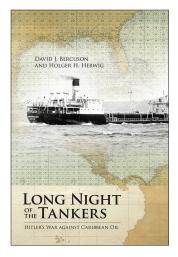


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## LONG NIGHT OF THE TANKERS: HITLER'S WAR AGAINST CARIBBEAN OIL

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# WAR BENEATH THE SOUTHERN CROSS

On June 1, 1942, the brand new Type IXC *U-157* departed Lorient under the command of Korvettenkapitän Wolf Henne, bound for the waters between the Bahamas and Cuba. Born in 1905 at Fuzhou, China, Henne had joined the navy in 1924 and had served mainly on torpedo-boats until he was seconded to the Submarine Service in March 1941. *U-157* set course for the mouth of the Mississippi River via the Old Bahama Channel and the Florida Straits. It arrived off the north coast of Cuba less than two weeks later. Just before midnight on June 10, Henne spied the lone American 6,400-ton tanker *Hagan* running northeast at about ten knots. It was carrying 22,000 barrels of blackstrap molasses from New Orleans and Antilla to Havana. At 2 a.m. the next morning, the Kaleu fired two torpedoes at *Hagan*; one struck its starboard quarter below the waterline in the engine room; the other the port side fuel bunkers, spraying burning oil over the ship. The tanker sank rapidly by the stern, but 38 crew members managed to scramble into two life boats and make their way to shore.<sup>1</sup>

The Commander of the Gulf Sea Frontier, Rear Admiral James L. Kauffman, ordered "all available forces, both air and surface ... to hunt this submarine to exhaustion and destroy it." A radar-equipped Army Air Forces B-18 out of Key West spotted *U-157* on the surface at first light on June 11. It swooped in for the attack. But the bomber's bay doors were not fully open as it passed low over *U-157*: a startled Henne executed an emergency dive as the B-18 swung around for a second pass at 300 feet. This time it dropped four depth bombs, but all missed their mark. Henne apparently surfaced as soon as the hostile disappeared because *U-157* was

spotted about four miles further west very shortly after by a Pan American World Airways passenger plane.

Admiral Kauffman dispatched more B-18s to search the area while a small flotilla of 14 antisubmarine warfare vessels sortied from the ASW schools at Miami and Key West to the waters east of the Florida Straits between Key West and Havana. The force included several old destroyers – *Noa*, *Dahlgren*, and *Greer* – as well as the Coast Guard cutters *Thetis* and *Triton*. The surface vessels failed to make contact during daylight on the 11th, but a B-18 flying from Key West spotted *U-157* on its radar after nightfall the next day. Henne was running doggedly for the Gulf of Mexico under the cover of darkness. Kauffman recalled the Miami ships but ordered the force from Key West to search the area about 90 miles southeast of there.

USS *Thetis* was a 165-foot "B" Class cutter designed and built to enforce prohibition. It and its *Thetis*-class sister ships were created to patrol the offshore waters of the United States to detain smugglers' mother ships that offloaded illegal alcohol to smaller, speedier vessels, which took their cargoes ashore. But as *Thetis* patrolled the waters between Florida and Cuba on June 13, 1942, booze was the last thing on the mind of its commander officer, Lieutenant Nelson C. McCormick. His academic career was far from distinguished – he had graduated near the bottom of his Coast Guard Academy class in 1935 and, as a consequence, only received a temporary commission until late 1937. But by 1942, he had served on three different cutters and in command of *Dione* had gained a good deal of experience hunting submarines off Cape Hatteras, North Carolina.

Thetis began its search for *U-157* at about 2:00 p.m. on June 13. Two hours later, the cutter's soundman picked up a solid contact. McCormick ordered an immediate depth-charge attack, heeling *Thetis* about at 14 knots and charging straight over the target. He dropped seven depth charges from the stern racks at five-second intervals and two more off both sides by the cutter's "Y" guns. They were set for 200 and 300 feet, and it was not long before debris and fuel oil roiled to the surface. The crew fished a couple of pairs of leather pants, some wood planking and an empty grease tube with "Made in Düsseldorf" from the water. Five other ships made runs on the target, but *Thetis* was given credit for the

kill. *U-157* was the first German casualty of the Caribbean campaign. The second was to be *U-158*.

Like U-157, U-158 was on its second war patrol, having departed Lorient for the Gulf of Mexico on May 4 under the command of Kapitänleutnant Erwin Rostin. He had joined the navy in 1933 and commanded the minesweepers M-98 and M-21 before joining the Submarine Service in March 1941. On his first war patrol off the US east coast, Rostin had sunk or damaged seven ships of 54,049 tons. He began his second war patrol, en route to the Gulf of Mexico, on May 20, by torpedoing the British 8,113-ton tanker Darina. His next sinking came two days later – the Canadian 1,748-ton cargo ship Frank B. Bair. But Rostin's greatest successes were scored after U-Boat Command ordered him to pass the Florida Straits and to patrol the coast of Mexico from the Yucatán Channel to Tampico, the country's primary oil port. In what was to become the most successful war patrol by any U-boat in the Americas, between May 20 and June 29, Rostin sank twelve ships of 62,500 tons.3 On June 28, Admiral Karl Dönitz radioed the Kaleu the news that he had been awarded the Knight's Cross. Rostin then headed home, again via the Florida Straits.4

Rostin was a skilled U-boat commander who had chalked up a total of 19 ships of 116,500 tons sunk or damaged on his two war patrols. But, like his fellow skippers, he had a bad habit (as ordered) of constantly reporting to Dönitz in Paris. Even though the Allies could not read his signals, they could follow his call signs and triangulate his positions with High-Frequency Direction-Finding. As a result, Rostin was tracked almost daily as he dodged American ASW patrols in the Florida Straits and headed for Bermuda on his way back to Lorient. On June 29, he stopped the Latvian 3,950-ton freighter *Everalda* and forced its crew to scuttle it under threat of shelling from his 10.5-cm deck gun. This, too, he reported to Paris. And this signal was also picked up and an estimate made of his speed and course.<sup>5</sup>

At 3:45 p.m. on June 30, a new US Navy Martin Mariner from Patrol Squadron 74 (VP-74) flown by Lieutenant Richard E. Schreder, a naval reservist based at Hamilton, Bermuda, searched for *U-158* in the waters near that island. The Mariner was a large twin-engine flying boat, which had first entered US Navy service in the fall of 1940. With a range in excess of 3,500 miles, radar-equipped, and a large carrying capacity for



The Consolidated "Mariner" (PBM-3) served the US Navy as a patrol bomber or transport. The crew of nine men was armed with 50-calibre machine guns and bombs. Source: Library of Congress, Prints & Photographs Division, FSA/OWI Collection, [reproduction number, LC-DIG-fsa-8b08013 (digital file from original neg.)].

ASW weapons, it was an ideal sub hunter. While flying above scattered cumulous clouds at 3,500 feet, Schreder's radar man detected a target three miles off the starboard beam.<sup>6</sup> It was carelessly running on the surface. Schreder, flying at 175 knots, swung the Mariner to the right while descending rapidly through the clouds before steadying on a course right up the U-boat's stern, 75 to 100 feet above the water. It took a minute-and-a-half before the large flying boat was on *U-158*'s wake.

The Mariner's bow machine guns opened fire and jammed almost immediately. Schreder was now so close to the sub that he could see "about fifteen men" lounging on the bridge tower and looking up at his aircraft. Two demolition bombs and two Mark XVII depth charges were ready in the plane's open bomb bay, but the demolition bombs failed to release. Of the two Mark XVIIs dropped, one exploded under the submarine's

stern and the other crashed through the wooden deck slats about 15 feet aft of the tower and lodged there. At about the same moment as the first charge exploded under the stern, *U-158* began a crash dive. The Mariner flew over the boat and as Schreder set up to make another attack, a large explosion rent the sea and a very large dark oil slick began to spread on the surface. Schreder later concluded that the second depth charge, wedged against the U-boat's hull, must have blown up when the submarine descended to the depth at which the charge was set to explode. It was the end of Rostin and *U-158*.

\* \* \*

The cruel nature of the U-boat war for Allied merchantmen was an individual affair – survival or death – from master down to seaman. When Albrecht Achilles' *U-161* torpedoed the 8,000-ton steamer *Scottsburg* in the engine room and the number one hold off Grenada around dusk on June 14, Merchant Seaman Archie C. Gibbs joined 43 of his mates in two lifeboats. The next morning they were spotted by two patrol planes, as was a lifeboat with survivors from the 5,000-ton steamer *Cold Harbor*, which Jürgen von Rosenstiel had sunk northwest of Trinidad that same day. By afternoon, the 6,062-ton Matson Line freighter *Kahuku* had rescued the 112 men in the three lifeboats. Since *Kahuku* had only two lifeboats, Master Eric Johanson decided to tow a third boat behind his ship – just in case. He shaped a course for Trinidad.

Kahuku never made it. Some time after 9 p.m., about 90 miles west of Grenada, Ernst Bauer's *U-126* dispatched Johanson's vessel with a single torpedo. The men on board panicked and lowered the two lifeboats while Kahuku was still moving; 17 drowned as a result of their rash action. Gibbs made for the ship's stern and slid down a rope to his old lifeboat. He missed the raft as it glided by in the darkness. He retrieved a flashlight from a small bag around his neck and frantically began to signal for help. It came quickly – in the form of *U-126*. Fished out of the water by Bauer's crew, Gibbs was taken to the conning tower and for an hour watched helplessly as the Kaleu fired two more torpedoes into the Kahuku, then finished it off with 30 rounds from the deck gun. Later, Gibbs was fed what he called a "poor" diet of canned stew, vegetables, apricots, and peaches.

On the morning of June 18, Kapitänleutnant Bauer brought his captive up on deck. A small motor skiff, the Venezuelan *Minataora*, stood off to the side. The skipper ordered Gibbs to swim for it. He was hauled out of the water. By way of pigdin English and hand signs, he was informed that the vessel was carrying food and six cases of rum – as well as two Venezuelan prostitutes en route from LaGuaira. Some 40 miles off Willemstad, an unidentified U-boat fired five rounds from a machine gun at the *Minataora* and hailed it to halt. The U-boat's captain ordered yet another Allied sailor to swim toward his rescue. Later that day, Gibbs and his companion were safely landed in the Curação capital.

Saving survivors almost never occurred in the cold seas of the North Atlantic. There, bad weather, rough seas, darkness, the need for the U-boats to keep moving under the growing threat of Allied escorts and ASW aircraft – not to mention official policy which forbade rescuing survivors – all militated against such efforts. But the warm waters of the Caribbean and the more leisurely pace of life on board the U-boats seemed to create a more permissive attitude toward the rescue of one or two individuals. Besides, the U-boat commanders liked to surface alongside boatloads of survivors, question the crew as to the name, course, and cargo of their ship, and even pass over food and water to ease their passage somewhat. These very real events, combined with the ever-present rumors of U-boats re-provisioning at Vichy French Martinique, led to bizarre tales of what German submariners did when they were not sinking merchantmen.

Uninhabited islands off the Yucatán Peninsula, in the Bahamas, and in the Virgin Islands were havens for submarine crews who could air out their boats, swim in the warm Gulf Stream waters and catch fresh fish. One prominent historian of the Caribbean campaign writes: "Nearly all the boats in those golden days [the early period of the campaign] took an occasional day off to rest and recuperate." He tells of boats stopping at small obscure ports to buy provisions and even "female company." The most intriguing tale – never substantiated – tells of a U-boat commander stopping a small inter-island steamer and, after warning the captain not to continue on his journey, producing ticket stubs to a movie then being shown in Port of Spain's leading theater and highly recommending the movie.<sup>8</sup>

\* \* \*

After he had torpedoed the *Scottsburg* at dusk on June 14, Achilles decided to head west to scour the eastern terminus of the Panama Canal for prey. En route, he came across the small Dominican sailing vessel Nueva Altagracia. It was a wonderful bag, full of fresh fruit and chickens. "Ajax" took its crew of eight on board and dispatched the 30-tonner with a single shot from the deck gun. Once underway again, U-161's cook, Helmut Baier, decided to relieve the monotony of the war patrol. As the eight Dominicans huddled on the foredeck, Baier suddenly appeared from the forward hatch - scruffy beard, flowing blond wig, bare upper torso smeared with cooking oil, and a long butcher knife in his hand. Menacingly, he strode up and down the line of captives before selecting a frightened young cabin boy – to pluck the dead chickens still lying on the deck. After a delightful dinner that night, Achilles stopped another Dominican sailboat, Ciudad Trujillo, "liberated" more fresh fruit, threw its cargo of corn overboard, and placed his eight captives aboard for transport to Curação. On June 20, *U-161* effected a prearranged rendezvous with Helmut Witte's *U-159*. Lying under the protection of the Venezuelan shore, the two boats tied up alongside one another. Achilles took on 20 cbm of fuel oil and rations for seven weeks.

Day after day, tropical rain showers pelted the boat and made life below decks a humid, moldy hell. By June 22, *U-161* stood off Colón, Panama. Achilles was quickly reminded yet again of how the balance in the U-war was shifting. The port was defended by a small armada of destroyers. Tethered observation balloons kept a sharp lookout for intruders while flying boats and wheeled aircraft constantly buzzed overhead. *U-161* was forced to remain submerged for most of the rest of June. On the few occasions when it dared surface, tropical showers and the heavy spray produced by the strong trade winds reduced visibility to a few meters.

After being driven below the surface four times by aircraft on June 30, Achilles shaped a course for Puerto Limón, Costa Rica. From offshore, he spied smoke rising from the port's piers. It was almost too good to be true: a perfect repeat of his earlier attacks on Port of Spain and Castries. In broad daylight, just before 2 p.m. on July 2, he took the submerged *U-161* into the harbor, carefully weaving his way around rock formations

and sandbars. Tied up at the pier was a single steamer of the United Fruit Company. Achilles retraced his steps out to sea, determined to deal with the vessel later that night.<sup>10</sup>

At 10 p.m., *U-161* was back inside Puerto Limón harbor. The piers were well lit and the city only partially darkened. Range: 1,650 meters. Achilles fired two "eels" from the stern tubes. Both ran true. "After 105 seconds, first hit under the bridge at 1,650 meters. High fire column, steamer goes down by the bow." The second torpedo hit amidships. "Strong, bright detonation." Then the freighter disappeared from view as the lights in the port were doused. Still, Achilles had been able to make a positive identification: "Steamer was American 'San Pablo,' 3,305 tons." The torpedoes had struck as the freighter was unloading its cargo; one crew member and 23 stevedores died in its hold. As confusion and fear gripped the port, "Ajax" once again made good his escape.

The sinking of the *San Pablo* greatly alarmed US authorities. If a single U-boat could penetrate Puerto Limón with impunity, then Colón, just 100 miles away guarding the Panama Canal, surely was equally vulnerable. Within days, work began on a massive minefield across the mouth of the port; coastal defense guns and infantry arrived; US Navy vessels were routinely stationed at Limón; and construction had begun on an airfield. Yet again, with a single dashing entry into a harbor, Achilles had set in motion a gigantic Allied effort to defend Caribbean ports against the feared "ferret."

By now down to 45 cbm of fuel oil, Achilles decided to return to Lorient, more than 4,000 nautical miles to the east. He drove *U-161* past Jamaica and left the Caribbean via the Windward Passage, off the coast of Haiti. To keep the crew alert, shortly after 9 a.m. on July 16, he ordered a practice dive some 500 miles north of the Virgin Islands. "Alarm! Convoy at 300 degrees!" The bridge watch had spotted the fast convoy AS-4 headed for Sierra Leone. Its freighters were arranged in four columns and seemed to be escorted by only two Gleaves-class destroyers. Achilles decided at once to position *U-161* inside the convoy, between the escorts and the biggest steamers. The sea was smooth as glass. But this time "Ajax" had put his hand in the proverbial wasps' nest. AS-4 was a special fast military convoy out of New York on personal orders from President Franklin D. Roosevelt to resupply British Eighth Army after it had been driven out of

Tobruk and back to Egypt by Erwin Rommel's Afrika Korps. Hence, it was especially well escorted by two cruisers and seven destroyers.

*U-161*'s hydrophone operator picked up the deadly ASDIC "pings" at 3,000 meters. <sup>11</sup> Undaunted, Achilles maneuvered the boat to loose a full bow spread at the nearest large vessels. He was about to fire, when at 9:42 a.m. the entire convoy sharply wheeled ten degrees to starboard. There was not a moment to lose. Four torpedoes raced out of their tubes. After 215 seconds, the Kaleu heard what he called a "short, weak, cracking detonation" at 3,300 meters. No visible confirmation. Thirty-four seconds later, he saw two detonations on what he took to be a 9,000-ton freighter. No confirmation of a hit from the fourth shot. "Emergency Dive!" Achilles took the boat down to 160 meters. He heard another explosion, perhaps the victim's engines, bulkheads, or cargo. Then depth charges went off all around *U-161* "in no discernible pattern." The blasts from the detonations ruptured the outer door of Tube I and the balance valve in Tube II; sea water seeped into the boat through both tubes; the bilge-pump filter in the control room began to leak. Nothing serious, Klaassens assured him.

After an hour, Achilles brought *U-161* up to periscope depth. A destroyer was off in the distance at 5,000 meters; another closer still at 2,000 meters. Cool as ever, "Ajax" had the technical crew replace the bilge-pump filter. Suddenly, the hydrophone operator reported rapidly approaching fast propeller noises. The Old Man took *U-161* down to 120 meters. Just in time: four depth charges rocked the boat severely. For nine hours, the destroyers USS *Kearny* and *Wilkes* savaged the boat. *U-161*'s ever-terse war diary gave some idea of the constant pounding:

11:58 a.m. Out of action: all glass depth gauges; depth indicator outside control tower; repeater compasses; internal depth indicator, and lesser outages.

5:52 p.m. Outage of port [electric] motor due to burnout of thrust bearing caused by increasing water intake in the aft-ship.

6 p.m. to 9 p.m. Constant detecting noises from 3 destroyers.... Go down to 140 meters.... Irregular depth charges off in the distance.

Shortly before midnight, the hammer blows suddenly stopped. Achilles took *U–161* back to the surface. Though severely mauled, the boat resumed the homeward trek to Lorient.

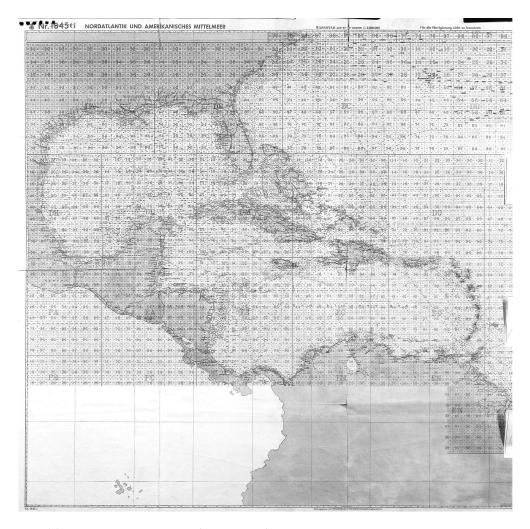
Achilles' one confirmed "kill" out of Convoy AS-4 was the American 6,200-ton freighter *Fairport*. It was a grievous loss. In the rush to resupply the British in North Africa, the Americans had loaded 300 brand new Sherman tanks into fast cargo ships – without their engines. These were later loaded into a single ship, the *Fairport*. All 300 engines went down with it. The *Kearney* had broken off its pursuit of *U-161* to rescue 133 seamen and US Army personnel.

At 4 p.m. on July 22, *U-161*'s bridge watch joyfully sighted Lieutenant Wolf-Harro Stiebler's "milk cow" *U-461*, appropriately adorned with a nursing she-wolf on its tower. *U-161* took on board 40 cbm fuel oil, 1 cbm lubricating oil, and provisions for eight days. Most welcome were the fresh bread, fresh meat, and fresh lemons. The doctor on board *U-461* tended to *U-161*'s numerous cases of boils, heat sores, stomach disorders, and diarrhea. In heavy seas, *U-161* then pointed for Lorient and at 3:37 p.m. on August 6, it docked beside the hulk *Isére*.

Achilles received yet another hero's welcome. He had completed a record war patrol lasting 102 days and had destroyed three freighters of 17,500 tons. Admiral Dönitz in his evaluation took due note of the difficulty of the patrol: "Very long patrol by the boat, which, without blame to the commander, brought only minimal success despite determined, proper procedures." U-161 would require five weeks of repairs at the Kéroman bunkers.

In a special report to Dönitz, Achilles took stock of the effect of such long war patrols in tropical waters. Overall, morale had remained high – despite the constant attacks by aircraft. But fatigue had set in by the tail end of the patrol. Especially the technical crew manning the electric motors when the boat was submerged often worked for hours in 39-degree Celsius heat. The men suffered from skin sores, boils, digestive disorders, and exhaustion. The canned bread spoiled far too quickly and malnutrition added to the sailors' woes.<sup>13</sup>

The three boats of the special Brazil group had torpedoed 96,000 tons of Allied shipping. Overall, the 13 boats operating in the Caribbean from April to July 1942 had shattered all existing records: 95 confirmed "kills"



The German Navy's grid chart (Quadratkarte) of the Caribbean basin, showing the quadrants to which the boats were directed by U-Boat Command in France. Source: Federal Military Archive, Freiburg, Germany.

for a total of 483,000 tons. A single boat, Rosenstiel's *U-502*, was lost in the Bay of Biscay on its way home. On his wall charts at U-Boat Command in Paris, Dönitz cheerfully noted the record "kill ratio" of 95 to 1. He could only surmise that *U-157* and *U-158* would not be coming home.

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On May 16, 1942, all U-boats received instructions from Dönitz to attack without warning all armed merchant ships belonging to Central and South American states that had broken off diplomatic relations with Germany, "that means, all states with the exception of Argentina and Chile."14 The order drove Brazil closer to a declaration of war and to an active role in fighting the "gray sharks" in the South Atlantic. Rio de Janeiro had watched anxiously in the late 1930s as Adolf Hitler brought Europe closer to war. In November 1938, the Brazilian ambassador to the United States, Mario de Pimentel Brandáo, advised Foreign Minister Oswaldo Aranha that Brazil would inevitably have to decide between Germany and the United States. Cyro de Freitas Valle, Rio's ambassador to Germany, echoed these concerns when he reported that Hitler's plans for the future included global spheres of influence based on a German-dominated Europe, a US-dominated western hemisphere, and a Japanese-dominated East Asia. Under such circumstances, he asked, would it not be better for Brazil to ensure that it was tightly within the American orbit?<sup>15</sup>

This notwithstanding, President Getúlio Vargas played it cagey with the United States; his primary interest was, quite naturally, to wring as many American economic and trade concessions as possible while at the same time building up Brazil's defenses. He may have underestimated the fear growing in Washington that Axis influence in Brazil was rising to unacceptable levels; in late May 1940, Roosevelt approved Operation Pot of Gold, whereby 100,000 American troops would seize key spots along Brazil's coast from Belém to Rio de Janeiro. Fear of such action and important US concessions on building a major steel mill in Brazil changed matters very quickly. At the end of September 1940, the Brazilian government decided that in the event of a German attack, all of the nation's resources would be placed at the disposal of the United States. Shortly after, the Vargas government granted Pan American World Airways the right to fly directly from Belém to Rio, thus cutting three days off the trip, and quietly allowed the United States to begin setting up bases in Brazil's northeast, particularly on Fernando de Noronha Island.

The small bases in the northeast were just the start of a major American presence in Brazil. In November 1940, the US Army negotiated a

secret agreement with Pan American to set up a chain of airfields from the United States to the Brazilian northeast. The American base at Parnamirim, Rio Grande do Norte, as well as others, especially at Belém, Natal, and Recife, became major jumping-off places for flights ferrying US aircraft to British forces in the Middle East even before either Washington or Rio entered the war. After Pearl Harbor, the US Navy began operating in Brazilian territorial waters with Vargas' permission, even though Brazil was still neutral. At the Rio Conference of January 15 to 28, 1942, Rio supported Washington's efforts to persuade all of the Latin American nations (with the notable exceptions of Argentina and Chile) to cut diplomatic relations with Germany. Thereafter, U-boat attacks on Brazilian shipping mounted, with four vessels lost in February and March. In April, Vargas demanded that the United States provide convoy escorts and arms for Brazilian merchant ships, or he would embargo them; but a month later, he met with Vice Admiral Jonas H. Ingram, Commander, US Navy South Atlantic Force, and took the extraordinary step of secretly opening Brazil's ports, repair facilities, and military airfields to the US Navy. And ordering the Brazilian military to cooperate fully with Ingram's command. In May, Brazil lost another four freighters to the U-boats.

Hitler, outraged over what he considered to be Brazil's blatantly pro-American basing policy, demanded on June 15, 1942, that the Kriegsmarine launch a sudden strike against Brazilian ports by ten submarines. Dönitz reluctantly agreed; Foreign Minister Joachim von Ribbentrop did not. He vetoed the scheme for fear that it would alienate the pro-German governments in Buenos Aires and Santiago de Chile. The operation was canceled on June 26. 17

Still, Dönitz was not displeased when late in July Korvettenkapitän Harro Schacht, who had scored no "kills" off the coast of Freetown, Africa, requested permission to take his *U-507* across the Atlantic to Brazil. He readily approved the request – provided that Schacht was "extremely careful" not to sink Argentinean and Chilean ships and that he not attack Brazilian harbors. A long-time veteran – he had joined the navy in the spring of 1926 – Schacht had served on the light cruisers *Emden* and *Nürnberg* before joining the U-Boat Service in June 1941. The newly commissioned *U-507* was his first command.

Schacht's one-boat foray became a veritable slaughter for Brazilian shipping: beginning on August 16, and operating so close to shore off Arajacu and Sergipe that he could watch the locals playing tennis, he sank five ships for 14,822 tons in just two days. One of his victims that first day, the 4,800-ton *Baependy*, went down with 250 soldiers, seven officers, two artillery batteries, and other equipment; two others (the 4,800-ton *Araraquara* and the 1,900-ton *Annibal Benévolo*) sank with the loss of 131 and 150 passengers and crew, respectively. Schacht's actions caused an uproar in Brazil, with the result that Foreign Minister von Ribbentrop, again fearing negative repercussions in Argentina and Chile, demanded that the U-boats remain 30 miles offshore.

Schacht assured Dönitz that he had operated well outside Brazil's territorial waters and that none of the ships attacked had displayed either national flags or "neutrality signs." Then, on August 19, he brutally shelled the 90-ton yacht *Jacyra*. It was the proverbial last straw: three days later President Varga's government declared war on Germany. Just for good measure, Schacht that same day sank the Swedish 3,220-ton freighter *Hammaren* with five torpedoes and eight rounds from the 10.5-cm deck gun.

In September 1942, Vargas gave Admiral Ingram full authority over Brazilian air and naval forces and complete responsibility for the defense of the long Brazilian coastline. Equipped with new US-built sub-chasers and a growing fleet of eight former American destroyer escorts and Brazilian-built, British-designed Marcilio Diaz-class destroyers (adding to its existing small and mostly obsolescent fleet), Brazil's navy helped immensely to throttle German blockade runners and U-boats crossing the Atlantic narrows between French West Africa and the Brazilian "bulge." In the words of the official history of the Royal Navy in World War II: "The Allied shipping control organisation could now be extended almost to the great focal area off the River Plate ... but an even greater advantage was the stronger strategic control of the whole South Atlantic gained from the use of Brazilian bases."20 American flying boats heading out to sea became a daily sight over Rio and São Paulo. As one expert on Brazil's role in World War II wrote: "It is incorrect to say that unwarranted German aggression compelled Brazil to become a belligerent. Vargas's policies were unfolding to their logical conclusion." However, the U-boat attacks in August 1942 "stimulated public support for mobilization and for unreserved alignment with the Allies."<sup>21</sup>

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In late summer 1942, Commander U-Boats reassessed the operational effectiveness of the three waves of boats that he had sent out to the Caribbean. The balance sheet was not entirely positive. Vastly enhanced Allied ASW – through surface escorts with "Huff Duff" and centimetric radar, but especially through bombers equipped with new air-to-surface-vessel (ASV Mk.II) radar with a range of between one and 36 miles as well as 22-million candlepower Leigh Lights installed under their fuselages – was taking a heavy toll on the U-boats. Dönitz and his staff faced a cruel dilemma: the large Type IX boats could operate in the Caribbean for up to four weeks thanks to the "milk cows," but they were unwieldy and slow in evading hostile air attacks; the smaller Type VII boats were much more maneuverable, but they lacked the necessary sea legs for Caribbean operations. Moreover, Hitler, fearing an imminent Allied invasion of North Africa, ordered Dönitz to transfer six Type VII submarines from the Atlantic to the Mediterranean, where four of the boats were soon lost.

On September 28, 1942, Grand Admiral Erich Raeder, Commander in Chief, Navy, and Admiral Karl Dönitz, Commander U-Boats, met with Hitler at the Reich Chancery in Berlin for two hours to discuss the overall situation. Raeder, in fact, had not wanted the meeting and as late as September 13 had refused to invite Dönitz to meet with Hitler. As always, Hitler got his way. The Führer began by heaping "great praise" on the "Volunteer Corps Dönitz." It, of all the service branches, seemed to appreciate fully his notion of Kampf, of struggle first and foremost. The "moral impact" of sinking merchant tonnage alone, Hitler allowed, greatly affected the Allied war effort. American new construction, despite the most blatant Rooseveltian "propaganda," could never balance losses at sea. And the mere production of "hulls" could not overcome the dearth of men and machines to sail them.<sup>22</sup> He suggested two enhancements of the U-boat campaign: "new technical developments" to allay the Allies' ASW campaign needed to be rushed to the front as quickly as possible so that they could be "practically deployed"; and something needed to be done

about the "large number of sunken ships' crews" that somehow managed to survive torpedoing and to "return to the sea on newly-built ships."

Dönitz replied in his usual cold, rational way. The cost-effectiveness of U-boat warfare along the eastern seaboard of the United States had been vastly reduced by enhanced ASW efforts; thus, he was moving the war patrols back to the mid-Atlantic and to the South Atlantic, off the coast of Africa. He maintained that morale among his skippers remained high; that the enemy would not be able to offset tonnage torpedoed with tonnage built; and that greater deployment of airpower in the form of longrange Heinkel-177 bombers as well as U-boats with faster speed while submerged could help Germany regain the initiative in the Battle of the Atlantic.

Left unspoken was that the U-Boat Service still enjoyed superiority in the area of codebreaking.<sup>23</sup> In February 1942, Dönitz's engineers had introduced a fourth rotor (*alpha*) to the Enigma machine. Called "Triton," the new M4 cipher raised the number of possible variations, or "cribs," from 16,900 to 44,000. It blinded British codebreakers at Bletchley Park for most of 1942. Conversely, Naval Intelligence (*B-Dienst*) was now reading the Allied Cypher Number 3 with sufficient speed to allow U-Boat Command to use the information tactically against Allied convoys.

Concerning Hitler's suggestion to rush "new technical developments" to the front, Dönitz had several innovations ready. His commanders had reported in detail on the Allies' deadly combination of ASV radar and the Leigh Light. The answer seemed to lie in the area of radar detection. The French firms Metox-Grandin and Sadir had developed a VHF-heterodyne receiver that, in combination with a primitive wooden aerial (Biscay Cross), could pick up incoming radar beams and alert a U-boat's crew by a loud "pinging" in the receiver. The Metox receivers were installed in U-boats beginning in August 1942.

As well, German boats were outfitted with *Bold* sonar devices. Short for *Kobold* (goblin), these 15-cm diameter capsules filled with a calcium and zinc compound could be released from the stern of a submarine by way of a special ejector. They were designed to maintain neutral buoyancy at 30 meters depth and, upon contact with seawater, to produce hydrogen gas that in turn created bubbles. To Allied ASDIC operators, these bubbles would resemble the "echo" produced by true submarine contacts.

Interestingly, when Hitler had demanded production of such a device on September 28, Dönitz had been cool to the idea as it "might mean the regrettable loss of a torpedo tube."<sup>24</sup>

Finally, the "gray sharks" received anti-radar decoys designed to create more false radar echoes. Codenamed *Aphrodite*, the system consisted of eight-meter-long aluminum foil strips or dipoles attached to a 120-meter-long wire that connected a large hydrogen-filled balloon to a sheet anchor. Crews were instructed on how to inflate the balloon on deck and then simply to toss anchor, wire, aluminum strips, and balloon overboard. *Aphrodite*, approved by Hitler in summer 1942, was operational by September. The Battle of the Atlantic was becoming a chess game between white-smocked engineers while the growing number of sunken tankers and bauxite carriers continued to foul the azure waters of the Caribbean.