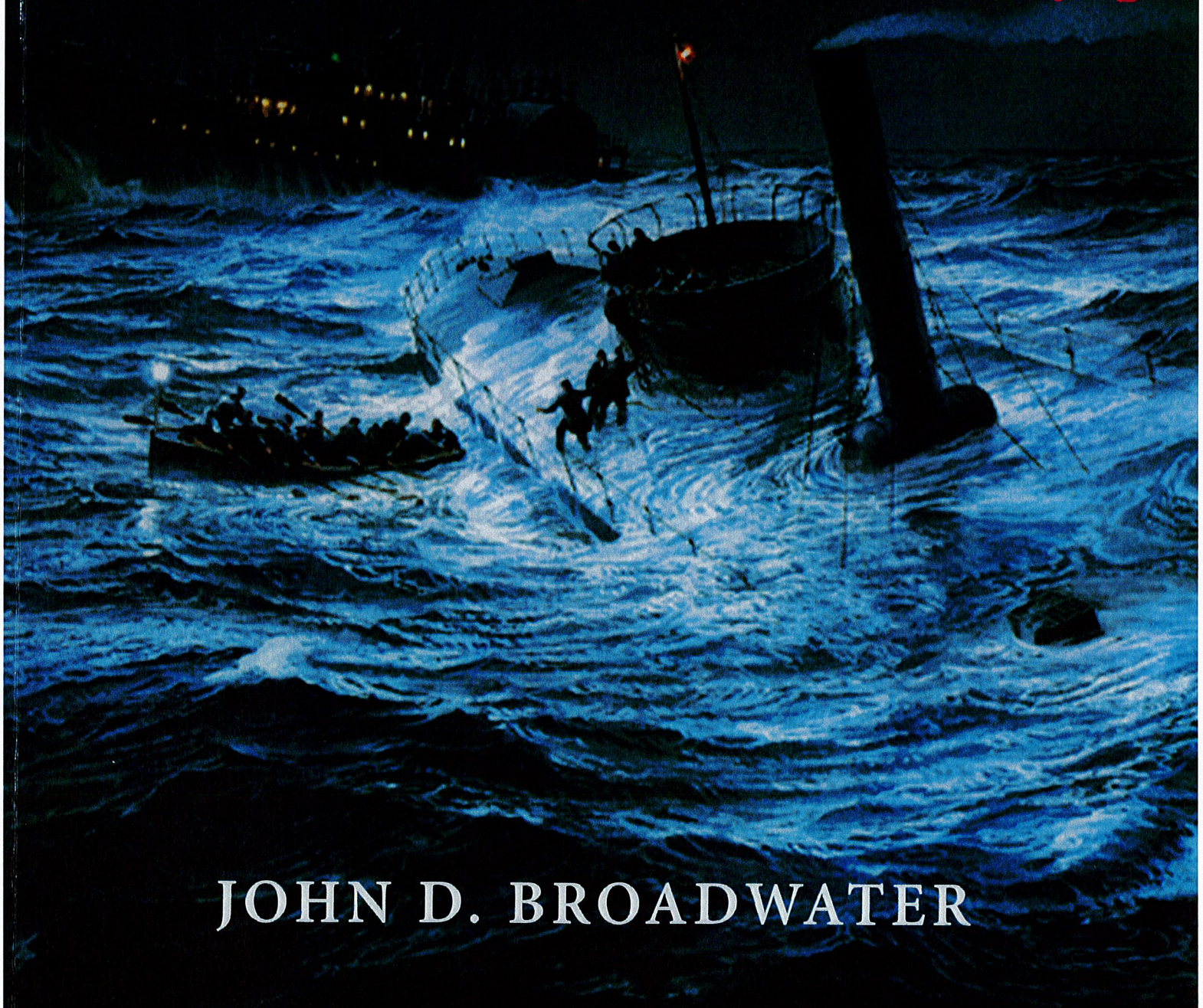
USS *Monitor*

A Historic Ship Completes Its Final Voyage



JOHN D. BROADWATER

Prologue

FIRST ENCOUNTER

I twist my body to peer through the tiny viewport. The cobalt blue Gulf Stream water darkens to ever-deeper shades as we descend toward the sea floor. Huddled in a cramped aluminum cylinder, I'm struggling to control my fear of close spaces. I have to stay focused, because I am sealed in the dive chamber of the *Johnson-Sea-Link*, an incredible research submersible that can reach depths of 1,000 feet. Even though we aren't going nearly that deep, my claustrophobia leapt out as soon as the hatch closed.

Across the chamber, my dive tender, Don Liberatore, is concentrating on the sub's gauges, digital numbers, and lights, but I know he's also keeping a close eye on me. Don will make sure I don't get into trouble today, since this will be my first deep sub dive. He is an experienced research diver with the Harbor Branch Foundation, the Florida-based oceanographic institution that designed, built, and operates this sub. Don clearly senses my apprehension, gives me a confident grin and quips, "Well, you're finally going to see her, John."

I grin back, because that's the reason I'm willing to stuff myself into this little dive chamber that I described to my friends as "a fifty-five-gallon drum with a hatch." I'm getting ready to dive on the famous Civil War ironclad USS *Monitor*. As a boy, I built a plastic model of it, as an archaeologist I searched for it, and in 1974 I helped produce a mosaic photograph of its remains. Now, five years later, I am one of a small team of archaeologists and research divers that will explore it in person, 240 feet below, sixteen miles offshore of Cape Hatteras, North Carolina.

"Bottom in sight," reports Roger Cook from the pilot sphere forward of us. Roger is Harbor Branch's mission director and our sub pilot.

"Bottom in sight," Don responds into his headset.

A flash of light catches my eye and I see a large fish just outside the viewport.

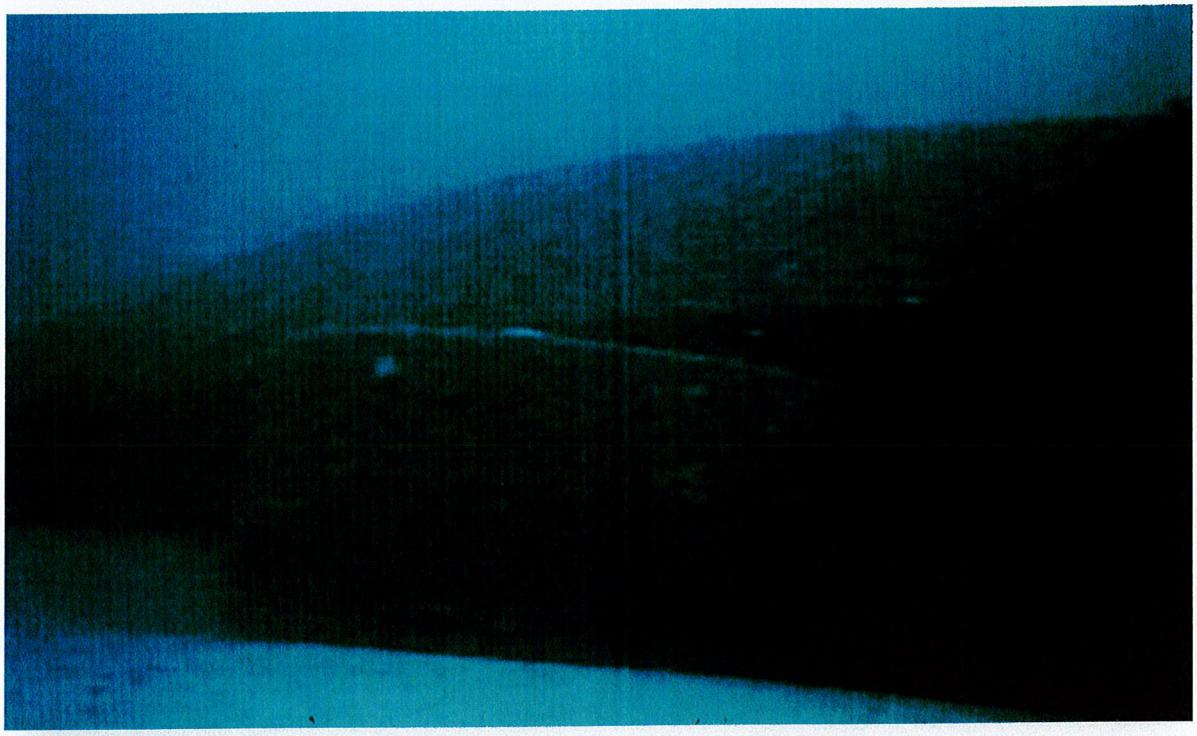
"There's the amberjacks," Don says. "The *Monitor* must be pretty close." Apparently, the jacks hear the sub's thruster motors and see its floodlights so they've ventured out from the wreck to see who's come to visit.

"Wreck in sight," Roger calls out, right on cue.

"Roger, wreck in sight," Don acknowledges. "Better get ready, John."

High-pitched whirring sounds from the thrusters signal us that Roger is crabbing the sub into the current that almost always flows over the wreck. Another sound, higher in pitch and longer in duration, reverberates off the chamber walls. From our training dives I know that's the sub communicating with the mother ship on the surface through hydrophones. It's Roger reporting our status to the mission coordinator on the bridge.

As I zip up my wet suit jacket, Don taps me on the shoulder and points out the starboard viewport. At first I can't see anything, but as I lean closer to the



Monitor's stern, showing how the hull rests on its displaced gun turret. Courtesy NOAA *Monitor* Collection

port I detect a dark shape. As the sub moves forward the shape materializes into a recognizable image: it's *Monitor*'s bow. The unique circular anchor well is clearly visible, and I can see anchor chain draped over the side of the armor belt and disappearing into the sand.

A slender vertical shape comes into view; it's the plastic pipe that our archaeological director, Gordon Watts, installed yesterday. My job is to complete the installation of two more reference pipes, one near the turret and one at the bow. Our goal is to install a row of four survey pipes, parallel to *Monitor*'s hull, which we will use for mapping the wreck.

Roger expertly settles the sub onto the seabed near *Monitor*'s port side, in the lee of the Gulf Stream's flow. "On bottom."

Don acknowledges, and Roger reports poor visibility, only twenty to thirty feet, adding that the sub is positioned near *Monitor*'s amidships bulkhead, facing the turret. Gordon thoroughly briefed me on my assignment, and I understand exactly what I am to do. I'm just a bit apprehensive—I've been this deep before, just never with all this equipment and all the procedures associated with diving from a submersible.

Don undogs the exit hatch, which is being held tightly in place by the outside water pressure. Next he carefully checks all my equipment and asks if I'm ready. Trying to appear confident, I muster a firm "Roger." With that, Don opens a valve. A hissing roar fills the chamber as a mixture of helium and oxygen gasses rushes in from a storage tank, raising the pressure inside the chamber. I immediately feel the pressure on my eardrums, reminding me that I need to pinch my nose and blow forcefully to balance the pressure on both sides of my eardrums. The medical term is the "Valsalva maneuver" but most divers call it "equalizing."

Don calls out, "Fifty feet," but his voice is two octaves higher. A combination of increasing pressure and the helium in our breathing gas makes him sound like Alvin the chipmunk. He's giving me the "okay" signal, which I return to indicate that he can keep pressurizing the chamber. Pulling on my band mask—which covers my whole face and includes a gas regulator and communications gear—I hear Don call out "Hatch open!"

Sure enough, I look down and I'm staring at the Atlantic Ocean! The pressure inside has reached the same as that outside, letting the hatch drop open. I

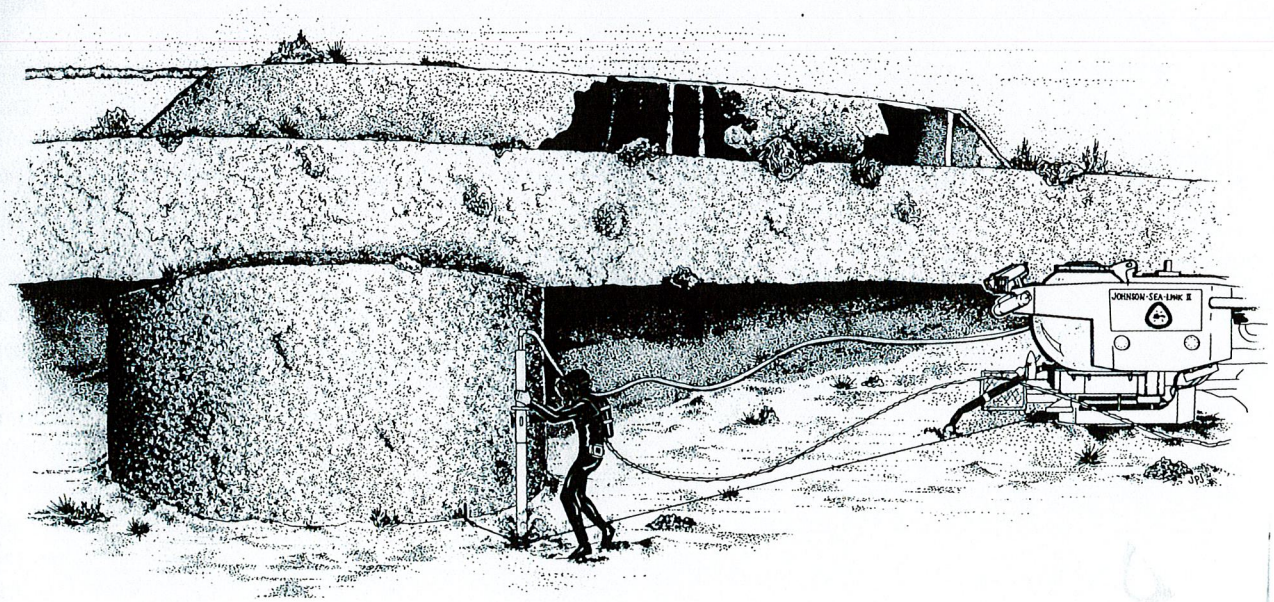
The author in the dive chamber of the *Johnson-Sea-Link* submersible, preparing for a research dive on *Monitor*. Courtesy NOAA *Monitor* Collection

know that's how it works, of course, but somehow it seems more dramatic now that we're in such deep water.

I tighten the straps on my band mask and take a breath. The regulator's hiss is followed by a comforting inrush of cool gas. My squeaky "Comms check" comes across as a real surprise. During our training dives we didn't breathe helium, so it's the first time I've sounded like one of the chipmunks.

After sliding my feet down through the hatch I get one last checkout from Don. He gives me a shoulder tap and I hear him report, "Diver leaving the sub." I push myself down and onto the seabed. I'm out. I crawl out from beneath the sub and stand up next to the armor belt. I'm seeing everything in deep shades of blue. I turn to face the pilot sphere, a thick acrylic bubble that gives the two people inside a panoramic view of the scene. I give them an "okay" sign, then pull the water hose off the sub and start walking (we don't wear fins on this project). Don feeds my umbilical out through the hatch and asks if I'm okay. I reply, "okay." I am; in fact, I'm very excited to finally be here. Walking aft, following the armor belt and the guide rope that Gordon set in place yesterday, I pass the first plastic pipe. Ahead I can barely see the faint shape of the pipe I am assigned to install.

I reach the pipe, a ten-foot long section of white, thick-walled PVC pipe, lying in the sand next to the reference marker that tells me where to install it. Following my dive plan, I secure a "leveling collar" around the center of the pipe. This device, fitted with two bubble levels set at right angles to one another, will ensure that I keep the pipe vertical as I sink it into the seabed. I then insert the jetting tube that will force high-pressure water through the pipe, thus



The author's first *Monitor* dive involved installing a reference pipe near *Monitor*'s famous gun turret. Courtesy NOAA *Monitor* Collection

washing out a hole that will let the pipe slide into the seabed.

Suddenly, my focus leaps from the task at hand to the surrounding scene. I've just become acutely aware that I'm actually standing next to the USS *Monitor*, America's first modern warship. I am only a few feet from *Monitor*'s most iconic feature: its armored gun turret. I look back toward the sub. The water hose and my umbilical trail off along the bottom, but the sub is lost in the blue haze. Yielding to a nearly irresistible urge, I set down the water hose and walk to the turret.

Twenty-two feet in diameter and nine feet high, the turret towers over me, covered with more than a century of corrosion and marine growth. I reach out and gently place the palm of my hand against the turret. I can almost sense the flow of history into my body. This is why I became an archaeologist, why I love investigating shipwrecks. My mind is reeling with images of *Monitor*'s battle with CSS *Virginia* (ex-*Merrimack*) in 1862, of shot and shell crashing against this very iron, of that terrible night when *Monitor* sank out here, taking sixteen men to the bottom.

"Ready for me to turn on the water, John?" It's Roger, trying to keep me on schedule. I only have a few minutes before I must return to the protection of the sub and begin the slow ascent to the surface. Quickly, I return to the pipe, raise it to vertical, and call out, "Ready."

The rest of the dive is fairly routine. I am able to jet the reference pipe the desired five feet into the sediment before moving to the pipe at the bow. The operation begins well, but after sinking only three feet, the pipe strikes a hard surface and won't go deeper. I keep pushing the pipe until my dive time is up and Roger tells me to return to the sub immediately. I barely make it back into the sub before the maximum dive time of sixty minutes. Beyond that limit, Don and I would have been subjected to a much longer decompression time because of the extra gasses our bodies would have absorbed under pressure.

As I stow my band mask I hear Roger call out, "Leaving bottom."

I also hear gas hissing as Richard Roesch, in the forward sphere with Roger, begins methodically reducing the pressure in our dive chamber to begin the decompression process, just as the pressure would have decreased had we been ascending to the surface as swimmers. I watch as the sub is recovered from the sea and "mated" (docked) with a hatch on the ship's deck. When pressures are equalized, our hatch opens again and we slide through a short metal trunk into a large decompression chamber where we eat a hot meal and complete our return to atmospheric pressure.

My first encounter with *Monitor*'s turret will remain a vivid memory that I will cherish for the rest of my life. And, although I didn't know it at the time, I was to have many more visits with *Monitor* in the coming years.