

# Bob Barth. The Ultimate Aquanaut

## A Tribute to a Life Under Pressure

By Ben Hellwarth

Chief Warrant Officer Robert A. Barth, whose daring underwater feats left an indelible mark on deep diving, was the only diver to have put himself on the line in every phase of the U.S. Navy's pioneering *Sealab* program, from volunteer test subject in laboratory simulations to "aquanaut" during the unprecedented days-long missions at the prototype *Sealab I* and *Sealab II* bases in the mid-1960s.

Bob Barth was also on the roster for *Sealab III*, a substantially deeper and more ambitious follow-up Navy venture that ended almost as soon as it began, in early 1969, because of a tragedy on the bottom that Barth himself tried to prevent.

Barth and his buddy diver, Berry L. Cannon, a civilian electronics engineer who had been a *Sealab II* aquanaut, were right outside *Sealab III* and about to open its hatch to get the mission started. Then Barth saw that Cannon had gone into convulsions, a dire sign, especially at their daunting depth of 610 feet below the Pacific surface.

Barth hustled into rescue mode, frantically trying to force a regulator back into Cannon's clenched jaw, a harrowing scene silently captured in ghostly black-and-white footage by a nearby closed-circuit TV camera. They were about fifty miles off the Southern California coast, near San Clemente Island, where the water was clear but, at such depth, opaque, and as cold as the air in most refrigerators. As Barth tried to drag Cannon back to the dry, pressurized steel pod in which they'd been lowered to the sea floor, he felt as though he wasn't getting enough to breathe, and that he might pass out.

Richard Blackburn, along with diver John Reaves, had been standing by in the pod, so "Blackie" dived in to assist in lugging Cannon back inside; the pod was then raised back to the support ship at the distant surface. But Cannon's life could not be saved, a shocking and heartbreaking setback after the considerable successes of



Bob Barth during Genesis program in the early 1960s.

the previous two *Sealabs*. The fatal accident compelled the Navy to cancel the program, but Barth's Navy career and involvement with diving would continue for decades and include stops in the Middle East to run a diving services company and his final

post at the Navy's new Experimental Diving Unit in Panama City, Florida.

Barth died early on March 26, from complications of Parkinson's disease, at his home in Panama City, according to his son, Dale. Bob Barth was eighty-nine and lived



Bob Barth en route to Bethesda Hospital during Genesis trials.

not far from the Navy base where the aquatic training facility bears his name. The base is also where *Sealab I* was pieced together and tested in the spring of 1964, and where Barth later worked for years as a civilian.

Both the *Sealab I* and the *Sealab II* “habitats” were placed on the sea floor at about 200 feet, a depth at which divers at that time could typically plan to spend about half an hour at most, certainly not half a month, which is what turned the *Sealab* program into a series of breakthroughs that heralded the arrival of “saturation diving,” a novel method that not only enabled divers to go deeper but to stay down far longer than ever thought possible – hours, days, and even weeks instead of fleeting minutes.

In many ways, saturation diving did for divers what supersonic flight did for pilots: It shattered old limits and opened new frontiers to human exploration.

Saturation diving was a concept championed by Captain George Bond, a Navy doctor whom Barth met and got to know when he was on shore duty in the early 1960s at the Naval Submarine Base at New London, Connecticut, where Bond was in charge of the Medical Research Laboratory.

As with some other recent dramatic breakthroughs, like running a mile under four minutes and achieving supersonic flight, saturation diving was initially met with skepticism when Bond proposed looking into it in the late 1950s. The iconoclastic former country doctor soon began a series of lab experiments, dubbed *Genesis*, to figure out whether saturation diving could be the key to making longer, deeper dives than ever before.

When lab tests using animals appeared promising, Bond and several like-minded assistants, namely Captain Walter Mazzone, a decorated veteran of World War II submarine patrols who had a background in science, sought out willing human test subjects. Bob Barth gladly volunteered and went on to take part in all three human phases of *Genesis*, which required him and two others to be sealed for days into cylindrical steel hyperbaric chambers no larger than a mid-sized U-Haul truck.

The chambers were used to simulate the higher pressures experienced underwater. This time around, the numerous risks and issues familiar from short-duration, relatively shallow conventional dives had to be reconsidered and anticipated for deeper, long-duration saturation dives – issues such as the optimal proportions of helium, nitrogen, and oxygen in the pressurized mixture for breathing, for example. Critical procedures for decompression – the gradual release of gases absorbed into the body under pressure – had to be recalibrated and tested, to avoid injury or death from decompression sickness, “the bends,” but also to fend off any physiological complications that might arise from a newfangled saturation dive.

A key to the concept of saturation diving was that once a diver’s body got acclimated at a particular depth – meaning the blood and tissues became fully “saturated” with the gases being breathed, thus the shorthand “SAT” – then the essential process of decompression could be postponed indefinitely. This went completely against the strict dive-time limits that were part of longstanding conventional wisdom. But if there really was no rush to decompress, divers could actually live and work underwater, provided they had the right gear and a properly equipped and reasonably comfortable dry shelter, like the novel *Sealabs*.

That was the idea, anyway, which in the late 1950s and early 1960s seemed to many, including some Navy higher-ups, like little more than a futuristic fantasy. Skeptics abounded, as Barth well knew, but “Sweet Old Bob,” as friends called him – a teasing allusion to the familiar acronym – didn’t care. Furthermore, he believed in Dr. Bond.

“Some people called us guinea pigs. They called us a lot of other things, too,” Barth wryly recalled in the PBS documentary *Sealab*, which premiered in 2019 and was a relatively rare case of Barth stepping into the media spotlight; another was shortly after *Sealab I*, when he appeared as a contestant on *To Tell the Truth*, a TV game show.

Despite a demeanor that could be prickly, Barth remained a respected and even beloved figure among the many Navy divers and others who knew him. This was affirmed when I first visited Barth in late 2001, at the Navy Experimental Diving Unit in Panama City, where, as a civilian, he worked as a diving accident investigator and in other roles after his retirement from active duty. The door leading to his office suite was marked “Dinosaur Locker,” a tongue-in-cheek tribute to his many years in the diving field.

While at NEDU that day, I met Michael Zinszer, himself an accomplished Navy diver who was a generation younger than Barth. Zinszer was almost forty, affable, and had spent a significant part of his Navy career as a saturation diver. He memorably told me he had two pictures over his bed: One of Jesus, and one of Bob Barth – an unvarnished show of his admiration “for the man who gave so much to the world of ocean research.”



Lester Anderson, Bob Barth, Scott Carpenter, Dr. George Bond holding a model of *Sealab I*, Dr. Robert Thompson and Sanders Manning. Anderson, Barth, Thompson and Manning were the four Aquanauts who lived in *Sealab I*, which stands behind them.

Zinszer was soon to retire, after twenty years and four months of active Navy duty, and went on to head the advanced science diving program at the Panama City campus of Florida State University; while there he helped create an endowed scholarship in underwater research named for Bob Barth. Three years ago Zinszer decided to leave FSU to go to law school. He earned his degree in late 2019 from the University of South Carolina and now plans to dive into legal waters, with a focus on maritime and related environmental laws. All the while, Barth acted as friend and mentor, as he had for so many others.

"I remember a few years back, maybe four or five, Bob was being reflective on life and still giving me advice," Zinszer recalled the other day. Barth spoke of the need to be able to look in the mirror, see the person looking back, and have a good answer to this question: "Did you accomplish anything worthwhile in life?"

In Barth's case, Zinszer said, the answer is a resounding "yes."

"If there is one thing that Bob gave me and many of those who knew him, it was his example that one person with an idea can make a difference, and when you bring friends and colleagues together to discuss that idea, and you act on that idea, you can make real change," Zinszer said. "Bob Barth, Dr. Bond, and all of the *Sealab* personnel made real change."

While many sing Barth's praises, Barth himself was preternaturally averse to puffery, as was apparent in 2010 when the Navy held a dedication ceremony and officially named the Aquatic Training Facility at the Naval Diving and Salvage Training Center, in Panama City, for Chief Warrant Officer Robert A. Barth. In brief remarks, Barth downplayed his personal contributions to diving. "Nothing that Navy divers do is one guy. There is always a whole bunch of people involved in it."

But the naming of the facility, with its million-gallon training pool, underscored Barth's singular role, and his accomplishments could reasonably be compared to those of the Mercury Seven astronauts of *Right Stuff* fame. As it turned out, one of those celebrated astronauts, Scott Carpenter, who had been a Navy pilot, caught wind of what George Bond was doing and wound up joining the *Sealab* program. By 1964, scarcely two years after Carpenter became the second American astronaut to orbit the Earth, he was training to be an aquanaut with Bob Barth, and the two became lifelong friends. In the foreword to Barth's cheeky yet sober memoir, *Sea Dwellers*, published in 2000, Carpenter wrote that meeting Barth for the first time "marked the beginning of one of the finest and most enduring friendships any man could ever ask for."

Writing a memoir, even a relatively brief one, may seem like a contradiction for a habitually self-effacing pioneer like Barth, but it was only with prodding from a publisher of diving publications that he agreed to write it.

Richard Blackburn, the Navy diver who came to the rescue during the ill-fated opening of *Sealab III*, spent several years training for *Sealab* with Barth, including many hours in the cramped and pressurized confines of a hyperbaric chamber at the Experimental Diving Unit, then on the Anacostia River in Washington, D.C.

"Bob Barth led from the front," Blackburn said, a reference to Barth's willingness to do whatever those on his crew were asked to do. "Sweet Old Bob" could be tough on others, too. "You didn't want to get on the wrong side of him on a bad day," Blackburn said. Barth could be a curmudgeon, but never drifted far from whimsy. "He always had some kind of prank up his sleeve."

It wasn't a prank, exactly, but Bill Mesplay, a friend and fellow Navy diver, recalled a moment that was quintessential Barth. (Many memorable Barth pranks, he noted, were best not retold in polite company.) It was during the two weeks that he, Barth, Blackburn, and another diver slated to take part in *Sealab III*, Terrel "Jack" Reedy, were living in a steel chamber to make a series of simulated deep dives as part of the training for *Sealab III*.

The chamber at the Experimental Diving Unit looked like the top section of a grain silo. (The igloo-shaped top half was kept dry; a hatch in the floor led into the water-filled lower half – a "wet pot," which enabled the experimental divers to try out various procedures while under pressure and under water.) Barth had just been promoted to warrant officer – "after bad-mouthing officers his whole career, now he was one," Blackburn gleefully pointed out. That made Barth chief of the chamber, so it was his job to enter into an official log any notable sensations the divers experienced following dives to six hundred feet, which were simulated in the pressurized wet pot.

After one of their dive sessions, Reedy reported a slight pain in his elbow, Blackburn a twitch in his right leg. (At this juncture it should be said that Mesplay was the only one of the four divers from "the Unit" and not assigned to *Sealab*, a point of latent rivalry.) So when Mesplay told Barth that he felt fine, that it had been "just another dive," Barth penned an unusually sardonic entry into the logbook, very likely in his trademark all-caps script: "Bill Mesplay states that he is an EDU diver and that he feels perfect at all times."

The Navy's prototype *Sealab* bases, in which Barth was among the first to live, were highly pressurized, cylindrical steel structures that looked like railway tank cars, about fifty feet long and ten feet around, positioned horizontally, with interiors outfitted like austere campers. An open hatch in the floor allowed the aquanauts to come and go at any time of day or night – the water stopped at the hatch because *Sealab's* dry interior pressure matched that of the water outside. As much as the design of the stationary vessels themselves, it was the novel saturation diving methods and the related equipment developed that proved to be game-changing for naval diving and for diving operations around the world. Industry was especially quick to adopt saturation diving, which became a key to offshore oil-drilling operations as they moved into deeper waters. The Navy, too, began developing other roles for saturation divers, including undersea espionage during the Cold War.

*Sealab I*, set up in 1964 about twenty-five miles southwest of Bermuda next to a Navy platform called Argus Island, proved to be successful, despite its shoestring budget, with Barth and three others spending about ten days on a sandy bottom at 193 feet. *Sealab II*, a larger, more elaborate, and better-funded habitat placed the following year about a mile off the coast of San Diego, housed three teams of ten divers each, with Barth on the second team, at one point assuming team leader Scott Carpenter's duties while Carpenter recuperated from the potent sting of a scorpion fish.

Each team spent two weeks at the base depth of 205 feet, with some aquanauts making deeper and distant dives from the lab, in much colder and more challenging conditions than *Sealab I*, and for a total of forty-five days instead of ten. Even *Sealab* skeptics had to concede that it was a success, as Captain Bond proudly pointed out at a press conference afterward. *Sealab II* was returned by barge to the San Francisco shipyard where it had been built, and was then

expanded and re-engineered into *Sealab III*. The Navy had plans for five dive teams, made up of both military personnel and civilian scientists, which would operate for twelve days each from the base over a total of sixty days at six hundred feet, then a daunting depth – and still a significant depth today. Then came the fatal accident, in the early morning hours of February 17, 1969.

Instead of a record-setting sea-floor operation, the Navy began a two-week investigatory hearing, at which Barth and nearly fifty others were called to testify. For a time, the Navy indicated that the *Sealab* program would go on, but in late 1970 it was cancelled. By then, Bob Barth and many others had already moved on to other assignments.

Robert August Barth Jr. was born in Manila, on August 28, 1930, and largely raised in the Philippines, where his father, Robert Sr., was a U.S. Army officer and on the staff of General Douglas MacArthur. By the time the younger Barth turned ten, his parents had divorced and he continued to live in Manila with his mother, née Phyllis Ludwig, who managed a Hamilton-Brown shoe store.

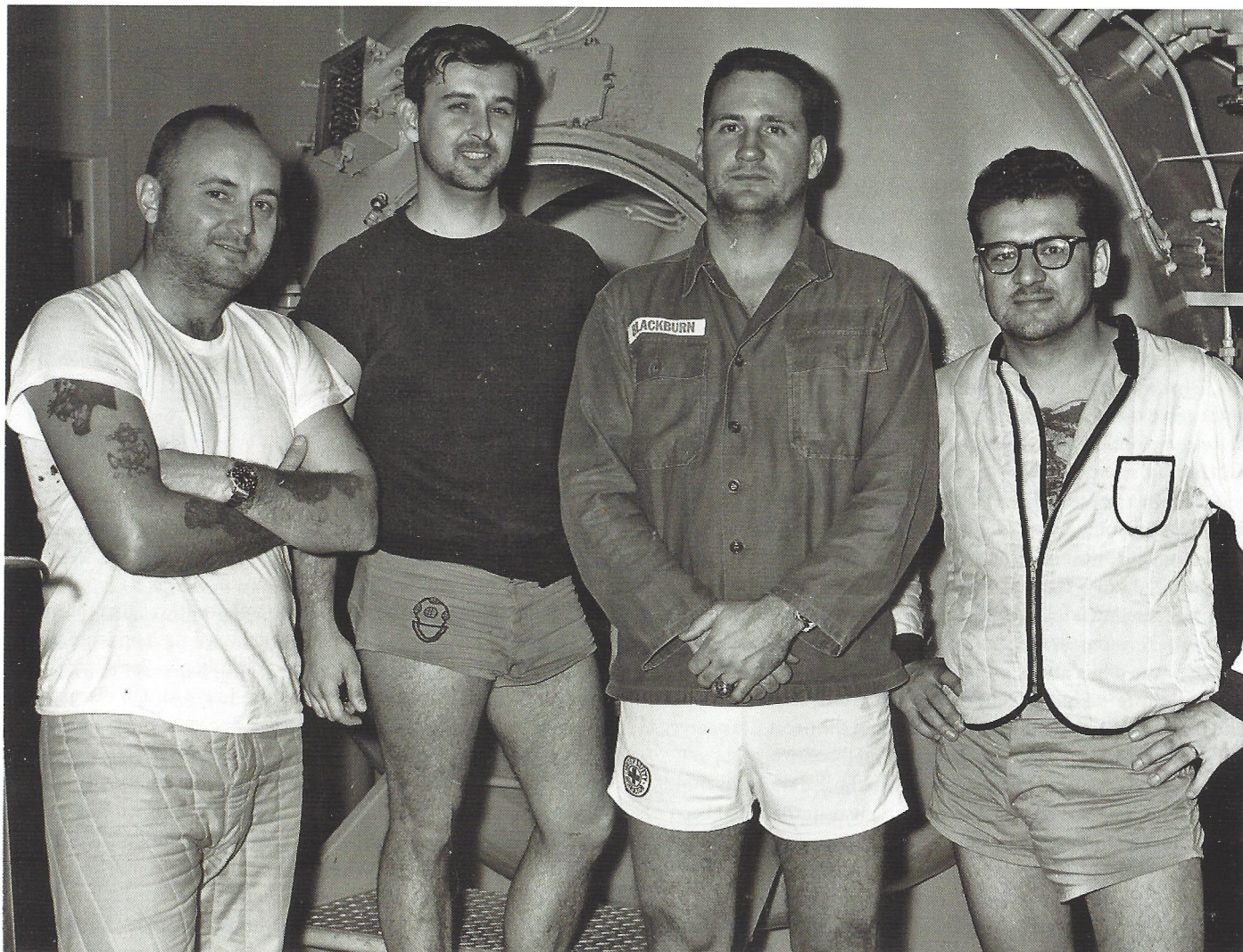
Not long before the bombing of Pearl Harbor and the U.S. entry into World War II, Barth was among the children and families put on ships to return to the safety of mainland American soil. His mother had by then remarried to Sam Knowles, an area manager for International Harvester, and the two remained in the Philippines with their jobs, but ultimately landed in the notorious Los Banos Prison Camp.

Young Barth met up with his father in San Francisco and lived with him as he moved around the country, the beginning of an itinerant lifestyle that proved to be a prologue for how Bob Barth would live for many years. Barth met up with his mother and stepfather in San Francisco upon their return by ship after the war. The family settled for the better part of a year in Chicago before setting off for Durbin, South Africa, the site of stepfather Sam's new job post.

Barth was in Durbin in time for his sixteenth birthday – but he was not happy, and began looking for a way to get back to the U.S. He learned he couldn't legally leave until he turned seventeen but began laying the groundwork for a prompt departure by walking the docks, seeking work with any merchant ship flying an American flag. He secured a place on the cargo ship *Westward Ho*, as an ordinary seaman, a low-level apprentice. Shortly after his seventeenth birthday, he shipped out to Baltimore, with stops along the way in India, North Africa, and South America.

With the \$165 the teenage Barth received upon signing off the *Westward Ho*, he took a train to Chicago and found his way into the Navy, at seventeen, in November 1947, and would serve on several ships and submarines, including USS *Boxer*, USS *Guavina*, and USS *Quillback*. He also got trained as a diver. At the beginning of 1960, Barth got his wish to be assigned for shore duty at the New London submarine base, where he had trained a half-dozen years earlier for submarine duty. He mainly worked at the escape training tank, a 120-foot-tall, water-filled tower in which instructors like Barth taught submariners how to swim out of downed subs and get safely to the surface. By this time, George Bond was head of the base's Medical Research Laboratory and his work frequently brought him to the escape tank, where Barth got to know and admire Dr. Bond and his forward-looking ideas.

In order to continue working with Bond and take part in *Sealab*, Barth had to give up the assignment he had requested



Bob Barth, Terrel "Jack" Reedy, Richard Blackburn, and Bill Mesplay outside the Experimental Diving Unit test chamber in the late 1960s.

and gladly received to join the crew of the USS *Thresher*, a fateful decision. Before the state-of-the-art nuclear submarine set sail, Barth took the crew through a required review course at the training tank. Then, on April 10, 1963, the *Thresher* sank in deep Atlantic waters, killing all 129 men on board, a historic naval disaster that was especially personal for Barth, not just because he might have been on board, but because he lost a number of good friends and shipmates.

It was a sobering reminder of the dangers that come with venturing under water, and under pressure, but such dangers never seemed to faze Bob Barth. Soon after the *Thresher* loss, he was locked into a pressurized chamber for the second of the three Genesis tests. By the following summer, he would continue to defy conventional wisdom by taking up residence in *Sealab I*.

Barth retired from active duty on May 1, 1970, but soon went back to work for the Navy as a civil servant in Panama City during the construction of the Ocean Simulation Facility, whose 55,000-gallon centerpiece was – and still is – a steel chamber many times the size of the more primitive ones Barth himself had been locked into for testing.

In 1972 Barth took the advice of a friend and fellow diver from *Sealab II*, William "Duke" Meeks, and went to work for Henri Delauze and his French diving company, Comex, in Dubai.

After about a year the American duo started their own diving-services company, called Hydrospace, which they ran for several years before selling the business. Barth then got into international marketing for Taylor Diving & Salvage Co., a major U.S. diving firm based in New Orleans, before he returned to Panama City, which by the mid-1970s had become the new home of the Navy Experimental Diving Unit, and Barth worked in several civilian roles until his retirement in 2005.

Barth's first marriage, in 1951, four years after he had joined the Navy at age seventeen, was to the former Georgia Murrow. They had a son, Bobby Barth, who became a guitarist and rock musician. That marriage ended in divorce, in 1954. In 1958, while based in Key West, Barth met and married his second wife, Joyce Williams, whose young son, Dale, from her first marriage, he adopted. Dale would join the Navy and serve for four years, later entering into a long civilian career as an electronics and mechanical technician at the Panama City base – but in a separate department from his father. The couple also had a son of their own, named Samuel, after Barth's stepfather, and divorced in 1990. In 2014 Bob Barth married his longtime girlfriend, the former Sharon Kay Kinsey. She survives him, as do his sons and two grandchildren. ♣

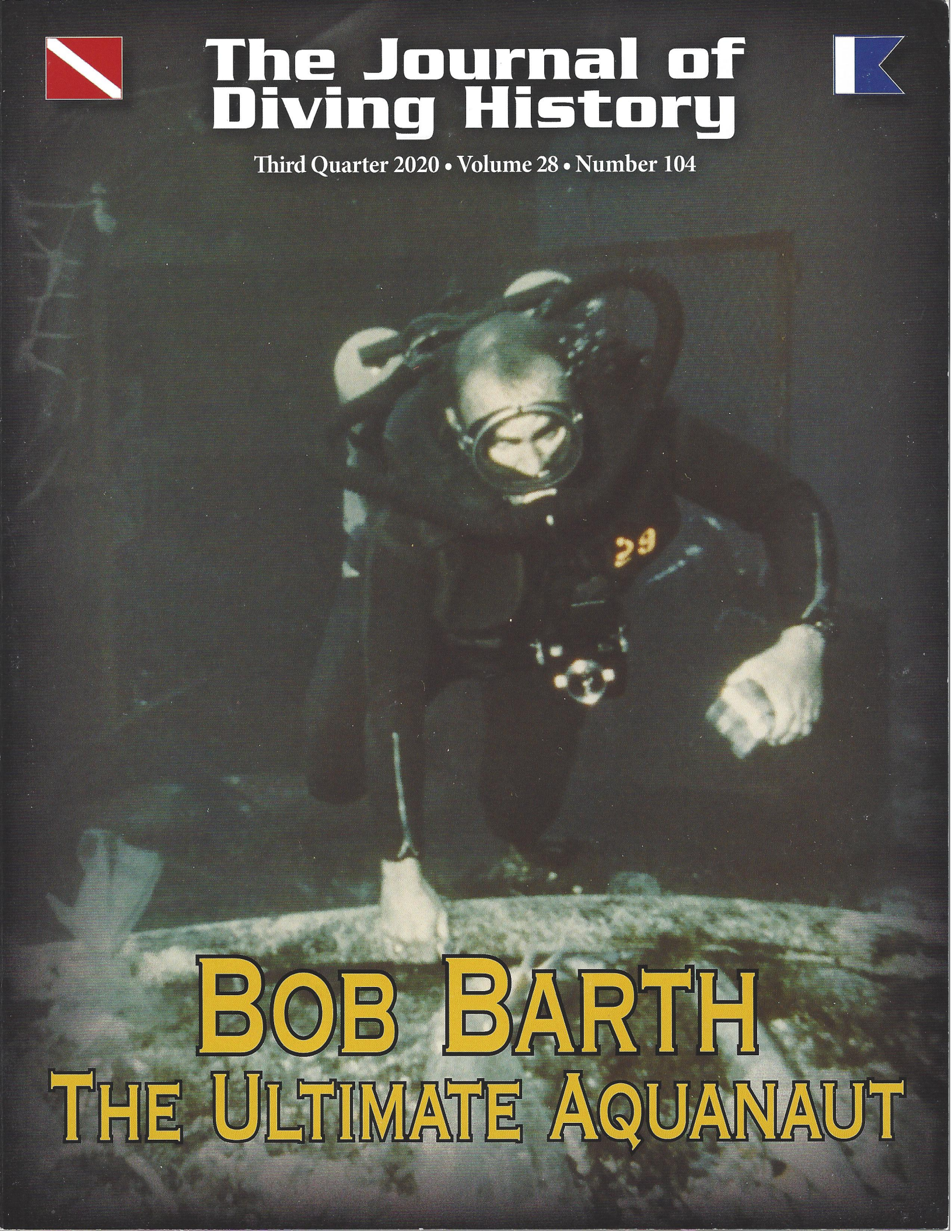
Ben Hellwarth is the author of *Sealab: America's Forgotten Quest to Live and Work on the Ocean Floor* (Simon & Schuster, 2012).



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