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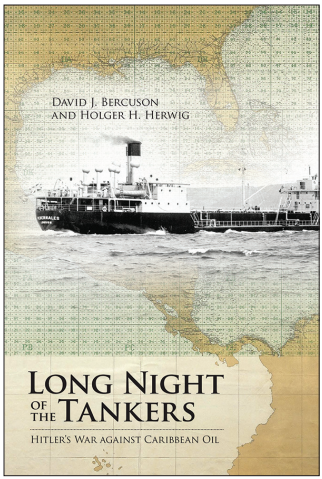

LONG NIGHT OF THE TANKERS: HITLER'S WAR AGAINST CARIBBEAN OIL

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THE ALLIES STRIKE BACK

By the end of 1942, the Caribbean was interlaced with 27 different convoy routes. The intricate convoy network required far more escort vessels than were available. The three main navies fighting the Battle of the Atlantic – the Royal Navy, the Royal Canadian Navy, and the United States Navy – were hard pressed in 1942 to provide escorts in the Caribbean because all three suffered an acute shortage of destroyers and other escort vessels. Almost all new US Navy destroyers were being pushed into the Pacific as fast as they were commissioned. The Royal Navy had been so hard pressed for escorts in the late summer of 1940 that it had been forced to conclude the destroyers-for-bases deal in order to obtain 50 World War I–era American destroyers. The British possessed some 200 escort vessels of all types in the spring of 1942 – including the Flower-class corvettes, lightly armed, slow, coastal defense vessels pressed into service for mid-ocean duty. But the ships were spread out over half the globe: ten (all corvettes) had been transferred directly to the US Navy; 61 were in the South Atlantic, Mediterranean, or the Pacific; 37 were in British home waters; 78 were on the North Atlantic run; and six were on convoy duty to Russia. Only Escort Group B5 was available for full-time duty in the Caribbean, supplemented from time to time by a half dozen other vessels.[1] The Royal Canadian Navy was only able to detach four corvettes and the occasional destroyer to escort oil convoys to and from Canada's east coast. Although the Caribbean was a vital war theater, the North Atlantic remained the most important area of operations, and it came first for all three navies.

* * *

The US Navy was singularly unready even to fight a war in the Atlantic, let alone the Caribbean. There were about 100 destroyers in the Atlantic Fleet at the outbreak of war, but only Task Force 4, operating out of Argentia, Newfoundland, made its destroyers available for convoy escort duty, and only a few of those were detached to subordinate commands such as the Caribbean Sea Frontier. As Vice Admiral Royal E. Ingersoll, Commander in Chief, Atlantic Fleet, later recalled:

> The Sea Frontiers (i.e., Caribbean Sea Frontier) had their own coastal forces but they were small ships and were not really good anti-submarine vessels. The subchasers, of which the navy had a lot, weren't very good. They were one of Mr. Roosevelt's fads.… The submarine chaser was no craft to combat submarines on the high seas.[2]

And yet, after Pearl Harbor, the Americans had little choice but to use their motley fleet in the Caribbean; they had little else. The Naval Operating Base at Port of Spain, Trinidad, was almost denuded of defenses in December 1941, with two 500-ton converted yachts, two patrol craft, four Catalina flying boats of VP-31, and one utility transport, all guarded by a mixed force of 172 Marines and "bluejackets," as the navy called its noncommissioned personnel.[3] Rear Admiral Hoover's odd collection of ships was directed mainly from three headquarters: San Juan, Puerto Rico; Guantánamo, Cuba; and Trinidad. The only rapid reinforcement sent after the attack on Aruba was one additional squadron of PBYs.

Hoover's Caribbean fleet included Roosevelt's cherished sub-chasers. Most displaced 450 tons and had a top speed of 21 knots. They were armed with two three-inch guns, five 20-mm rapid fire anti-aircraft/anti-motor-torpedo-boat guns, two depth-charge throwers, and two depth-charge racks astern. As well, Hoover had at his disposal so-called "Q-ships." They had first been used in ASW during World War I, and followed a long tradition of navies disguising warships at sea as merchant vessels in order to draw in and then destroy unsuspecting enemy warships. In January 1942 the US Navy ordered several "Q-ships" fitted with four-inch guns, .50-caliber machine guns and 20-mm anti-aircraft/anti-torpedo boat guns. The first of these ships – USS *Atik* – was sunk by *U-123*

on the night of March 26, 1942. No one was recovered. No wreckage was found. A German radio report announced that "a Q-boat … was among 13 vessels sunk off the American Atlantic coast … by a submarine only after a 'bitter battle', fought partly on the surface with artillery and partly beneath the water with bombs and torpedoes."[4]

Two of the American "Q-ships" were deployed to the Caribbean. USS *Asterion* operated out of the American naval base on Trinidad and made a few convoy runs westward of Aruba before returning to New York at the end of December. It encountered no German submarines. USS *Big Horn* worked out of Trinidad and Curaçao. On October 16, 1942, it was steaming in the wake of convoy T-19, eastward from Trinidad, when two freighters were torpedoed. Its gunners trained on a periscope but could not open fire without damaging some of the ships in convoy. Not long after, another chance to shoot arose, but a sub-chaser crossed in between *Big Horn*'s guns and the target. On November 10, *Big Horn* was sailing in convoy TAG-20 when U-boats attacked the gunboat USS *Erie*, just 1,000 yards off its starboard bow. But again, the "Q-ship" had no chance to avenge the attack. *Big Horn*'s failure to actually engage a submarine during two convoy attacks and the sinking of the *Atik* on its maiden voyage are apt testimony to the uselessness of the "Q-ship" program.[5]

At President Roosevelt's initiative, the United States mounted a major ship construction program in the late 1930s. Beginning in Fiscal Year 1938, 73 destroyers of the Porter, Somers, Benson/Gleaves, and Bristol classes were authorized, bringing the total of modern destroyers up to 100 by the time of Pearl Harbor. There were minor differences in these different classes of ships, but in the main they were fast and well-armed. Most were immediately sent to the Pacific after December 7, and many of the rest were dispatched to the United Kingdom.[6] One of these was the USS *Lansdowne*. Displacing 1,630 tons, it carried four modern five-inch dual purpose guns, a variety of heavy automatic weapons, depth charge racks and throwers, and a multiple torpedo launcher. On July 13, 1942, *Lansdowne* was designated flagship of Destroyer Division 24 and deployed off the east coast of Panama to help with the recent U-boat onslaught.

Also operating in those waters was *U-153*, a Type IXC boat under the command of Wilfried Reichmann. The Korvettenkapitän was a member of the Class of 1924, and at age 36, senior in years. But he was

inexperienced – while bringing *U-153* from the Baltic Sea to the Bay of Biscay in November 1941, he had collided with another brand new boat, *U-583*; the latter was lost with 45 men on board.[7] Reichmann left Lorient on his first war patrol on June 6, 1942. On June 25, he sunk his first ship, the 5,268-ton British steamer *Anglo-Canadian* (ironically, this ship had survived a Japanese air attack on April 16, 1942, in the Bay of Bengal), southeast of Bermuda. His next victim, sunk two days later, was the 6,058-ton American vessel *Potlatch*, with a cargo of trucks and tanks; 49 crew members abandoned ship and spent 32 days in a lifeboat drifting from one uninhabited island to another before landing in the Bahamas. *Potlatch* was east-northeast of Guadeloupe Island when it sank – *U-153* was moving across the Caribbean toward the coast of Colombia. Sure enough, two days later, another American ship, the 4,833-ton *Ruth* fell to Reichmann's torpedoes northwest of Great Inagua Island.[8] By then, *U-153* was hunting close to the coast of Panama. Reichmann may have been unaware of the large number of US planes and aircraft operating out of Cristóbal. On July 5 and 6, he was twice caught on the surface by B-18 bombers of 59th Squadron north of Bahía de Portete, Colombia. In the second of these attacks, the bomber carried out a beam attack and dropped four depth charges before *U-153* slipped beneath the surface.

USS *Mimosa* was a small, 560-ton net tender armed with a single three-inch gun, and with a top speed of 12.5 knots. It was about 60 miles off Almirante, Panama, in the evening of July 11, having laid antisubmarine nets off Puerto Castilla, Honduras. *Mimosa* should have made easy pickings for *U-153*, which fired no fewer than five torpedoes at this relatively insignificant target, but all missed. Reichmann's very poor shooting may have resulted from a gross underestimation of *Mimosa*'s draft and size, or from desperation. No one will ever know. *Mimosa* immediately radioed word of the attack, bringing a PBY out at 4 a.m. It detected *U-153* on the surface, dropped flares and then four depth charges. The sub went deep, but not deep enough. Over the next 24 hours Patrol Craft 458 – which had followed the PBY to the scene – and several other aircraft kept vigil over the general area where the U-boat was last seen. At 10:13 a.m. on July 13, PC-458 spotted an oil slick and dropped its remaining complement of six depth charges. The aircraft followed suit but, other than the oil slick, there was no sign that the U-boat had been destroyed.

That same day, USS *Lansdowne* arrived with a convoy at Cristóbal. Its skipper, Lieutenant-Commander William R. Smedberg III, was ordered out of harbor at flank speed to join the hunt. *Lansdowne* reached the scene at 6:30 p.m. and slowed to begin a sonar search. Fifteen minutes later: contact! Smedberg maneuvered his ship into attack position and dropped 11 depth charges. At first, there was only the usual roiling of the sea. Then came the unmistakable sound of an underwater explosion, followed by a great spreading slick of fuel oil. *Lansdowne* claimed a kill; postwar records confirmed the death of *U-153*.[9] After *U-157* (killed by the Coast Guard cutter *Thetis*), *U-153* was the second Caribbean submarine destroyed by the US Navy or Coast Guard.

The US Navy might have done better sinking submarines in the Caribbean in 1942 – given that it was hardly present in the North Atlantic, and given that it had a surfeit of World War I era "flush-deck" destroyers. Although narrow-beamed and top-heavy, they were perfectly suited for Caribbean operations. Yet three were lost or heavily damaged in 1942 – *Blakeley*, *Sturtevant*, and *Barney*.[10] One US Navy officer concluded in a Naval War College paper written in 1996:

> The United States Navy had no effective system of promulgating "Lessons Learned" to units not previously involved in antisubmarine warfare. Therefore, the lack of organization and experience among newly assigned ships and squadrons hastily deployed to the Caribbean, significantly improved the survivability of the U-boats they engaged.[11]

* * *

The Royal Navy's Escort Group B5 began operations in Caribbean waters in mid-May 1942. It initially consisted of the destroyer HMS *Havelock* as escort leader and four Flower-class corvettes. *Havelock* had been under construction for Brazil in a British shipyard when war broke out and was requisitioned for service with the Royal Navy. In early July, B5 covered the WAT/TAW convoys from Key West (later convoys sailed from Guantánamo as GAT/TAG) to Aruba and to Trinidad and back. It was joined for about eight weeks by HMS *Churchill*, a four-stack Town-class

transferred to the Royal Navy in September 1940. B5 covered a lot of sea miles in the Caribbean but sank no U-boats.

Churchill picked up 37 survivors from the American tanker *Franklin K. Lane*, torpedoed by *U-502* on June 9, 1942, northeast of Cape Blanco, Venezuela, and then sank the wreck by gunfire. It rescued another 50 survivors from the *Delmundo*, also an American ship, sunk by *U-600* south of Cape Maisí, Cuba, on August 13, 1942.[12] But several days later, B5 lost two merchant ships – the tanker *British Consul* and the cargo vessel *Empire Cloud* – from a 14-ship TAW convoy outbound from Trinidad, to *U-564*.[13]

Canada, too, became enmeshed in the war in the Caribbean when Chief of the Naval Staff Admiral Percy Nelles ordered two British destroyers under his command – HMS *Burnham* and *Caldwell* – to begin escorting Canadian tankers and ore carriers up from Caribbean ports in late April 1942. Canada had already experienced shortages in oil stocks due to diversions of tankers away from the Canadian trade and the loss of tankers at sea or into repair yards. By the end of April 1942, naval fuel stocks at Halifax and St. John's, Newfoundland, had dwindled to 45,000 tons. On May 22, Ottawa instituted a full-fledged tanker convoy route between Halifax and Port of Spain, Trinidad (HT and TH). The Canadians were so short of escorts that they could only spare four corvettes for the task, two for outbound convoys and two for inbound, thus severely limiting the number of tankers on the runs via either the Mona or Windward Passages.[14] In early July, an additional corvette was assigned in each direction. No tankers were ever lost on these runs.

Late in August 1942, the Commander of Allied Forces Aruba-Curaçao, a US naval officer, ordered the Canadian corvettes HMCS *Halifax*, *Oakville*, and *Snowberry*, as well as the Dutch minelayer *Jan Van Brakel*, to link up with convoy TAW-15, outbound from Trinidad via Aruba to Key West. In the morning of August 27, the convoy – now 29 ships and escorted as well by the US destroyer *Lea* and three small patrol craft of the "Donald Duck Navy" – was spotted by *U-94*, commanded by Oberleutnant Otto Ites.

Ites was only 24 years old but already a decorated veteran with four successful war patrols and a total of 15 ships sunk of 76,882 tons. He first spotted the convoy, arrayed in six columns, just after 6 p.m. as the sunset's

Otto Ites. Another Knight's Cross winner, Kapitaenleutnant Ites commanded *U-94* on four Atlantic and one one Caribbean patrol. He sunk 15 Allied ships of 76,882 tons, before being sunk by depth charges from an aircraft and severe ramming by the Canadian corvette HMCS *Oakville* on 28 August 1942. Ites was among the survivors, and after captivity in the US until May 1946, he became one of the very few U-boat commanders to accept service in the new West German Navy (Bundesmarine). Source: Deutsches U-Boot-Museum, Cuxhaven-Altenbruch, Germany.

radiant beams of orange and red spread over the dark waters. Ites tracked TAW-15 for six hours, while radioing its position; Friedrich Steinhoff's *U-511*, also in the Caribbean, picked up Ites' signals and began to head for the convoy. The sky was clear with the moon shining brightly above. Ites brought *U-94* to the surface and crept into position about three miles astern of the convoy. He penetrated the escort screen through a gap between *Oakville* and *Snowberry*. Suddenly, the dreaded cry from the bridge watch: "Alarm! Aircraft at 235º!" It was a US Navy PBY Catalina, about a quarter mile off the port beam. Its pilot was Lieutenant Gordon R. Fiss, and it carried four MK 29, 650-pound depth charges. Fiss later reported that "the submarine was visually sighted in the moon path … fully surfaced."[15] The Catalina was flying at 500 feet and Fiss knew immediately that he had a good chance of making his bomb run while *U-94* was still on the surface. He flew low over the U-boat and released his depth charges. "A quick glance astern a few seconds later revealed the conning tower becoming obliterated by the bomb upheaval. Members of the crew in the waste hatch stated the stern of the submarine was raised clear of the water." To mark the spot, Fiss dropped a flare into the dark waters.

Ites was lucky. Fiss had set the depth charges at 50 feet; at 25, they would have finished *U-94* off there and then. Still, the boat took a terrible pounding and the pressure wave from the explosions drove it up to the surface. *Oakville* was closest when the Catalina attacked.[16] Sub-lieutenant Hal Lawrence later recalled the moment when he first spotted *U-94*:

> Four plumes of water from the aircraft's depth-bombs were subsiding into a misty haze and showing small, ethereal rainbows in the moonlight.… The aircraft circled in a continuous, tight bank, making S's in Morse code with its signal light.… A flare drifted down, its ghostly radiance matching the moon.[17]

Oakville's skipper, Lieutenant-Commander Clarence A. King, heeled the corvette over hard and headed for the swirl where the submarine had disappeared. "Fire a five-charge pattern," he barked out. As the submarine broke the surface about 100 yards from *Oakville*, King gave new orders: "Stand by to ram!" But Ites managed to maneuver away, and the corvette only struck *U-94* a glancing blow. Then *Oakville*'s four-inch gun, one of

HMCS *Oakville*, the only Royal Canadian Navy vessel to have a confirmed submarine kill within the Caribbean theatre of the Second World War. Image courtesy of the Royal Canadian Navy MC-2725.

its 20-mm Oerlikons, and a .50-caliber machine gun opened up, striking *U-94* on the conning tower and scoring hits on the hull. Again, King turned to ram. But again *Oakville* only scored a glancing blow. King ordered more depth charges, right under the U-boat. Then he swung out for another try at ramming it.

The second and third set of depth charges crippled the boat. Machinery broke loose from its mountings, valves blew, oil hoses ruptured, gauges broke, and urine buckets rolled in the bilge. One of the four-inch shells had blown the boat's 8.8-cm deck gun off its base; another had hit *U-94* "squarely abaft the conning tower." All the while, *Oakville*'s machine guns raked the crippled U-boat with intensive fire; Ites took two bullets in the leg then yelled: "Abandon ship!" *Oakville* turned into the submarine again; this time it rode right over *U-94*. Some of *Oakville*'s sailors threw empty Coke bottles and yelled "partisan baseball invectives" at the Germans, barely 20 feet away. *U-94* wallowed in the moderate sea, without artillery or power.

Lieutenant Hal Lawrence and Stoker Petty Officer A. J. Powell. The unorthodox boarding of *U-94* by Lawrence and Powell became legendary within the history of the Royal Canadian Navy. Image courtesy of the Royal Canadian Navy, H-04137.

King ordered "Away boarding party … Come on Lawrence! Get cracking!" Lawrence, Petty Officer Art Powell, and about 12 other hands made ready to board the submarine as King maneuvered alongside. It was ten feet down from the corvette deck to *U-94*. As the two vessels grated alongside, Lawrence and the others jumped to the submarine's deck. He later wrote: "I was always a romantic youth, and from age ten onward, stories of the Spanish Main were a large part of my literary diet." As he hit the U-boat's deck, he thought, "Mother of God! I really *am* boarding an enemy ship on the Spanish main." Suddenly the belt of his tropical shorts broke; the shorts fell to his feet. He stumbled and kicked them off and with pistol in hand he lurched up the deck towards the conning tower. He and Powell were alone. Someone from *Oakville* opened fire with a machine gun. Bullets snapped through the air and pinged on the submarine's

superstructure; Lawrence and Powell jumped into the water. Then when the shooting stopped they were swept back onto the submarine with the next wave. They moved cautiously toward the conning tower and shot two crew members advancing on them from the hatch. Then Powell shepherded the escaping Germans aft while Lawrence went below to search; he found nothing of value. Sea water had reached the boat's batteries, producing chlorine gas. Lawrence and Powell abandoned the vessel, which sank shortly after. *U-94* was the only submarine destroyed by the Royal Canadian Navy in the Caribbean.[18]

Less than a week later, the Royal Navy scored its first and only kill in the Caribbean theater, just outside the Windward Islands. On December 18, 1941, the British battleship HMS *Queen Elizabeth* was damaged by an Italian human torpedo attack in Alexandria harbor, Egypt. The Royal Navy ordered the battleship to Norfolk, Virginia, for repairs via the Cape of Good Hope and the Azores, escorted by the destroyers HMS *Vimy*, *Pathfinder*, and *Quentin*. On September 3, American destroyers took over escort duties, and the three British destroyers headed toward Port of Spain, Trinidad.

The group was about two hundred miles from its destination at 6:05 p.m. when *Pathfinder*'s radar obtained a contact about 1,200 yards off the port bow. The officer of the watch, Lieutenant C. R. Halins, made ready to attack, but *Pathfinder*'s skipper, Commander E. A. Gibbs, instead ordered the ship to stop so that it could carry out a full sound sweep. The decision was almost fatal. As Gibbs later remembered: "Whilst investigating, [high-speed screw sound] from a torpedo was heard … and a torpedo broke surface ahead and, running on the surface, circled widely to port and narrowly missed *Quentin*."[19] *Pathfinder*'s ASDIC immediately picked up a solid contact at 600 yards.

The "contact" that had fired the torpedo was *U-162*, commanded by none other than Fregattenkapitän Jürgen Wattenberg, one of the Caribbean "aces." He was on his third war patrol and had just torpedoed 30,481 tons of Allied shipping in 11 days, raising his overall total to a whopping 85,662 tons. The watch had spotted one of the destroyers coming straight on from ten miles away, and Wattenberg had taken *U-162* down to periscope depth and prepared a nasty surprise for what he thought was a lone destroyer. For some reason, he was unaware that he had picked a fight

with three well-armed British destroyers. The single bow torpedo that he had fired had broached and run in a circle, "going up and down like a dolphin," passing beside *Quentin*, which was turning for its life. At that moment, the submarine's hydrophone operator screamed out that there was not one, but rather three "tin cans" on a line bearing almost abeam, one mile apart.[20]

No doubt relieved that the torpedo had missed, Commander Gibbs ordered a Mark VII ten-charge pattern, some set at 150 and others at 300 feet. The hammer blows of the 300-lb. warheads shook *U-162* violently, disabling its hydrophones and damaging one of its dive tanks. After *Pathfinder*'s attack, *Quentin* also ran in and dropped a six-charge pattern.[21] The deadly bracket of explosions and the accompanying pressure wave again rocked *U-162*, this time damaging its diving planes and rudders as well as causing a leak in the engine room. Wattenberg had enough. He headed southward, running silently, and took the boat deep: "A+120," an incredible 200 meters. The British destroyers lost contact.

There is no real certainty of what happened aboard *U-162* during these punishing attacks, but Wattenberg now knew he was facing three destroyers and that his boat had suffered major damage. For three hours, he eluded his attackers, heading off in the opposite direction whenever one approached, and slipping behind them when they seemed on the verge of attacking. Once he had put distance between himself and his attackers, around 11 p.m., Wattenberg surfaced. The night was pitch black. A few rain squalls were coming in from the direction of Barbados and Tobago. Good weather for an escape. *U-162* began the run of its life.

But Wattenberg's adversary was equally wily: Commander Gibbs detailed *Vimy*, the only one of the three destroyers with the new Type 271 centimetric radar, to stay put, while he took *Pathfinder* and *Quentin* to sweep eastward. It was a bold move, for by now *U-162* was heading back to the Caribbean on a course of 315 degrees. But luck was with Gibbs: within ten minutes, *Vimy* obtained a contact at 2,800 yards. Its skipper, Lieutenant-Commander Henry G. de Chair, ordered "full ahead both" and opened fire with the forward four-inch gun. But de Chair could not see his target in the glare of the forward gun and ordered cease fire. Suddenly, he saw the submarine stern-on and prepared to ram.

The V-Class Destroyer HMS *Vimy* at anchor. Source: Ken Macpherson Photographic Archives, Library and Archives at The Military Museums, Libraries and Cultural Resources, University of Calgary.

While Wattenberg and de Chair were locked in mortal combat, Gibbs at 11:27 p.m. saw two red signal rockets to the westward, followed by gun flashes and white star shell bursts. Wattenberg had tried one last desperate ruse – two red lights was the current recognition signal for British submarines. Gibbs was not deceived. He ordered *Quentin* and *Pathfinder* to make for *Vimy* at 30 knots. "It was plain to me that either 'Vimy' was sinking the submarine or the submarine was sinking 'Vimy' – I was not at all sure which."[22]

Jürgen Wattenberg knew that he was finished. For the second time in his life – after having been party to the decision to scuttle the "pocket" battleship *Graf Spee* in Montevideo Harbor in 1939 – he ordered a crew to abandon ship. *Vimy* bore in. When the two vessels collided, *U-162*'s hydroplane sliced into *Vimy*'s hull above the waterline and damaged its port propeller. "We were left wallowing alongside the U-boat," de Chair later wrote, "whose crew were on deck wearing lifebelts." No quarter was asked and none was given. De Chair ordered star shell from one of the stern guns and a charge fired at 50 feet over the submarine; all the while, he raked the U-boat with machine-gun fire. The depth-charge explosion

was the last blow: *U-162* went down fast. Wattenberg and all his crew save one were rescued by the British destroyers.

* * *

It was obvious from the beginning of the war in the Caribbean that aircraft would play a major role in the defense of shipping. At best, aircraft could destroy U-boats; at worst, they could force them to submerge, robbing them of their speed, range, and mobility. The first major problem with aircraft was that virtually all those deployed in the Caribbean by the British and the Americans were short-range. Very Long Range (VLR) aircraft, particularly the B-24 Liberator, were in great demand to cover North Atlantic convoys, but very few were available in 1942 even for that most important mission. By the fall of that year, the lack of long-range aircraft in the Caribbean was essentially resolved as the Allies put into use a ring of airfields and seaplane bases from Cozumel, Mexico, to Waller Field, Trinidad, and from San Juan, Puerto Rico, to France Field, Panama. All manner of aircraft were deployed. The British used the venerable Swordfish, the Lockheed Hudson bomber, and the Avro Anson trainer. The US Army Air Forces deployed predominantly B-18 "Bolos" and A-20 "Havocs," but also the occasional B-24 in 1943. Fighters such as the P-39 Aerocobra and P-40 Warhawk flew reconnaissance. The US Navy used both the PBY Catalina and the PBM Martin Mariner; the latter accounted for the greatest destruction of U-boats in and near the Caribbean over the course of the campaign.

The second major problem was getting sufficient aircraft in place to make certain that no submarine could run on the surface, day or night, and that no periscope could pop up by day, without being spotted from the air. At first, Army Air Forces officers were reluctant to employ their longer-range aircraft for antisubmarine patrol. To a certain extent, the navy was too. Both clung to the already obsolete concept that the greatest danger in the Caribbean was either enemy carrier-borne aircraft or aircraft which would use secret fields in Central or South America. The army was also unwilling to place its aircraft under navy command. Thus, in April 1942, the total number of US aircraft available for several thousand miles on both sides of the Panama Canal were 28 heavy bombers (mostly B-17s

based in Panama), of which 15 were equipped with Anti-Surface Vessel (ASV) radar, 30 medium bombers, 16 light bombers, and 34 Navy PBYs, in addition to fighter planes.[23] The lack of ASV radar was especially acute when the campaign began, but by the summer of 1942 virtually all army and navy aircraft were so equipped.[24]

The network of small airfields and airstrips along the island chain and in Central and South America was anchored on the complex of air bases in the South Florida area, the Canal Zone, Puerto Rico, and Trinidad. Trinidad alone hosted four main bases – Chaguaramas, Piarco, Waller Field, and Edinburgh Field. Chaguaramas Naval Air Station was home to more than 14 squadrons of Catalinas and Mariners. There were usually up to 60 at a time using the base for routine patrolling of the sea lanes and convoy escort. Waller Field was the US Army Air Forces' primary base in the eastern Caribbean. Intended to be the main center for combat flying, Waller was increasingly used as a major link in the trans-Atlantic air route between the United States and the Middle East via Africa. As a result, most combat aircraft in the eastern Caribbean were transferred to Edinburgh Field in central Trinidad, which initially had been designed merely as a satellite runway complex for Waller Field.

While the Royal Navy played a very small role in the air campaign against the U-boats in the Caribbean, the Americans learned how to sink U-boats by studying British methods. As the official history of the US Army Air Forces in World War II states,

> … both Army and Navy antisubmarine forces were able to draw largely on the experience of the British for their initial stock of technical data, and they made extensive use of their opportunity. Of particular aid to the AAF units was the help given by two liaison officers sent to the United States in February [1942].[25]

With the help of the British, effective tactical doctrine was worked out over several months. The Americans learned that there was no point bombing submarines more than 15 seconds after a crash dive. The British strongly recommended guns mounted in forward turrets rather than fixed firing guns, giving gunners greater ability to sweep the target as they approached. It was found that depth charges and depth bombs worked best

at minimum depth, so that when they bracketed a surfaced U-boat, they would explode shortly after they dropped into the water, severely damaging the submarine's underside. It was also stressed that the entire load should be dropped at the same time.[26]

As the number of aircraft increased, so too did attacks on surfaced U-boats. July 1942 was especially busy. On July 5, a plane flying off Aruba sighted a submarine three miles ahead, dove to 400 feet and dropped a full stick of depth bombs. The next day, an aircraft hit a surfaced submarine off the coast of Venezuela, but the bomb rolled into the sea without exploding. In the waters off Trinidad, on July 11, a night attack was carried out, but the bombs were dropped without visible effect. The next night, another attack was made off Cristóbal, but again with no impact. On July 16, a ferry plane spotted a surfaced U-boat and dove on it; the depth bombs exploded all around the boat just as it disappeared below the surface. No damage was reported. On July 19, a submarine was sighted between Cuba and Jamaica and four depth bombs were dropped. Once again, all were duds. On July 20, three aircraft attacked a surfaced submarine off Georgetown harbor, Jamaica, but no damage was done. That same day, another attack was carried out on a U-boat between Aruba and Curaçao, but with no effect. And a night attack on a submarine on July 29 produced no damage.[27]

In all these cases, pilot or bombardier technique (or error), faulty equipment, poor tactics, or sheer bad luck saved a U-boat to fight another day, but the frequency and the intensity of the attacks was a worrisome sign to Dönitz's captains that opportunities would grow far slimmer in the coming months. Radar-equipped aircraft made it increasingly unsafe to surface day or night, keeping the crews sealed in their hot and humid hulls and making the captains super-cautious whenever planning attacks. Doubtless, the American flyers would only get better. But the air attacks were not completely fruitless: on August 22, 1942, *U-654* was destroyed north of Colón, Panama, by a B-18 from Bomb Squadron 45; and on October 2, another B-18 sank *U-512* off Cayenne, French Guiana.

When "Teddy" Suhren, already holder of the Knight's Cross with Oak Leaves, brought *U-564* into West Indian waters in the summer of 1942, he and his crew suffered quite a shock. They were proceeding on the surface when the startled cry that the crew dreaded to hear burst from the

bridge: "*Flieger!*" A large enemy aircraft was closing rapidly from out of the sun, flattening out only 20 meters above the waves and heading rapidly into a low-level attack. Suhren ordered "Emergency Dive!"

> With mere metres of water over her bridge, three well-placed bombs bracketed the U-boat, severely shaking the hull and causing fresh chaos aboard. A thin jet of flame shot from the closed hatch to number five torpedo tube.… However, there was no water leakage.[28]

The boat sank to nearly 200 meters – dangerously close to crushing depth – before Suhren was able to regain control. *U-564* eventually reached the surface, only to be destroyed the following year under a new skipper.

With the increase in air coverage, the number of submarine attacks fell off rapidly. As the official history of the US Army in the western hemisphere in World War II put it: "Losses throughout the Caribbean area were the lowest in six months.… The cyclical pattern of the U-boat assault had already manifested itself. That the October lull would be followed by renewed activity was expected, but it was impossible to foretell precisely how high the new peak would reach."[29]