith supplied. After several tight passes they located two high areas about 500 feet apart, which they suspected were the two ends of the ship.

After several attempts to hook the wreck with a grapnel, it finally caught. Lewis suited up and prepared to secure a mooring line. The lights from the closed-circuit camera would provide his only illumination. Not knowing precisely where the grapnel hooked, he secured a mooring through a nearby scupper, then directed the camera towards the rail and instructed Weaver to snap a few Polaroid photos to check picture quality.

Extremely cold, Lewis realized he had to complete over two hours of decompression; Weaver communicated with him through all his decompression stops. Lewis recalls his disappointment when he surfaced, "We had actually found the ship but couldn't tell anyone about it except Mr. Smith."

PHOTOGRAPHIC PROOF

His phone call to Smith resulted in a directive: "Get me images to prove it's the *Bradley*, and details about its condition." They knew the *Bradley's* name would be on each side near the bow, so they planned to try to locate one or the other on the next dive. Dead reckoning led them to within 1,000 feet of their mooring. They spent time affixing a permanent marker and a lanyard to secure the boat over the wreck.

Then Lewis made his second dive. "I figured my down line was at least 200 feet back from the name, so I would have to cover quite a distance dragging the camera, my triple hose and comm line to get the picture and get back to the ascent line within 30 minutes. I found it easier to pull myself along the railing rather than swim. I passed what I assumed was the A-frame and continued forward and finally hit it. The letters were larger than I expected. I backed off until Jim said that he could make out the "C" and then he snapped a photograph. I had been down fifteen minutes and because I could only remain on the bottom for 30 minutes, I had to start back immediately."

Their plan involved surveying the entire starboard rail, so Lewis would need to secure new moorings along the way. "On the next dive, I headed aft with the new line. Just when Jim told me to secure the new mooring, I found the railing cable go slack. I swam another 15 feet and found out why. The rail and deck and hull just ended in a ragged edge. I tied my line off near the break. Decompression seemed to take forever that time."

After that dive, they used the fathometer for a surface survey and found nothing for about 100 feet aft of the bow section, and then discovered a 35-foot rise from the bottom.

"It appeared that the ship had broken in two," Lewis recalled. "We decided to anchor overnight at the site, get pictures of the break, make a quick check of the stern section and then contact Mr. Smith."

Looking forward to the possibility of several lucrative weeks work in making a thorough inspection of both halves of the ship, the divers arranged a meeting with Mr. Smith at the motel to report their findings. Again, Smith ushered them into the unit and again they saw the door to the adjoining bedroom cracked open. They gave Smith the corrected position, their Polaroid photos, and described the break. "Are you positive that it's in two pieces," Smith asked in an angry, disbelieving way. "No doubt about it," Lewis told him.

Smith excused himself to the adjoining room, returning 15 minutes later with an offer. "If you swear never to divulge what you have done or seen, we will give you another \$20,000 to cover your survey and an extra \$1,000 for the boat crew to keep quiet. We have connections that can make life difficult for anyone who breaks the pledge."

Lewis felt insulted by the threat but also quite scared, so he and

Weaver quickly agreed to maintain the secret. They told Smith they would need to go back once more to cut their marker buoys off the wreck.

THE AFTERMATH

On July 7, 1959, soon after Lewis wrapped up the *Bradley* job, the Coast Guard Board of Inquiry published their findings about the accident. The lengthy report conceded that "the vessel heaved upward and broke in two." The Coast Guard apparently believed the survivors and disregarded the *Bradley* Line claim they had located the wreck in one piece.

Their final finding stated that "inasmuch as the exact location of the hull is unknown at this time... the board may be reconvened should circumstances demand." After this finding, law firms for the *Bradley* Transportation Company, made a \$600,000 settlement offer to the 33 families of the victims. Their offer was instead met with a \$16 million lawsuit.

In October of 1959, Global Marine Exploration from California surveyed the *Bradley* with television cameras from their vessel, *Submarex*. Hired by attorneys for U.S. Steel, their results indicated the vessel was in one piece. Attorneys asserted they had images of an intact hull, but none were ever made public.

In December, 1959 survivor Frank Mays, who was given an administrative position with the company after the sinking, was told there was no more work for him. U.S. Steel president Christian Beukema, who always maintained the *Bradley* never split in two, would not respond to Mays's request for a reason for his firing. Ultimately the lawsuit was settled out of court for a sum of \$1.25 million dollars to be shared among the families, a small fraction of the original lawsuit amount.

"That job allowed me to buy my first home," Lewis recalled. One half-century after he made the first dives on the *Bradley*, there is no physical evidence to prove his story. "Mr. Smith" required him to turn over all photographs and documents.

Jim Weaver passed away without ever revealing his participation and Lewis could not recall the names of the fishermen. While Jim Bradley confirms Lewis discussed the job with him before doing it, he never heard about the outcome.

Lewis's fear of the threat kept him from bragging about his success. Those who understand the history of diving realize the technology existed in 1959 to do what Lewis described.

It does not surprise Jim Clary, who led the 1997 expedition to the *Bradley*, that Lewis would have been threatened to keep quiet about his findings. "If it had come out in 1959 that the ship was so decayed as to have broken in two, its owners would have been liable for a lot more damages than the families actually settled for. I can see how the company might not have wanted to have proof their boat was in two pieces." While it can never be proven who requested the survey and paid for the divers' silence, readers may draw their own conclusions.

For R. David Lewis, who had just recently started his own marine contracting business, this was a significant job, but a job that nagged at him for over 50 years. He broke no laws, and accomplished a milestone in the early years of diving, but could never speak of it.

Today Lewis holds a number of patents on breathing apparatuses, still designs diving equipment, and enjoys teaching his eight grandkids to dive. His best days find him sitting on the bottom of his pool breathing from his hookah rig. As I completed this article, Dave Lewis told me he is glad to finally understand the controversy surrounding the *Bradley's* condition, why he was hired, and why he was silenced. "I never intended to talk about this, but I am glad to finally get it off my chest." 🍌

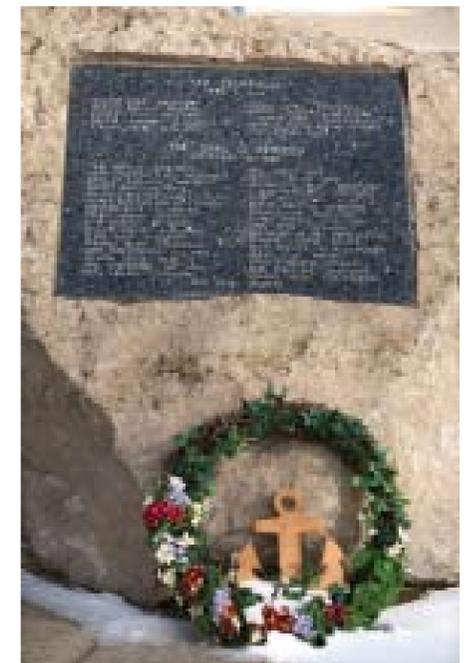
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Survivor Frank Mays stands in front of a mural showing the *Carl D. Bradley*. Photo © Chris Winters.



The *Carl D. Bradley* Memorial at Cedarville. Photo © Chris Winters.

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