



H-Gram 047: The Last Battle of the Atlantic— Operation Teardrop

8 May 2020

This H-gram covers the last German U-boat offensive in April 1945, the U.S. Navy response (Operation Teardrop), and the last sinkings of U.S. warships and German U-boats in the Western Atlantic.

75th Anniversary of World War II —Victory in Europe

In remembrance of Boatswain's Second Class Mate Lonnie Whitson Lloyd, the last U.S. Navy Sailor to die in combat in the Atlantic/European Theater as a member of the U.S. Naval Armed Guard aboard the last U.S.-flagged merchant ship sunk in the Atlantic, the collier Black Point. She was torpedoed and sunk by U-853 off Block Island, Rhode Island on 5 May 1945 with a loss of 12 of her crew of 46.

And in memory of Lieutenant Commander James R. Crosby, USNR, and the crew of USS Frederick C. Davis (DE-136), the last U.S. Navy warship to be lost in the Atlantic/European Theater, torpedoed and sunk by U-546 on 24 April 1945 with a loss of 126 of her crew of 192.



USS Frederick C. Davis (DE-136), 1944/45 (NH 91425).

U-881 was the last German U-boat sunk by U.S. forces, lost with all hands on 6 May 1945 at about 0500 after probably having failed to receive the 4 May 1945 German order to cease hostilities on effective 5 May.

Operation Teardrop

In April 1945, based on Ultra code-breaking intelligence of German Enigma-encrypted messages, U.S. Navy leaders had good information about a wolfpack of six (and then seven) German U-boats ("Gruppe Seewolf") headed to the U.S. East Coast. However, a German disinformation campaign gave indication that the submarines were armed with V-1 pilotless "buzz bombs" or even V-2 ballistic rockets. Although

both U.S. and British intelligence discounted this possibility, no one was willing to take any chances that submarine-launched rockets could hit U.S. cities. A major U.S. Navy effort, code-named Operation Teardrop, was mounted to intercept and destroy the U-boats of Gruppe Seewolf before they could reach potential launch positions.

Operation Teardrop included two "barrier forces," each with two escort carriers and about 20 destroyer escorts. Each barrier force could only cover about 120 nautical miles, so the success of the operation depended heavily on intelligence and sources such as high-frequency direction finding (HF/DF) to be in the right place at the right time. Beginning 15 April, the First Barrier Force had good initial success, sinking three of the first six Gruppe Seewolf U-boats in quick succession far out in the mid-Atlantic despite very heavy seas and thick fog that severely degraded anti-submarine air operations.

The Second Barrier Force relieved the first on 21 April, setting up a blocking line closer to the United States, and came close to sinking two more U-boats. However, on 24 April, U-546 was attempting to penetrate the screen of escort carrier Core (CVE-13), when she was detected at close range by destroyer escort Frederick C. Davis. U-546 got off the first shot with an acoustic homing torpedo that hit Frederick C. Davis, causing her to break in two and sink in a matter of minutes with heavy loss of life including the commanding officer. Frederick C. Davis was the last U.S. Navy warship sunk in the Atlantic Theater. Nine destroyer escorts then relentlessly hounded U-546 for almost 12 hours before forcing her to the surface, sinking her with gunfire, and then rescuing 33 of U-546's crew. Once ashore, however, several of the crewmen of U-546, including the commanding officer, were subjected to severe beatings in an attempt by U.S. interrogators to extract information about rockets and missiles aboard German U-boats, of which the crew had no knowledge since there weren't any.

Although Operation Teardrop was focused on Gruppe Seewolf, other German U-boats were operating independently off the U.S. East Coast in March and April 1945, most with little success and all of them eventually sunk. An exception was U-853, known as "Moby Dick" for previous escapes, which sank the Eagle-class patrol boat PE-56 only three miles off the the Maine coast near Brunswick on 23 April. Only 13 of PE-56's crew of 67 survived. The Navy initially deemed the loss to be the result of a boiler explosion and it wasn't until 2001 that PE-56 was confirmed as a combat loss, making her the second-to-last U.S. Navy vessel sunk in the Atlantic Theater. U-853 would subsequently sink the collier Black Point off Narragansett Bay on 5 May, hours after Grossadmiral Karl Doenitz had directed all German submarines to cease hostilities. Black Point was the last U.S.-flagged ship sunk in the Atlantic Theater. U-853 was, in turn, sunk off Block Island in the pre-dawn hours of 6 May 1945, making her the second-to-last U-boat sunk by U.S. forces. U-881 would be the last U-boat sunk by the U.S. Navy, a few hours later on 6 May by the Second Barrier Force.



The surrendered U-858, a German Type IX-C submarine, is brought to anchor at Cape Henlopen, Delaware, likely 14 May 1945. Note Sikorski HNS-1 helicopter and blimp overhead (80-G-K-3319-A).

When Hitler committed suicide on 30 April 1945, his will named Doenitz the German head of state due to the fact that Doenitz was a hard-core Nazi and anti-Semite whose unrestricted submarine warfare operations met with Hitler's favor. Doenitz had been commander of the German submarine force since 1935 and commander in chief of the German navy since early 1943. Much to his surprise, Doenitz was now the senior leader of Germany. With the Red Army already in Berlin, Doenitz knew the war was lost. He attempted to negotiate a surrender to the United States and Britain while trying to save as much of the German army from surrender to the Soviets and simultaneously continuing Operation Hannibal in the Baltic. This was the largest seaborne evacuation in history, involving hundreds of thousands of German soldiers and civilians trapped in East Prussia by the Soviet advance. (In the course of the operation, Soviet submarines sank three German armed transports with a combined death toll of over 20,000 people, mostly civilians, including over 5,000 children.) The Allies, however, remained true to their stated war aim of "unconditional" surrender and, on 8 May 1945, Doenitz and Germany did just that.

Several German U-boats surrendered at sea to U.S. Navy ships. U-805 and U-858 (survivors of Gruppe Seewolf) were taken to Portsmouth, New Hampshire, and Lewes, Delaware, respectively, while U-873, U-1228, and U-234 were all taken to Portsmouth. U-234 was a large cargo submarine en route Japan with a cargo of uranium oxide and advanced military equipment when she surrendered. All these submarines were studied and eventually scuttled. Only U-505, which was "captured" in June 1944 (and not "surrendered") still exists as a museum ship in Chicago.

Two German U-boats chose to transit to Argentina rather than surrender. U-530 arrived in July and U-977 in August, leading to decades of conspiracy theories that the subs transported high-ranking German Nazis and/or treasure, none of which is true. Despite strong pro-German sentiment in

Argentina, the Argentines turned both U-boats and their crews over to the United States, and both U-boats were eventually sunk as targets by U.S. submarines. Both U-boats were initially suspected in the sinking of the Brazilian cruiser Bahia in July 1945, actually caused by an accidental explosion that cost the lives of almost all the approximately 380 crewmen aboard, including four U.S. Navy Sailors.

For more on Operation Teardrop, please see attachment H-047-1.

As always, feel free to disseminate H-grams widely to tell the story of U.S. Navy valor and sacrifice. And, if there is any moral to this H-gram, it's U.S. Navy veteran Yogi Berra's observation that "It ain't over 'til it's over." Back issues of H-grams enhanced with photos can be found here [<https://www.history.navy.mil/about-us/leadership/director/directors-corner/h-grams.html>].



German Type IX submarine docking at Tromsø, Norway, during the latter part of World War II. Note the boat's unofficial insignia and ice flows. The U-boats comprising Gruppe Seewolf in April 1945 were Type IXs based in occupied Norway. They were all fitted with snorkel arrays, which were retracted into a compartment under the upper deck plates to starboard rear of the sail when not in use (NH 41374).

H-047-1: The Last Battle of the Atlantic—Operation Teardrop

H-Gram 047, *Attachment 1*

Samuel J. Cox, Director NHHC

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Of note, given that so many German submarines were lost with all hands, determining exactly which U-boat sank which ships and which ships sank which U-boat still remains a work in progress. I use Samuel Eliot Morison's work as a baseline, but update when there is more recent analysis that strongly indicates differently, especially since Morison didn't have access to Ultra code-breaking

intelligence that was critical to the Allied success in the Battle of the Atlantic.

Gruppe Seewolf and Operation Teardrop, April-May 1945

In early March 1945, decryption of German Enigma-coded radio transmissions indicated the Germans were commencing an offensive U-boat operation against the U.S. East Coast. Beginning about 14 March, a total of nine German Type IX U-boats (all equipped or retrofitted with snorkels) left their bases in German-occupied Norway en route the East Coast of the United States and Canada. Six U-boats were designated *Gruppe Seewolf* (U-518, U-546, U-805, U-858, U-880, and U-1235) and were ordered to the U.S. East Coast, while U-530 and U-548 (which departed in

early March) were initially ordered to operate off Canada. The ninth U-boat, *U-881*, departed later from Norway, on 9 April, and was ordered to join the group.

This German deployment had been anticipated and was of grave concern to senior U.S. Navy commanders due to the possibility that these U-boats might be equipped to launch V-1 pulse jet-powered pilotless flying bombs ("buzz bombs") or something similar, to be used against U.S. East Coast cities. Rumors of this supposed capability began circulating in the late fall of 1944, some of which were disinformation spread by captured German spies. In September 1944, a German spy was captured after the U-boat that was transporting him to the United States was sunk. This spy, Oscar Mantel, claimed the Germans were preparing such attacks. (In November 1944, the Germans began development of a canister that could be towed behind a submarine and used to launch a V-2 guided ballistic rocket, but no prototype had even been started before the war ended—the technical challenges of transporting and launching a liquid-fueled rocket in this manner were pretty daunting.)

In December 1944, German spies William Colepaugh and Erich Gimpel, who had been landed in Maine by *U-1230* and then captured, further told U.S. interrogators that a group of rocket-equipped submarines were being readied for use. Relying on photographic and other intelligence, both the U.S. Tenth Fleet and the British Admiralty discounted these reports. Nevertheless, in January 1945, German Minister of Armaments and War Production Albert Speer claimed in a propaganda broadcast that V-1s and V-2s would hit New York by the beginning of February.

On 8 January 1945, believing that the U.S. population on the U.S. East Coast was getting lax in abiding by wartime restrictions (such as blackouts), the commander-in-chief of the U.S. Atlantic Fleet, Admiral Jonas Ingram, held a press

conference and stated that rocket attacks on the U.S. East Coast from submarines were possible. Needless to say, this caused a "sensation" in the press, and borderline panic amongst politicians. However, before Ingram's announcement, the U.S. Navy had already put together a response plan, code-named Operation Teardrop, to counter the German rocket submarine threat (U.S. Army coastal defense and air forces would deal with the "robot rockets" once they were in the air).

There were already several German U-boats operating off the U.S. East Coast before Operation Teardrop began, mostly with little to show for their efforts. At this point in the war, the focus of German U-boat activities, now that most U-boats had been retrofitted with snorkels (which significantly improved their survivability), was in the approaches close to Great Britain. The use of the snorkel had made it significantly more difficult for Allied aircraft to find and kill U-boats, forcing a renewed reliance on painstaking searches by surface ships. A few U-boats were sent across the Atlantic to divert Allied resources away from the main effort. However, in March 1945, the U-boats operating near the United Kingdom were suffering very high losses (despite the snorkel) and the ones in the Western Atlantic weren't faring much better.

U-Boat Losses off Eastern North America, March-April 1945

On 16 March 1944, *U-866* (on her first patrol) barely survived a hedgehog attack by destroyer escort *Lowe* (DE-325) near Sable Island (about 175 nautical miles east-southeast of Nova Scotia). *U-866* attempted to ride out further attacks sitting on the bottom, but repeated attacks by destroyer escorts *Lowe*, *Pride* (DE-323), *Mosely* (DE-321), and *Menges* (DE-320) destroyed her. *U-866* sank no ships in her short life.

U-857 and *U-879* had entered the Gulf of Maine in late March. On 5 April 1945, one of them torpedoed and damaged the tanker *Atlantic*

States, which was towed into port. Within a few hours, two U.S. destroyer escorts and two frigates prosecuted the submarine. Destroyer escort *Gustafson* (DE-182) was given credit at the time for sinking *U-857* early on 7 April 1945 as she was attempting to hide on the bottom. Additional analysis in 1994, however, indicated that this kill was “non-sub.”

According to Morison, *U-879* was sunk by destroyer escort *Buckley* (DE-51), assisted by *Reuben James* (DE-153), on 19 April 1945 off Sable Island. Subsequent analysis indicated this may actually have been *U-548*, but was definitely a kill. *U-548* was lost with all hands on her fourth patrol.

The only German submarine to have much success at all in April 1945 was either *U-548* or, more likely, *U-857*. On 14 April, a German submarine torpedoed and sank the unescorted freighter *Belgian Airman* off Cape Henry, Virginia. This provoked a major hunt by six destroyer escorts from Hampton Roads, plus a mix of destroyers and gunboats from Rhode Island, Mariner flying boats and Ventura aircraft from Norfolk and Elizabeth City, and several blimps, all of which came up empty, mostly due to fog. On 18 April, the unescorted tanker *Swiftscout* was torpedoed and sunk off the Delaware Capes by the elusive submarine. On 23 April, the Norwegian tanker *Katy* was hit by a torpedo off Cape Henry, but her crew was able to bring her in to Lynnhaven Bay, Virginia.

On the night of 29–30 April, *U-857* (or *U-548* or *U-879*) was attempting to attack convoy KN-382, when she was sighted and driven off by the frigate *Natchez* (PF-2). The submarine was then pursued by destroyer escorts *Bostwick* (DE-103), *Coffman* (DE-191), and *Thomas* (DE-102). At 0115 on 30 April, *Bostwick* delivered a depth-charge barrage that forced the submarine down to 600 feet. Despite the submarine’s evasive maneuvers, a little over three hours later, *Coffman* and *Thomas* delivered a creeping hedgehog attack

that sank the submarine with all hands. (According to Morison, this was *U-548*. More recent analysis indicated this was *U-879*. *U-857* was most likely responsible for sinking the ships off Cape Henry, but her fate remains unknown.)

The Barrier Forces

The U.S. response to *Gruppe Seewolf* was a far cry from the first hunter-killer missions in 1943, when an escort carrier would deploy with four or five escorts, some of which were World War I–vintage “four-piper” destroyers. Operation Teardrop included two “barrier forces,” each with two escort carriers and over twenty destroyer escorts. U.S. intelligence analysis and operational analysts at Tenth Fleet were able to track the progress of *Gruppe Seewolf* across the Atlantic, which was slow, since the submarines were transiting under snorkel. The challenge was how to defend the entire U.S. eastern seaboard against such a group of submarines. Fortunately, the Germans persisted in stubbornly believing that their codes were not being broken and read by the Americans and the British—by this time of the war almost as fast as the Germans transmitted their traffic.

The First Barrier Force included 20 destroyer escorts divided between a Northern Force, led by escort carrier *Mission Bay* (CVE-59), commanded by Captain John R. Ruhsenberger, and a Southern Force, led by escort carrier *Croatan* (CVE-25), commanded by Captain Kenneth Craig. With good intelligence on the U-boats’ track, most of the destroyer escorts set up a 120 nautical mile-long barrier in the mid-Atlantic south of Iceland at 30 degrees west, with the two escort carriers and four escorts each operating about 40–50 nautical miles behind. The weather conditions were atrocious, with frequent heavy fog and seas that were described at time as “mountainous.” (Over 100 Sailors on *Croatan* were injured when a heavy roll sent the entire mess deck flying during a meal.) These conditions severely hampered both carrier and shore-based air operations, which still

had not developed tactics to effectively deal with the "snorkel problem."

Although there was intelligence reporting on *Gruppe Seewolf's* progress across the Atlantic, there were no good high-frequency direction finding (HF/DF) fixes or sightings until 15 April. Finally, at 2135 that day, the destroyer escort *Stanton* (DE-247), in *Croatan's* screen, detected a radar contact at 3,500 yards in the heavy fog. *Stanton* closed to 1,000 yards before illuminating the contact with a searchlight, which proved to be *U-1235* running on the surface because the seas were too heavy for snorkel use. The submarine immediately dove as *Stanton* moved in for a hedgehog attack. Assisted by *Frost* (DE-144), *Stanton* made three hedgehog attacks and, at 0333, on 16 April, hit the submarine, causing several explosions that culminated in an unusually large underwater explosion. *U-1235* was lost with all hands on her second patrol, without sinking any ships.

Forty minutes later and only 1.5 nautical miles from *U-1235's* last datum, *Frost* detected another surface contact on radar, initially thinking that somehow *U-1235* had survived. This was actually *U-880*, which had closed on the destroyer escorts as they were prosecuting *U-1235*, then apparently thought better of it and was attempting to depart the area running on the surface in the thick fog. *Frost* fired a star shell that failed to illuminate the target. Finally, when the range was down to 500 yards, *Frost* used her searchlight to reveal the submarine. However, the seas were too heavy to change course to ram or even to bring the 3-inch main battery guns to bear, and the submarine submerged after being hit in the conning tower by smaller-caliber rounds. *Frost* gained sonar contact and was assisted by *Stanton* and *Huse* (DE-145) in tracking the submarine. At 0406 *Stanton* fired a hedgehog barrage that resulted in yet another massive explosion, jolting even *Croatan* 15 nautical miles away and causing crewmen on *Stanton* to think they'd been hit by a torpedo. *Frost* conducted another hedgehog

attack just to be sure, but *U-880* had been lost with all hands on her first patrol, having sunk no ships.

The unusually strong underwater explosions that resulted from the hedgehog attacks on *U-1235* and *U-880* only raised further concern with Admiral Ingram and Tenth Fleet that the submarines had some kind of special weapons on board. At this point, based on intelligence and HF/DF, Ingram ordered the First Barrier Force shifted to the southwest to conform to the U-boats' expected track. On the night of 18-19 April, a U.S. Navy PB4Y-1 (B-24) Liberator of VPB-114 flying from Terceira, Azores, sighted *U-805* on the surface using the plane's Leigh light (a big carbon-arc searchlight) about 50 nautical miles from *Mission Bay*, but did not attack because the submarine submerged before it could be confirmed as enemy. Spooked by so much U.S. radio traffic in the area, *U-805* changed course to the north to try to go around.

On the night 20 April, *U-546* unsuccessfully attempted to torpedo an unidentified U.S. destroyer escort. No U.S. ships reported being attacked.

On the night of 21 April, aircraft from *Croatan* and her escorts continued to try to locate *U-805*. She was finally detected by *Mosely* (DE-321) sonar and was depth-charged by *Mosely*, *Lowe* (DE-325), and *J. R. Y. Blakely* (DE-140), but escaped yet again. *Mosely* and *Lowe* had previously teamed up to sink *U-866* near Sable Island on 18 March 1945.

Also on the night of 21 April, just before midnight, destroyer escort *Carter* (DE-112) detected *U-518* on sonar in "mountainous" seas. *Carter* coached *Neal A. Scott* (DE-769) for a creeping hedgehog attack on the submarine, which had gone stationary, but missed. *Carter* then moved in for her own attack and, at 2309, delivered a fatal hedgehog attack. *U-518* was lost with all hands on her tenth patrol, having sunk nine merchant ships

and damaged three others, although none on this patrol.

Second Barrier Force

On 21 April 1945, the First Barrier Force was relieved by the Second Barrier Force. The Second Barrier Force consisted of the escort carrier *Bogue* (CVE-9), commanded by Captain George J. Dufek, and ten destroyer escorts, plus escort carrier *Core* (CVE-13), commanded by Captain R. S. Purvis, and twelve destroyer escorts. The Second Barrier Force used somewhat different tactics. The destroyer escorts formed a line at five-nautical mile intervals for 120 nautical miles, with *Core* anchoring the northern end of the line and *Bogue* the southern end. Starting at 45 degrees west, the whole line began sweeping east until reaching 41 degrees west.

On 23 April, *Grossadmiral* Doenitz sent an order dissolving *Gruppe Seewolf* and directing the U-boats to proceed for independent operations along the U.S. East Coast. Doenitz did not know that three of the original six *Gruppe Seewolf* submarines had already been sunk.

On 23 April, destroyer escort *Pillsbury* developed a contact near the center of the Second Barrier Force line. A TDM Avenger off *Core* attacked a contact and killed a large whale, which was found by the destroyer escorts. However, at 1347 the skipper of VC-9 on the *Bogue*, Lieutenant Commander William South, sighted a submarine breaking the surface 74 nautical miles from *Bogue* near the center of the line. An attack by South was unsuccessful, as were those by another flight of Avengers. *U-546* survived to fight and kill one more day.

Loss of Eagle Boat 56 (PE-56), 23 April 1945

On 23 April, as Operation Teardrop had been sinking three of the seven submarines in *Gruppe Seewolf*, another German U-boat, which had

departed Norway on 23 February and had been operating in the Gulf of Maine with no luck since early April, finally sank a ship. Under the command of 24-year-old *Oberleutnant zur See* Helmut Fromsdorf, *U-853* was on her third patrol and had yet to sink a single ship, although on her second patrol under her previous commanding officer she had so many close escapes that she was nicknamed "Moby Dick" or the "White Whale" by U.S. Sailors.

U-853's target on 23 April was the *Eagle*-class patrol boat *PE-56*, one of a class of 60 submarine chasers built during World War I, of which only eight were still in service by World War II. *PE-56* was assigned to Naval Air Station Brunswick, Maine, and was towing targets for practice by dive-bombers three nautical miles off Cape Elizabeth, when she suffered a massive explosion amidships.

Only 13 of *PE-56's* crew of 67 survived the sinking. The survivors reported that they were hit by a torpedo, and five of them stated they had seen a submarine with a gold and red emblem on the conning tower. (Although not known at the time, the emblem of *U-853* was a red horse on a gold shield. Such painted emblems were not authorized, but some U-boats had them anyway.) Shortly after the sinking, destroyer *Selfridge* (DD-357) gained solid sonar contact on a submarine and dropped nine depth charges without effect. Frigate *Muskegon* (PF-24) gained sonar contact on a submarine, but was also unsuccessful in sinking it. Despite the witness reports and subsequent attacks on a submarine, the Navy's court of inquiry determined that the cause of the sinking was a boiler explosion, a conclusion that remained unchallenged until the late 1990s.

In response to requests by outside researchers who had concluded *U-853* was responsible for the sinking of *PE-56*, the Naval Historical Center (predecessor of NHHHC) reviewed all available documentation and concluded that *U-853* was responsible and that *PE-56* was a combat loss. In

2001, Chief of Naval Operations Vernon Clark and Secretary of the Navy Gordon England concurred. This is the only time the U.S. Navy has overturned a court of inquiry. Purple Heart medals were awarded to the three living survivors and the next of kin of others on PE-56. This also made the boat the second-to-last U.S. Navy vessel sunk in the Atlantic Theater in World War II. In 2019, a civilian dive expedition finally found the wreck of PE-56 with the boilers intact.



Torpedoed by U-546, Frederick C. Davis (DE-136) sinks as surviving crewmembers float nearby, 24 April 1945. Photo taken from Hayter (DE-212) (U.S. Navy).



A survivor from Frederick C. Davis (DE-136) is transferred from Flaherty (DE-135) to Bogue (CVE-9), 24 April 1945. Photo taken from Bogue (U.S. Navy).

Loss of Frederick C. Davis (DE-136), 24 April 1945

U-546 was a Type IXC/40 U-boat on her fourth patrol with no sinkings to her credit. Under the command of *Kapitänleutnant* Paul Just, U-546

sighted the escort carrier *Core* on 24 April. While maneuvering to attack and attempting to slip through *Core's* screen, the boat was detected at close range by destroyer escort *Frederick C. Davis* (DE-136) at 0830. *Frederick C. Davis* was an *Edsall*-class destroyer escort, armed with three single 3-inch/50-caliber guns, one twin 40-mm, eight single 20-mm, one triple 21-inch torpedo mount, a hedgehog projector, eight side-throwing depth-charge projectors, and two depth-charge rolling racks on the stern. *Frederick C. Davis* had been awarded a Navy Unit Commendation for her role in the landings at Anzio, Italy, in 1944, where, for six months, she provided anti-aircraft and naval gunfire support, and was equipped with gear to jam German radio-controlled rocket-assisted glide bombs. She was credited with shooting down 13 German aircraft. Now under the command of Lieutenant Commander James R. Crosby, USNR (some accounts note his rank as lieutenant), the "Fightin' Freddy" had a reputation as a taut and alert ship.

Frederick C. Davis detected the submarine by sonar at 2,000 yards ahead. For whatever reason, general quarters was not sounded, but the guns and hedgehog projectors were manned and ready. As the submerged submarine passed down the starboard side, the officer of the deck ordered a hard right turn, but contact was lost in the noise of *Frederick C. Davis's* own Foxer acoustic torpedo countermeasure system. U-546 had launched a T-5 acoustic homing torpedo from her stern tube at range of 650 yards, which, despite the Foxer, hit *Frederick C. Davis* on the port side in the forward engineering spaces. The blast was devastating, killing the commanding officer, the officer of the deck, and almost everyone on the bridge and many in the forward part of the ship. In only a few seconds, the engineering spaces and several large crew-berthing compartments were flooded and fires turned the bridge area into an inferno. Only one officer in the combat information center survived. The wardroom deck was blown upward, killing all the officers who were still at breakfast along with

the steward's mates. Nine minutes after the hit, the ship broke in two and, six minutes later, the bow went under.

Survivors in the aft end of the ship, led by Ensign Philip K. Lundberg, the assistant damage control officer, desperately tried to establish watertight integrity in the hopes the stern would remain afloat, but to no avail. Before the ship went under, crewmen were able to save all but two of the depth charges, which exploded when the stern went under, killing many of those in the cold water. Of *Frederick C. Davis'* crew of 192, 126 perished, including her skipper and nine other officers.

(Ensign Lundberg was the junior of three surviving officers. He would go on to earn a PhD in History at Harvard University under Professor Samuel Eliot Morison, and his thesis would be the basis for *The Atlantic Battle Won*, the tenth volume of Morison's *History of United States Naval Operations in World War II*. He would become one of the most famous and prolific naval historians, would be Curator Emeritus of the Smithsonian Museum of American History, and would be awarded the Commodore Dudley W. Knox Naval History Lifetime Achievement Award in 2013. He passed away in 2019.)

Hunt for U-546

The screen commander, Commander R F.S. Hall, saw the explosion of *Frederick C. Davis* and immediately ordered destroyer escorts *Hayter* (DE-212) and *Neunzer* (DE-150) to prosecute the submarine, and *Flaherty* (DE-135) to rescue survivors. As *Flaherty* approached the sinking *Frederick C. Davis*, she detected the submarine in close proximity, using the wreckage as cover. *Flaherty* prosecuted the U-boat and *Hayter* was diverted to the rescue, aided by aircraft off *Core* sighting survivors in the oil slicks. The Foxer countermeasure on *Pillsbury* (with the screen commander embarked) may have disrupted *Flaherty's* first attempt at a creeping

hedgehog attack. However, *Pillsbury* regained contact and directed *Flaherty* to a hedgehog attack at 0951 that missed. *Flaherty* then mistook the submarine's *Pillenwerfer* sonar decoy as a torpedo launch and the warning call caused *Hayter* to temporarily break off rescue efforts. (A *Pillenwerfer* was a canister filled with calcium hydride, which, when mixed with seawater, created a hydrogen bubble cloud.) Nevertheless, at 1025, *Flaherty* made another hedgehog attack that was also unsuccessful. *U-546* almost made a getaway at this point, but, at 1156, *Flaherty* picked her up again.

By this time, nine destroyer escorts were searching for *U-546*. *Varian* (DE-798), *Janssen* (DE-396), *Hubbard* (DE-211), *Neunzer*, and *Flaherty* all made multiple attacks. Although unsuccessful, these kept *U-546* under, exhausting her crew and batteries. Heavy fog kept aircraft from *Core* from being of much help. At 1513, *Varian* detected *U-546* at a depth of 600 feet. *Chatelain* (DE-149) also gained contact and guided *Varian* and *Neunzer* for another hedgehog attack at 1556, also unsuccessful. Contact was lost again until *Varian* detected the submarine and guided *Keith* (DE-241) on a depth-measuring run that determined the submarine had come up to 160 feet.

Other than the repeated hedgehog attacks, *U-546* had no idea where the U.S. ships were because she had been damaged in an early attack and had to use her main pumps to control flooding, which blanked out her hydrophone. Finally, at 1810, a hedgehog from *Flaherty* blew a 15-inch hole in *U-546's* pressure hull, smashed the bridge, and ruptured batteries, causing chlorine gas to leak. Even so, it took another hedgehog attack before the U-boat's skipper decided he had no choice but to come to the surface and fight it out. At 1838, *U-546* broke the surface and promptly fired a torpedo at *Flaherty*, which missed. *Flaherty* returned fire with two torpedoes that also missed. It was *U-546's* last gasp as *Pillsbury*, *Keith*, *Neunzer*, and *Varian* all blasted

away at the submarine with gunfire. At 1845, Commander Hall ordered a cease-fire as *U-546* obviously up-ended and sank.

Somewhat surprisingly given the volume of fire directed at *U-546*'s conning tower, *Kapitänleutnant* Just and 32 crewmen were rescued by the U.S. ships after surviving the sinking. Morison described the survivors as "a bitter and truculent group of Nazis, who refused to talk until after they had been landed at Argentina and had enjoyed a little 'hospitality' in the Marine Corps brig." The surviving Germans received appropriate and even considerate treatment while aboard U.S. ships, but Morison's description euphemizes what actually happened afterward.



Surviving U-546 crewmembers in inflatable rafts float among Second Barrier Force destroyer escorts, 24 April 1945. Photo taken from Hubbard (DE-211) (U.S. Navy).



German officers and sailors of U-546 are brought on board escort carrier Bogue (CVE-9), 24 April 1945. The man wearing the white sweater is Kapitänleutnant Paul Just, U-546's commanding officer (U.S. Navy).

Upon arrival at the U.S. base in Argentina, Newfoundland, on 27 April, the *U-546* commander, first officer, and six other crewmen, considered "specialists," were separated out. They were then subjected to solitary confinement and repeated exhausting exercise, and, when unable to continue, were repeatedly beaten with rubber truncheons. Lieutenant Commander Leonard A. Myhre, skipper of *Varian*, which had delivered the Germans to Argentina, was witness to one of the beatings of Just, and lodged a strong protest.

On 28 April, two interrogators from Washington arrived—one dressed as a Navy captain, but apparently a civilian agent—presumably from the joint Army-Navy interrogation center at Fort Hunt, south of Alexandria, Virginia. The interrogators reported to Tenth Fleet that the Germans were extremely security conscious, and would not even give up information that was already known to U.S. intelligence via Enigma decrypts. Later, on 30 April, the German commanding officer was subject to what Tenth Fleet records described as "shock interrogation," the exact nature of which is unknown to this day, but it resulted in Just ending up unconscious and waking some time later. The Germans were then taken to the interrogation facility at Fort Hunt, where they were subject to still more beatings. The records from Fort Hunt were burned en masse after the war.

Frederick C. Davis survivor and naval historian Philip K. Lundberg described the treatment of *U-546*'s crew as "a singular atrocity" motivated by the interrogators need to get information quickly. This may be about as close to an actual "ticking bomb" scenario often hypothesized as an excuse to justify torture in that there was great concern that the *Gruppe Seewolf* submarines were going to attack U.S. cities with missiles. However, since none of submarines were equipped with missiles or rockets of any kind, the German crewmen could provide no information about them no matter how many times they were beaten. Finally, it became apparent that there was no missile

threat from German submarines (although the Germans had conducted a small number of unsuccessful experiments in 1942, during which *U-511* test-fired a variety of rockets, of which the crew of *U-546* knew nothing.) Of note, after the war, a U.S. variant of the V-1 (the JB-2 Loon) was test-fired from submarines *Cusk* (SS-348) and *Carbonero* (SS-337) in a successful series of tests between 1947 and 1951, demonstrating that it would have been technically possible for the Germans to do the same.



Kapitänleutnant Paul Just (left) and *U-546*'s first officer onboard *Bogue* (CVE-9) (U.S. Navy).

Barrier Force Operations Continued

With two of the original *Gruppe Seewolf* submarines not accounted for (*U-805* and *U-858*) and getting closer to the U.S. eastern seaboard, *Mission Bay* was ordered back to sea to augment the Second Barrier Force. By 2 May, the force included three escort carriers and 31 destroyer escorts, but only one additional contact and no successful attacks had been made after *Gruppe Seewolf* was ordered to split up on 23 April.

Grossadmiral Karl Doenitz as German Head of State, 30 April 1945

On 30 April, as the Soviet Red Army was advancing through the bombed-out rubble of

Berlin, Adolf Hitler, "*der Führer*" of the 1,000-year German *Reich*, committed suicide. In his last will and testament he named the commander-in-chief of the German navy (the *Kriegsmarine*), *Grossadmiral* Karl Doenitz, as head of state, minister of war, and supreme commander of the German armed forces. This came as a surprise to Doenitz and just about everyone else. However, Hitler suspected that more obvious successors, such as Hermann Goering of the *Luftwaffe* and Heinrich Himmler of the SS, were attempting to cut their own deals with the Allies; one of Hitler's last acts was to denounce both of them as traitors. Hitler also distrusted the army following the failed 20 July 1944 assassination attempt. Although attempts were made after the war to "soften" his image, Doenitz earned Hitler's trust because he was a hard-core Nazi and anti-Semite.

Doenitz had commanded the *Kriegsmarine* since replacing *Grossadmiral* Eric Raeder on 30 January 1943. Raeder had fallen out of favor with Hitler due to the lack of success by the hugely expensive German surface navy. Doenitz had been the commander of the German submarine force since 1935 (when Germany had three submarines). He had served on U-boats during World War I and was captured by the British in October 1918 after his submarine, *UB-68*, suffered technical problems and had to be scuttled. By early 1943, however, the German submarine force was still on a roll and the Battle of the Atlantic was looking pretty bleak for the Allies (the turn wouldn't come until May 1943—see H-Gram 019). Hitler looked on Doenitz' actions with great favor.

Doenitz may have been a Nazi, but he was also a realist, and there was no question in his mind that Germany was going to lose the war and soon. Doenitz was quoted as saying, "I will hear no more of this heroes' death business. It is now my responsibility to finish this." By noon on 4 May 1944, Doenitz' first surrender proposal was in the hands of British Field Marshal Sir Bernard Law Montgomery, commander of Allied Forces in The

Netherlands and Northern Germany. However, it was conditional. Doenitz was trying to arrange for the Germans to surrender to the British and the Americans, but not to the Russians. However, the agreed and stated war aim of the Allies was "unconditional surrender" and General of the Army Dwight D. Eisenhower, Supreme Allied Commander in Europe, insisted on complete surrender before agreeing to cease hostilities.

Operation Hannibal, January-May 1945

As a gesture of good faith while Doenitz was still trying to negotiate, he sent an order on the evening of 4 May for all German ships and submarines at sea to cease hostilities effective 0800 on the following day. An exception were those German navy forces involved in Operation Hannibal, the evacuation by sea of hundreds of thousands of German soldiers and civilians trapped in East Prussia by the advancing Red Army. Montgomery took no action to stop this evacuation, which continued until the official surrender on 8 May.

Operation Hannibal was the largest naval evacuation in history, taking about 350,000 German soldiers and nearly 900,000 civilians out of East Prussia between 23 January and 8 May, at a horrific cost of over 20,000 people, mostly civilians. On 30 January, the Soviet submarine S-13 torpedoed and sank the German armed transport *Wilhelm Gustloff*, which was carrying soldiers, political and security functionaries, and many civilians, killing 9,343 mostly civilians, including about 5,000 children. On 10 February 1945, S-13 sank another armed transport, *General von Steuben*, with an estimated loss of 4,000 mostly civilians, and with only 300 survivors. On 16 April, Soviet submarine L-3 added to the grim tally, sinking the overloaded armed transport *Goya*, with an estimated loss of 6,600 mostly civilian lives. Only 183 survived, 176 of them soldiers. *Wilhelm Gustloff* and *Goya* are the two highest death tolls of single ships lost at sea in history. All told, some 158 German merchant

ships and vessels went down under Soviet air and submarine attack during this period.

The Battle of Judith Point, 5-6 May 1945

Two German submarines operating off the U.S. East Coast, U-853 and U-88, either ignored the order to cease hostilities on 5 May or, more likely, didn't get the order. U-853, which had sunk PE-56 on 23 April, had moved to a new operating area at the entrance to Narragansett Bay, Rhode Island. At 1740 on 5 May, the submarine torpedoed the U.S.-flag collier *Black Point*. The torpedo blew off the collier's stern and she quickly went down with the loss of 12 men, including one of the five Naval Armed Guard aboard, Boatswain's Mate Second Class Lonnie Whitson Lloyd, who would be the last U.S. Sailor killed in the Battle of the Atlantic. Thirty-five men were rescued, including five Naval Armed Guard. *Black Point* would be the last U.S.-flag ship lost in the Battle of the Atlantic.

A passing Yugoslav freighter, SS *Kamen*, rescued survivors from *Black Point*, sighted U-853, and radioed her position. A hunter-killer group was quickly organized under the command of Commander Francis C. B. McCune in destroyer *Ericsson* (DD-440), which was almost through the Cape Cod Canal en route Boston. Other ships of the group were already operating nearby, so while *Ericsson* was transiting back through the canal, the destroyer escorts *Atherton* (DE-169) and *Amick* (DE-168), along with the Coast Guard-manned frigate *Moberly* (PF-63), quickly arrived in the area and, by 1920, commenced search for the submarine. Lieutenant Commander L. B. Tollaksen, USCG, on *Moberly* was senior officer present and took charge. Ultimately, a total of 11 U.S. Navy and Coast Guard ships arrived to block off the area.

Within 15 minutes of arriving, *Atherton* (Lieutenant Commander Lewis Iselin, commanding) gained sonar contact five nautical miles east of Block Island and, at 2028, delivered

a full pattern of nine magnetic depth charges, one of which exploded, followed by two hedgehog attacks. Given the shallow depths (103 feet), it was unknown if hedgehog explosions were hits on the submarine or on the bottom. In fact, *U-853* was trying to ride out the attacks while creeping along very close to the bottom. By this time, *Ericsson* had arrived and McCune assumed tactical command, ordering star-shell illumination that revealed oil and debris, but nothing positively confirmed from a submarine.

At 2337, *Atherton* regained sonar contact and delivered another hedgehog attack, which probably doomed the sub. McCune ordered *Moberly* to move in, discovering that the sub was still slowly moving, and directed another attack. At 0200, *Moberly* conducted another full hedgehog attack, and *U-853* stopped moving and was on the bottom. The ships continued to search throughout the night and, although lifejackets, escape lungs and oil were observed at first light, attacks resumed, dropping more than 100 depth charges. At 0600, the ships were joined by two blimps from NAS Lakehurst, *K-16* and *K-58*, which fired rocket bombs and then dropped a sonobuoy that detected a rhythmic hammering noise. The crew of *U-853* was probably long dead by this point, but by noon on 6 May, debris had surfaced including *U-853* skipper's hat and chart table. At 1230, a diver from submarine rescue ship *Penguin* (ASR-12) went down and reported that the submarine's pressure hull and interior were split open, with bodies visible inside. An attempt to reach the captain's safe was unsuccessful. This convinced Commander McCune to terminate the action. "Moby Dick" and all 54 of her crew were dead.

U-853 is still on the bottom off Block Island in 127 feet of water. The hull has one hole near the radio room forward of the conning tower and another in the engine room on the starboard side. In 1960, a recreational diver brought up a body from the wreck. Although the body was buried in Newport with full military honors, the incident provoked

former U.S. Navy admirals and some clergymen to petition the U.S. government for better protection of war graves. Two recreational divers have died over the years while exploring the wreck. The submarine's two propellers are at the Naval War College Museum in Newport.

U-881 Sinking, 6 May 1945

U-881 was a late addition to *Gruppe Seewolf*, departing Norway on 8 April for her first patrol. Despite the addition of *Mission Bay* and her escort destroyers to the Second Barrier Force, two of the first six *Gruppe Seewolf* boats were unaccounted for, as was the seventh submarine, *U-881*. Although the German surrender was anticipated at any moment, there was still great concern that one of the *Gruppe Seewolf* submarines could launch a missile attack against a U.S. East Coast city. Apparently, *U-881* didn't receive the order to cease hostilities on 5 May.

In the early morning of 6 May, *U-881* was maneuvering to attack the escort carrier *Mission Bay* when she was detected at 0413 at close range by destroyer escort *Farquhar's* (DE-139) sonar. Under the command of Lieutenant Commander D. E. Walter, *Farquhar* made a quick attack with 13 depth charges set on shallow. Contact ceased and it wasn't until after the war that analysis confirmed *U-881* went down with all 54 hands. This is why some accounts say *U-853* was the last U-boat sunk by U.S. forces. However, the last was actually *U-881*.

The Surrender

At 0241 on 7 May 1945, at the direction of Doenitz, German *Generaloberst* Alfred Jodl signed the act of military surrender, surrendering all German forces without condition and taking effect the next day, which Supreme Allied Commander in Europe, General of the Army Dwight D. Eisenhower accepted. Soviet dictator Josef Stalin insisted on a separate ceremony,

during which the instrument of surrender was signed in Berlin the next day by German *General-Feldmarschall* Wilhelm Keitel.

On 8 May 1945, British Admiral Harold R. Burrough, acting for the Supreme Allied Commander Europe, gave orders for all U-boats at sea (there were 49) to immediately surface and fly a black flag or pennant to show compliance with the German surrender. The first submarine to comply was *U-249*, which was sighted surfacing off the Scilly Islands at the western entrance to the English Channel by a Navy Liberator of Fleet Air Wing 7 piloted by Lieutenant Frederick L. Schaum, USNR. Ultimately, the Germans would surrender 181 U-boats; 217 were scuttled by their own crews (this is Morison's number—there is significant variance in other accounts). Most of the 118 newly completed next-generation Type XXI and XXIII U-boats were scuttled (only five Type XXIs and one Type XXIII were combat-ready at the end of the war).

On 9 May 1945, *U-805*, one of the two survivors of *Gruppe Seewolf*, broadcast her position as ordered southeast of Cape Race, Newfoundland. Destroyer escort *Varian* (DE-798) rendezvoused with *U-805* on 12 May and put a boarding party aboard to take her to Portsmouth, New Hampshire, where she arrived on 15 April. *U-805* was used for several "Victory Visits" before she was sunk by the U.S. Navy in February 1946.

On 10 May, *U-858*, the other surviving *Gruppe Seewolf* boat, surrendered to destroyer escorts *Pillsbury* and *Pope* (DE-130), which put a boarding party aboard her and escorted her to the Delaware Capes on 14 May. Although *U-805* made the first surrender radio call, *U-858* was the first one boarded and is referred to as the first German submarine to surrender to the United States at the end of the war. *U-858* was used in War Bond drives before being used for torpedo target practice and then scuttled in 1947.

Of note, it was *Pillsbury's* boarding team that went aboard and captured the German submarine *U-505* near the Canary Islands on 4 June 1944 while operating as part of the USS *Guadalcanal* (CVE-60) hunter-killer group. The leader of the boarding team that went aboard *U-505* and kept her from sinking was Lieutenant Albert David, who was awarded a Medal of Honor (to go with two previous Navy Crosses), who regrettably died of a heart attack at age 43 before President Truman could present the nation's highest military award. *U-505* is the only U-boat of those captured by or surrendered to the United States that still survives, and is on display at the Museum of Science and Industry in Chicago (and well worth a trip to see).

U-873 was not part of *Gruppe Seewolf*, but departed Norway on 30 March on her first patrol and was heading for the Caribbean. The submarine was a Type IXD2, a long-range version of the more plentiful Type IXC/40. On 11 May, *U-873* surrendered to destroyer escort *Vance* (DE-387), which put a "prize crew" on board and escorted the sub to Portsmouth, New Hampshire. *U-873* was put in a dry dock and extensively studied, before undergoing tests and, later, being scrapped in 1948. After interrogation at Portsmouth, the handcuffed crew of *U-873* was marched through Boston and pelted with garbage and insults, and, in violation of the Geneva Convention their personal possessions on the submarine were looted (this was also true of the other U-boats brought into Portsmouth). The commanding officer of *U-873*, *Kapitänleutnant* Friedrich Steinhoff (who had also been commanding officer of *U-511* during the 1942 rocket-firing tests), showed signs of being roughly interrogated and then committed suicide on 19 May in his Boston jail cell while awaiting transfer to a prisoner-of-war camp in Mississippi.

U-1228 departed Norway on 1 April for operations in the Western Atlantic. Upon the surrender, *U-1228* headed for the closest U.S. port, surrendered to destroyer escort *Neal A.*

Scott (DE-769), and arrived at Portsmouth on 17 May. After being studied and tested, she was torpedoed and sunk as a target by submarine *Sirago* (SS-485) on 5 February 1946.

On 14 May, *U-234* was intercepted by destroyer escort *Sutton* (DE-771) in the vicinity of the Grand Banks after *U-234*'s skipper had falsely radioed on 12 May that he was heading for Halifax, Nova Scotia. He was actually heading for Newport News, Virginia, under the assumption that he and his crew would get better treatment from the Americans than the Canadians or British. *Sutton* boarded and escorted *U-234* into Portsmouth, where she joined *U-805*, *U-873*, and *U-1228*.

U-234 was a large Type XB long-range cargo submarine that had left German-occupied Norway on 15 April en route to Japan with a cargo that included 1,200 pounds of uranium oxide, a disassembled Messerschmitt Me-262 jet fighter, a Henschel Hs-293 radio-controlled glide bomb, and other advanced electronics gear and weapons. *U-234* was also carrying 12 passengers including a German *Luftwaffe* general, other German officers, civilian scientists and engineers, and two Japanese navy officers (see also H-Gram 033). Transiting under snorkel most of the way, *U-234* surfaced on 10 May and received word of the German surrender for the first time. Believing it was Allied deception, *U-234*'s skipper was able to contact *U-873*'s commanding officer, who verified the message's authenticity. *U-234* then destroyed her sensitive communications and electronics gear and code materials, but couldn't do anything about the cargo. Upon learning that *U-234* intended to surrender, the two Japanese officers committed suicide and were buried at sea.

The arrival of *U-234* in Portsmouth on 19 May with her high-ranking passengers created a press sensation, although the fact of the uranium oxide cargo was kept secret for many years. Although unconfirmed, the uranium oxide may have been used in the Manhattan Project, helping in developing the U.S. atomic bombs. *U-235* was

torpedoed and sunk as a target by *Greenfish* (SS-351) on 20 November 1947.

The Diehards

According to Morison, *U-530* departed Norway on her seventh patrol and reached her operating area east of Long Island by early May (1,000 nautical miles east-northeast of Puerto Rico, according to the debrief of her skipper in Argentina after the war). *U-530* conducted unsuccessful attacks on convoys both before and after the surrender announcement. *Oberleutnant zur See* Otto Wermuth, swayed by Nazi propaganda of the terrible fate that awaited should the Allies occupy Germany, opted to take his boat to Argentina, expecting a better reception and treatment. (Argentina, which had a sizable German population, remained neutral most of the war, only declaring war on Germany on 27 March 1945.)

U-530 reached Mar del Plata, Argentina, on 9 July after jettisoning her deck gun, torpedoes, ammunition, log books, crews' identification, and anything else that might be considered sensitive. The length of her transit gave rise to decades of conspiracy theories that she carried gold and high-ranking Nazis (rumors included Adolf Hitler and his wife Eva Braun), none of which is true. The transit is easily explained in that much of it was submerged under snorkel, i.e., at a very slow speed.

On 17 August, a second U-boat arrived in Argentina. *U-977* was a smaller Type VIIC submarine that had departed Norway on 2 May under the command of *Oberleutnant zur See* Heinz Schaeffer. He also opted to head toward Argentina rather than surrender after giving his married crewmen the option of going ashore, which 16 did in Norway on 10 May. *U-977* then conducted what her skipper claimed was a 66-day transit under snorkel, supposedly the second longest by any German submarine. This claim differs from post-war debriefs, which include a

stop in the Cape Verde Islands, but, regardless, it was a long, slow, mostly submerged transit.

Like *U-530*, *U-977*'s passage and arrival in Argentina stoked rumors of gold and Nazis. Actually, a number of high-ranking Nazis like Adolph Eichmann and Josef Mengele did make it to Argentina, several years later and incognito on passenger ships. None got there by submarine. (One of the more famous candidate submarines for taking Nazis to South America was the new Type XXI submarine *U-3523*, which wasn't located until 2018, when it was discovered sunk off Denmark. It had been sunk by a British B-24 Liberator on 6 May 1945, but an erroneous position report by the plane threw off searchers for decades.)

Both *U-530* and *U-977* were initially considered suspects in the 5 July sinking of the Brazilian light cruiser *Bahia*. *Bahia* had exploded and sunk in about three minutes, before she could send an SOS. Her loss was unknown until 8 July when her relief arrived on station and didn't find her. In a tragedy similar to that of the U.S. heavy cruiser *Indianapolis* (CA-35) in the Pacific later that same month, survivors of the sinking drifted for days in the tropical sun and were subject to shark attacks. Only 34 men were rescued from a crew of 386 (the exact number of *Bahia*'s crew differs in various accounts). Among the dead were four U.S. Navy sailors, identified in one account as "radiomen" and in another as "sound technicians" (which is all I can find online). One of the Brazilian survivors recounted being in a raft with three Americans who all perished after a couple days. (Brazil had declared war on Germany on 21 August 1942, and there was extensive cooperation between the United States and Brazil against German submarine operations in the South Atlantic, including the U.S. provision that seven *Canon*-class destroyer escorts to be manned by Brazil.) The light cruiser *Omaha* (CL-4) provided medical assistance to *Bahia* survivors that had been picked up by British steamer *Balfe*.

An initial investigation by Argentina determined that it was not feasible in terms of time and distance for either *U-530* or *U-977* to have been responsible for sinking *Bahia*. A subsequent Brazilian-U.S. investigation determined the cause to be self-inflicted. During anti-aircraft gunnery practice, a 20-mm gunner firing on the target kite accidentally hit the depth-charge rack on the stern, resulting in a massive explosion of the depth charges and sinking the ship in a matter of minutes.

Much to the consternation of the commanders of *U-530* and *U-977*, the Argentines turned them, their crews, and the submarines over to the United States. *U-977* was ultimately sunk as a target by U.S. submarine *Atule* (SS-403) on 13 November 1946. *U-530* was sunk as a target on 28 November 1947 by U.S. submarine *Toro* (SS-422).

Under the terms of the unconditional surrender, all German submarines were to be turned over to the Allies to be destroyed, although provision was made for Allied nations to study some of them before sinking them. German crews sabotaged and sank many of their submarines themselves. The British intended to sink 116 U-boats northwest of Ireland in an operation called Deadlight, which took place from November 1945 to February 1946. However, 56 of them were in such bad shape that they sank under tow on the way there; most of the rest were sunk by surface gunfire. The United States also scuttled all U-boats in its possession except *U-505*, thanks to Rear Admiral Daniel V. Gallery, who had commanded the *Guadalcanal* hunter-killer group. Because *U-505* had been "captured" and not "surrendered," the boat could be spared, and was donated to the Chicago Museum of Science and Industry in 1954.

The Type XXI Submarine *U-2513* was one of five Type XXI submarines ready for combat at the end of the war. She was surrendered in German-occupied Norway and transferred to the U.S. Navy in August 1945 in order to study her very

advanced design. The Type XXI was the first submarine in any navy to be designed to operate primarily underwater (these were the first submarines that were faster underwater than on the surface), rather than as a low-visibility surface ship that could submerge. The Type XXI, with its new hull design optimized for underwater speed, greatly increased battery capacity that could enable several days of submerged operations, and numerous other technical innovations, was the most advanced submarine in the world. The U.S. Navy operated *U-2513* from 1945 to 1949 and many of her design features were incorporated in the Greater Underwater Propulsion Power Program (GUPPY) for U.S. submarines and in the first nuclear-powered submarine *Nautilus* (SSN-571). President Harry S. Truman submerged aboard *U-2531*, becoming the second U.S. President to get underway on a submarine. *U-2513* was sunk as a target off Key West on 7 October 1951 during rocket tests by destroyer *Robert A. Owens* (DDE-827).

Grossadmiral Karl Doenitz remained German head of state in what was termed the Flensburg Government until it was dissolved by the Allies on 23 May 1945. He would subsequently be tried at Nuremberg for major war crimes. He was found not guilty of committing crimes against humanity, but was found guilty committing crimes against peace and crimes against the laws of war. Maybe a lawyer can tell the difference, but, regardless, he only spent ten years in prison and died in 1980.

Numbers vary on how many U-boats were lost, but of about 1,160 built, about 780 were lost to all causes, about 640 to combat at sea, with a loss of at least 28,000 crewmen killed and 5,000 captured. About 430 U-boats were lost with all hands and about 215 didn't survive their first patrol. The U-boats sank about 2,800 Allied ships, including 158 British Royal Navy and 30 U.S. warships. Over 700 Allied aircraft (mostly British) were lost on anti-submarine sorties. Leftover mines continued to inflict ship losses and casualties for years after the end of the war. Well

over 30,000 Allied merchant marine sailors died. The cost to both sides in the Battle of the Atlantic was extremely steep.

On 28 May 1945, the U.S. Navy and British Royal Navy issued a joint statement: "Effective at 2001 this date, Eastern Standard Time (0001 29 May Greenwich Mean Time) no further trade convoys will be sailed. Merchant ships by night will burn navigation lights at full brilliancy and need not darken ship."

Sources include: "Kill or Be Killed? The *U-853* Mystery" by Adam Lynch, in *Naval History Magazine*, Vol. 22, No. 2, June 2008; "Operation Teardrop Revisited" by Philip K. Lundberg, in *To Die Gallantly: The Battle of the Atlantic*, edited by Timothy J. Runyan and Jan M. Copes (Boulder, CO: Westview Press, 1994); "The Treatment of Survivors and Prisoners of War, at Sea and Ashore" by Dr. Philip K. Lundberg, in *International Journal of Naval History*, Vol. 13, Issue 1, April 2013; *History of United States Naval Operations in World War II, Vol. X: Victory in the Atlantic*, by Samuel Eliot Morison (Boston: Little, Brown and Co., 1956); NHC *Dictionary of American Fighting Ships*(DANFS) for U.S. ships; u-boat.net is also a very useful site.