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"TO DIE GALLANTLY"?

The Role of the Surface Fleet in German Naval Strategy, 1919–41

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Germany's war at sea from 1939 to 1945 commonly is characterized as a submarine (U-boat) war with minor appearances by famous but ineffectual battleships. Indeed, Winston Churchill famously wrote that the only thing that "ever really frightened" him during the war was the U-boat menace, and scholarship on the Second World War at sea largely has reinforced the perception that the only meaningful threat the German navy posed during the war came from its submarines. While much has been written on the famous engagements between Germany's major capital ships—in particular *Admiral Graf Spee, Bismarck,* and *Scharnhorst*—and their British pursuers, these episodes tend to be treated as singular or as exceptional to the general conduct of the war at sea.[1] These surface battles are rarely placed in a strategic context. Admiral Erich Raeder, head of the German navy at the time, wrote at the outbreak of war with Britain and France that the German surface fleet could "do no more than show that they know how to die gallantly and thus are willing to create the foundations for later reconstruction."[2] He stated later, in his memoirs, that "[s]ooner or later our [surface] raiders would inevitably wear out, and their importance in the war picture wane. But I hoped that by that time our submarines would be strong enough to take their place against the enemy with even greater effect."[3] Taken out of broader strategic context, both statements give the impression that Germany's surface fleet was inevitably doomed against the Allied navies and merely bought time for the U-boat's ascendancy.

While Germany's naval war from 1942 on was waged primarily by U-boats, its surface fleet played a far more significant strategic role in the first half of the war than is appreciated popularly. Furthermore, the construction of Germany's surface fleet was not the result of myopic

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or traditionalist naval officers desiring to revive the mighty Hochseeflotte (High Seas Fleet) of the First World War, as often is assumed. Rather, it was the result of considered appraisals of the German navy's performance in the First World War and the development of naval technology during the interwar period.

And despite his initial pessimism and postwar recollections, Admiral Raeder had not given up on the surface fleet's prospects against enemy shipping and naval concentration when war broke out in 1939. Until 1942, the German surface fleet managed to disperse British forces effectively and wage economic warfare against British shipping in conjunction with the U-boat campaign. Plans also were made—though never fully realized—to challenge British naval power directly by the deployment of the surface fleet, inflict a decisive blow against British shipping, and win the war at sea. It was only in 1941 and 1942, with the destruction of *Bismarck* and the relocation of German surface forces away from the Atlantic, that the war at sea between Britain and Germany shifted predominantly to a "U-boat war."

LEARNING THE LESSONS OF THE FIRST WORLD WAR, 1918–30

It long has been believed that between the world wars German naval officers remained fixated on large surface ships and a somewhat caricatured version of Alfred Thayer Mahan's sea-power theories, convinced that a decisive engagement between large surface fleets was the only way to ensure control of the sea for the victor.[4] Therefore, it often is argued, the German navy was unprepared for the Second World War because it failed to realize the full potential of U-boats.[5] More recently, some historians have challenged the view that navies the world over were really so wedded to the presumption of the battleship's tactical primacy.[6] Building on these recent analyses, an examination of the postwar reflections of German naval officers shows that planners had a far more nuanced, considered, and realistic appraisal of the First World War's U-boat campaign, which helps explain why Germany devoted such significant resources to constructing surface warships before the outbreak of the Second World War.

The recovery of the German navy after the First World War was a long and arduous process. The Treaty of Versailles permitted the Weimar Republic to maintain a Reichsmarine that was largely a coastal force, and it forbade U-boats until modified by the 1935 Anglo-German Naval Agreement. Although the German navy maintained a focus on continental defense throughout most of the interwar period, this did not mean that officers failed to reflect on the First World War at sea. Indeed, operational analyses were undertaken throughout the 1920s, often in the guise of historical studies, with the intention of reviewing the use of naval power in another global conflict.[7] These studies provide key insights into the professional mind-set that would inform the development of the German surface fleet later, in the 1930s.

While historians have regarded the unrestricted U-boat warfare campaign of the First World War as heralding the ascendancy of U-boats (and later airpower) over battleships, to many German contemporaries this was not the reality. Indeed, even during the unrestricted U-boat campaign there was a growing realization that the U-boats could not deliver a decisive blow against Britain's vital shipping. In spite of a promising start, the U-boats were not able to stop shipping from reaching Britain, and their efforts to do so helped bring the United States into the war against Germany.[8] Initial efforts during the First World War to hunt down and destroy the U-boats were ineffective because to that point there was no means of locating and destroying submerged U-boats. The situation changed in 1917 with the introduction of the convoy system, in which clustered merchant ships were protected by escort vessels equipped with a variety of antisubmarine-warfare (ASW) devices.[9] Notably, interview data from captured German U-boat crews showed a recognition that U-boats alone could not bring victory to Germany.[10]

In an attempt to aid the U-boats' efforts, beginning in late 1917 the Imperial German Navy deployed its surface fleet to support the U-boats. Admiral Reinhard Scheer, who had been the commander in chief of the High Seas Fleet during the 1916 Battle of Jutland, recounted in his memoirs that by deploying the fleet to attack North Sea convoys, it was hoped that "[a]part from depriving the enemy of the supplies he awaited, it would place him under the necessity of affording better protection to the neutral shipping placed at his service, for which more warships would be required; these, again, would have to be taken from among those occupied in the war on U-boats."[11]

The German fleet did place renewed strain on the Allies and presented the Germans with an opportunity to harass both components of British sea power, its military strength *and* resources, which U-boats had been unable to do on their own. Sir Henry Newbolt, a historian for Britain's Committee of Imperial Defence, writing during the interwar period, noted that the assignment of battle squadrons to protect convoys against enemy surface ships "was a great departure from the principle of rigid concentration which had dominated the organization and employment of the [British] Grand Fleet since the war began: it was illustrative of the extent to which the war against commerce had engaged our strength and resources."[12] By the end of the war, the High Seas Fleet had been able to show only meager results in support of the unrestricted U-boat-warfare campaign. Nonetheless, as noted, even during the war it became clear that U-boats were incapable of delivering a decisive blow to Britain on their own. Thus, reflecting on the conduct of the war at sea throughout the 1920s, key German officers emphasized that the potential represented by cooperation between U-boats and the surface fleet, while heretofore unrealized, was nonetheless real.

Rear Admiral Arno Spindler was charged with the construction and development of Germany's U-boats during the First World War. Later he headed the bureau studying ASW, established in 1925. In an essay written in 1926, he acknowledged that "[a]s long as submarines exist they will continue to be a threat to those nations which are unconditionally forced to rely upon overseas transportation." On the other hand, he recognized the effect the British surface warships had, especially their blockading of the North Sea, stressing that "the purely military employment of the submarines"—that is, the targeting of enemy warships rather than merchant ships—"was prematurely brought to a close."[13] If the U-boats had been deployed more effectively against warships, he argued, they might have proved invaluable in breaking the blockade. In this vein, Captain Albert Gayer, a senior officer in the U-boat arm during the war, also noted several attempts at conducting operations with the surface fleet against enemy warships (in one such foray, in August 1917, the British lost two cruisers to U-boats deployed in ambush) and also drew attention to unrealized plans for asymmetrical warfare conducted by air, surface, and U-boat units.[14]

With regard to using U-boats as commerce raiders, Spindler, Gayer, and others argued that U-boats needed to be made larger to increase their operational range and better armed for engaging convoy escorts, even on the surface.[15] Gayer assessed the potential of these large vessels, known as U-cruisers, late in the war as follows: "The British regarded with great anxiety these new developments in submarine warfare, and the greater possibilities which existed as a result of this expansion of submarine warfare. That these operations would extend far beyond the field of the British counter-measures was better understood in England than in Germany; hence their characterization that the Germans had given up their weapons 'five minutes' too soon."[16] In apparent validation of Gayer's ideas, former German submariners were working on the other side of the world to help the Imperial Japanese Navy design a submarine fleet that ended up closely resembling the U-cruiser concept.[17]

Wolfgang Wegener, a flag officer during the interwar period, was arguably one of the most influential personalities within the Reichsmarine.[18] In his main work, *The Naval Strategy of the World War,* published in 1927, he characterized the effectiveness of the unrestricted U-boat campaign and the British blockade of Germany as being akin (to use a modern term) to mutually assured destruction: "[W]e starved in jail and almost succeeded in making our jailer starve with us."[19] In other words, while U-boats were able to attack Britain's vital maritime shipping, the blockade imposed by the Royal Navy effectively left Germany unable to access its own vital shipping. He concludes that, "[a]s valuable as the submarine campaign may have been, it gained only partial command of the sea. The submarine can destroy sea lanes but cannot protect them. Submarines can dive under a

blockade but cannot break it."[20] Overcoming those obstacles still would require a powerful surface fleet.

Finally, the development of asdic (a primitive sonar named after the Anti-Submarine Detection Investigation Committee) also reinforced during the interwar period the view that ASW outmatched the capability of U-boats. By sending out pulses that would rebound off a submerged U-boat's hull, asdic could provide its approximate location. The device was developed but not used operationally during the First World War. Historical examination suggests that while the Royal Navy placed undue faith in and reliance on asdic during the interwar period, it did so to dissuade potential rivals from developing U-boats.[21] Karl Dönitz, Raeder's successor and the head of the U-boat arm during the Second World War, later boasted in his memoirs, "I did not consider that the efficient working of ASDIC had been proved, and in any case I had no intention of allowing myself to be intimidated by British disclosures."[22] Yet, according to Peter Padfield, "uncertainty about the range and effectiveness of ASDIC influenced U-boat Commanders right up to the outbreak of war," and Dönitz as well.[23] Thus, right up to the very eve of the Second World War, even the head of the U-boat arm did not believe that U-boats offered a viable alternative to a surface fleet.

Although focusing on U-boat performance during the First World War, these studies help to explain the later development of the German surface fleet. The use of U-boats as a war-winning weapon in the First World War ultimately was considered a failure. The limitations on the U-boat's armament and operational range meant that Germany was unable to challenge the British blockade effectively or operate in distant theaters. The implementation of the convoy system and the development of ASW devices, and later asdic, also appeared to undermine the wartime potential of U-boats. Given these limitations and the restrictions imposed by the Treaty of Versailles, it was a reasonable belief that a surface fleet would continue to be the decisive factor in the employment of naval power in any future conflict.

This did not mean that U-boats were neglected completely. Rather, it appeared that U-boats could not be relied on as a stand-alone decisive weapon and did not offer a realistic alternative for the revival of the German navy in the interwar period until nearly the outbreak of the Second World War, as will be discussed. Instead, several German officers speculated on how U-boats and surface forces could be of mutually beneficial use.

For Erich Raeder, the future head of the German navy, the First World War also suggested that the surface fleet would continue to be decisive in any future global war. Raeder spent part of his interwar career posted to the archives, working on a dissertation focused on cruiser warfare for the official history of the German war at sea. Although he is characterized as a staunch traditionalist of the

"Mahan school," one who sought decisive battle to achieve maritime hegemony, his work during this period suggests otherwise.[24] Keith Bird, Raeder's biographer, argues that in his analysis of Vice Admiral Maximilian von Spee's Far East Asian Cruiser Squadron, "Raeder noted the disruption and dislocation of troop movements and Allied shipping caused by the threat posed by Spee's ships, as well as the large number of warships diverted to search for his squadron and the lone raiders such as the *Emden* and *Karlsruhe*."[25] Indeed, rather than dismissing the impact of Spee's squadron as a distraction from a decisive battle with the British in the North Sea, Raeder instead noted that "this Squadron affected conditions at almost every British Station, and materially altered the strengths in the main theater of the war, no fewer than three battlecruisers being withdrawn from the North Sea at the same time; this weakening of the Grand Fleet should have had a definite influence on the attitude of the German Naval Staff and the Higher Command."[26]

Raeder's interest in cruiser warfare and using surface warships to disperse an opponent's naval force possibly dates from 1914, when Vice Admiral Franz Hipper, whom Raeder served as chief of staff, proposed to use fast battle cruisers to break out into the Atlantic to conduct such operations, hoping to disperse the British Grand Fleet that was tasked with bottling up the High Seas Fleet in the North Sea.[27]

Raeder found validation for his evaluation of Spee's squadron from French naval theorist Admiral Raoul Castex. Castex posited that a favorable situation for a weaker naval power could be created by strategic maneuver to force a dispersal of superior enemy forces, and notably he used Spee's squadron as an unrealized example.[28] The influence of Castex on Raeder has received almost no historical attention, although it challenges the assumption that Raeder's understanding of sea power was fundamentally, if simplistically, Mahanian.[29] Years later, during the lead-up to the Second World War, the potential value of undermining superior sea power by dispersing one's own naval forces and attacking the opponent's shipping was Raeder's guiding strategic principle.

REARMING: THE EVOLUTION AND CONSTRUCTION OF THE GERMAN NAVY, 1930–39

Throughout the 1930s, the German navy underwent a process of rearmament that saw the capital ship retain its supremacy as the main arbiter of naval power. This was not because of a manic fixation on big ships; rather, it was because capital ships offered the most-effective means of exercising naval power, owing to improvements in their operational range, armaments, propulsion, and armor. In contrast, the performance of U-boats barely had improved since 1918; they continued to suffer from poor visibility on the surface, leaving them vulnerable

to surprise attack, and near immobility when submerged. As a platform they had restricted armament, while speed remained generally constrained. Still, several innovations would elevate the importance of the U-boat within the fleet.[30]

Under the Treaty of Versailles, the six obsolete battleships permitted to the Reichsmarine could be replaced in the 1930s, although the new ships were not to exceed ten thousand tons. As a result, the new ships sacrificed the heavy armament and protection of a standard battleship for the high speed of a cruiser, leading to a hybrid capital ship termed a *Panzerschiff* (armored ship), colloquially known as a pocket battleship. The first to be laid down, *Deutschland,* possessed a limited main armament of six eleven-inch guns, accompanied by a secondary armament of eight six-inch guns and eight torpedo tubes. This comparatively paltry armament was compensated for with a maximum speed of twenty-eight knots, unmatched by any battleship of the time.[31] Another novel feature was its diesel engines, which provided an astounding ten-thousand-nautical-mile range at twenty knots without needing to refuel—alleviating what had been a major handicap of the High Seas Fleet.[32] These capabilities led German strategists to theorize that the *Panzerschiff* could prey almost at will on enemy shipping by outrunning more-powerful opponents and outgunning weaker ones.[33]

Germany's naval rearmament plan seemingly was vindicated in June 1935 with the signing of the Anglo-German Naval Agreement. The potential threat that *Deutschland* posed had spurred Britain to conclude the agreement to cap Germany's naval revival and reduce the pace of rearmament in Europe.[34] It permitted Germany a 35 percent parity to the Royal Navy in surface ship tonnage and 45 percent in U-boat tonnage—beyond the Versailles restrictions.[35] However, thereafter Adolf Hitler pursued a continentally focused rearmament policy, and only another two *Panzerschiffe, Admiral Scheer* and *Admiral Graf Spee,* were completed.

Secret preparations also had been under way to revive the U-boat arm via foreign firms, German dummy companies, and preassembly that circumvented the Versailles restrictions, although actual production was not begun until the Anglo-German Naval Agreement was signed. From 1935 to 1939 the Kriegsmarine (renamed from Reichsmarine in 1935) built fifty-seven U-boats, mainly of three distinct classes. The Type IIA was the first of a series (A through D) of small coastal boats displacing a mere 254 tons and completed just weeks after the 1935 agreement.[36] These were intended as intermediate designs to provide data to inform future U-boat construction and to operate in the North and Baltic Seas against potential threats posed by France, Russia, and Poland. A larger vessel, the Type I, displaced 862 tons and had a greater range and armament. This type proved to be overly cumbersome, so only two *(U-25* and *U-26)* were completed, compared with the fifty Type IIs commissioned between 1935 and 1940.[37]

The primary purpose of the two follow-on U-boat classes, the Type VII and Type IX, was to conduct longer-range operations in the Atlantic. The first of the Type VII series (A through F) displaced 626 tons when completed in 1936 and had a range of 6,200 nautical miles at ten knots on the surface. The Type IX was the largest of the new U-boats, displacing 1,032 tons and accommodating an increased armament capacity of six torpedo tubes (four bow, two stern) and a 10,500-nautical-mile range at ten knots. Its initial role was somewhat ambiguous, as the naval high command favored its use in direct cooperation with the surface fleet, while Dönitz and his supporters advocated that it be used as a distant commerce raider.[38] Production was paused until a decision was reached—one that favored Dönitz's conception—and consequently the first Type IX was not commissioned until 1938.[39] Despite some setbacks, of 1,158 U-boats constructed from 1935 to 1945, approximately nine hundred were Type VIIs and IXs.[40]

It was the ominous emergence of *Deutschland,* however, that was of primary concern to other European navies. Indeed, an arms race ensued from 1935 to 1939 that led to the evolution of the fast battleship. The fast battleship type emphasized speed on a platform that had been designed to optimize firepower and protection. The first to counter *Deutschland* was the French *Dunkerque,* launched in 1935, which achieved 29.5 knots. The Italians, in turn, responded in 1937 with the thirty-knot *Vittorio Veneto* class. The Germans countered with the *Scharnhorst* class, comprising its namesake and *Gneisenau,* which had been intended as *Panzerschiffe* until the original keels were scrapped in 1934 and redesigned.[41] The new hulls, laid down in 1935 and eventually displacing around 34,841 tons, carried a heavier nine-gun main battery and better armor protection. The new class was intended to counter *Dunkerque,* although political considerations limited its armament to eleven-inch guns so as not to antagonize Britain. Experimental high-pressure steam turbines that promised a maximum speed of around thirty knots but at a cost in range and endurance were incorporated instead of diesel engines like *Deutschland*'s, and they proved much more challenging to maintain.[42] In 1936, Germany laid down its first true fast battleships, the 41,700-ton *Bismarck* class *(Bismarck* and *Tirpitz),* equipped with eight fifteen-inch guns, capable of reaching twenty-nine knots, and with an 8,500-nautical-mile operational range at nineteen knots—representing significant reductions compared with *Panzerschiff* characteristics.[43] The British Admiralty responded with its own fast battleships, the *King George V* class, in 1939.

In the meantime, Raeder was refining his views on German naval strategy. In February 1937, he outlined his ideas for rearmament and his principles of naval strategy to Hitler and other senior figures of the Reich. These "reflected a clear formulation of his naval strategy and the culmination of his own strategic studies and experiences and the themes that had dominated the debate over naval

strategy since the end of World War I."[44] Seeing the Atlantic Ocean as the pivotal theater of naval operations for conducting war on an enemy's economy, Raeder declared that the objective of the German navy must be the defense of German shipping lanes and the relentless "interdiction of those of our enemy."[45] A determined offensive against enemy shipping would undermine the economic ability of opponents to wage war, while simultaneously forcing them to defend their own sea-lanes rather than target German shipping. Tellingly, Raeder also argued that new technology, such as submarines and airpower, had not supplanted capital ships as decisive units in naval warfare, but rather had augmented their operational possibilities at sea.[46]

In 1938, Hitler declared Britain to be a potential adversary. That same year, a strategic study recently produced by the Oberkommando der Marine (German naval command) concluded that only by cruiser warfare conducted by surface ships (especially the *Panzerschiffe*), with the cooperation of U-boats, could Germany hope to exercise effective naval power. No consensus, however, could be reached on the exact role that capital ships were to play in cruiser warfare waged in the Atlantic.[47] Although Raeder continued to support a strategy of cruiser warfare conducted by the *Panzerschiffe,* his views came into increasing conflict with Hitler's, who hoped to use the revived German surface fleet as an instrument of global power politics against British naval power, more so than its commerce.[48] This tension undermined the establishment of a clear direction for the Kriegsmarine up to and during the Second World War.

Nonetheless, plans were put in effect for the construction of a German fleet, known as Plan Z. Although it remained unrealized, thus ultimately more of a wish list of warships than a coherent plan, it offers insight into the Kriegsmarine's strategic priorities just before the outbreak of war. Rather than rely on a single vessel type, and perhaps hoping to reach a consensus, Raeder instead pushed for a balanced fleet comprising sixteen capital ships, four aircraft carriers, 249 U-boats, and several light vessels, to be complete by 1947. Of the 249 U-boats listed in the plan, sixty were coastal U-boats, 162 the Atlantic types, and twenty-seven large types. But the nucleus of the Plan Z fleet was a new generation of *Panzerschiffe* and fast battleships (never completed) that would have optimized range and speed.[49]

Although Plan Z concentrated on the construction of new capital ships, the German naval high command did have plans for a robust U-boat arm that included large fleet U-boats and U-cruisers that could operate both with the surface fleet and independently in distant waters. Only one, the Type XB minelayer, was ever completed. The Type XII, which resembled the Type IX in shape and armament but displaced some two thousand tons and was capable of making twenty knots, finally would have provided the German navy with a submarine capable of operating directly with its surface ships. Echoing Gayer's assessment in 1926, Raeder

outlined specifications for a U-cruiser in a letter dated March 1937. "Tasks: offensive operations against merchantmen in distant waters. The U-cruiser has to be able to take over the role of a surface ship and have the firepower of an auxiliary cruiser or escort ship, when protecting or attacking merchantmen."[50] The Type XI U-cruiser would have had an enormous displacement of 3,140 tons. Its main armament, aside from eight torpedo tubes, was to be four five-inch guns in two twin turrets and four antiaircraft guns. It also was designed to carry a seaplane for reconnaissance. Although these designs appear somewhat fantastical, they indicate that the German naval command had high hopes and ambitions for its U-boat arm.

By 1939, the construction of the Plan Z fleet was under way. The battle instructions for the Kriegsmarine, issued in May 1939, reemphasized the need to concentrate operations against enemy shipping rather than against naval forces, in the event of war with Britain and France. The aim of naval warfare, it stated, was to "cripple England's and France's military and economic imports by water." This, the instructions declared, could be successfully undertaken "only on the oceans"—that is, beyond the North Sea.[51] The instructions went on to state that war on enemy shipping "is directed equally against the cargoes and shipping space of the enemy. Combat action even against inferior enemy naval forces is not an aim in itself and is therefore not to be sought."[52] While the U-boats concentrated on enemy shipping around the coast, the Luftwaffe (German air force) was to mine and destroy transport facilities in enemy ports by air. As many surface ships as possible would operate throughout the Atlantic and farther abroad, supported by a network of supply ships, many operating out of neutral ports—a system that had its origins in the First World War.[53] Finally, to aid the war on enemy shipping, German naval forces were to disrupt the expected British blockade of the North Sea through small operations, with the further aim of "keeping as many of the enemy forces as possible continuously tied up" in the North Sea.[54] Thus, the primary purpose of the German surface fleet in the event of war with Britain and France was to make a relentless attack on enemy sea-lanes, with the intention of destroying and disrupting enemy shipping and dispersing enemy naval forces.

The plan's strategic concept went beyond cruiser warfare and had origins in the First World War, when the High Seas Fleet was deployed to degrade British maritime power in both its economic and military dimensions, and was reminiscent of Castex's theory.[55] Only in September 1939 did Dönitz advocate a strategic alternative, in a memorandum outlining a construction program for three hundred U-boats and various light surface craft.[56] Concerned more about the merchant vessels themselves than their cargo, he hoped to wage a tonnage war, with the intention of sinking ships faster than new ones could be built to replace them. The famous wolf-pack tactic would be used to overwhelm merchant convoys, coordinated by radio communication either from shore or from a Type IX U-boat

serving as a command-and-control hub for the "pack." Given the later conduct of the war, Dönitz's alternative appears reasonable. However, his proposal came on the eve of the war and in the context of impressive technological improvements to surface warships. Until this point, therefore, the U-boats did not offer a feasible alternative to Germany's hybrid cruiser-warfare concept.

Indeed, the evolution of Germany's naval strategy clearly was linked with the technological innovations of the 1930s. The capital ship remained the primary instrument of sea power because of the comparative primitiveness of submarines and aircraft. *Deutschland* appeared to be an epochal warship that made feasible a nascent conception of cruiser warfare using powerful surface warships operating at distant ranges. The lessons of the First World War were refined and adapted in response to the emergence and progress of technology and the anticipation of enemy fleets and plans. Despite its focus on capital ships, the Plan Z fleet reflected an evolution in German naval thought beyond the "decisive battle" strategy that had dominated the Imperial German Navy. When war did break out in September 1939, however, the Kriegsmarine possessed an incomplete naval force that was smaller than the High Seas Fleet, with most of its units not intended for operations against the Royal Navy. Although ultimately unsuccessful, these concepts significantly determined the course of the war from 1939 to 1941.

THE HEYDAY OF THE GERMAN SURFACE FLEET: 1939–41

With Plan Z well out of reach, construction of heavy warships ceased in September 1939, exempting those nearing completion, and a new program dedicated to producing the Type VII and Type IX U-boats was implemented. However, the number of U-boats available was limited and the strategic prospects of the German navy at the outbreak of war in 1939 were negligible. Yet by June 1940, Germany's geostrategic position had improved owing to the seizure of Norway (an achievement greatly aided by the surface fleet) and France. The French coastal ports were especially crucial because they allowed direct access to the Atlantic, while Norway secured the North Sea, thus undermining the effectiveness of the British blockade.[57] Raeder's initial pessimism that his forces could do nothing more than show how to "die gallantly" was replaced by an enthusiasm to operate the surface fleet and U-boat arm together against Britain's shipping, aided by auxiliary cruisers.

U-boats were deployed at focal points for trade around Britain—the most likely places they might encounter merchant ships. Their numbers were insufficient, however, to threaten Britain's maritime shipping decisively; Germany would not have more than a hundred U-boats until April 1941.[58] Lack of numbers also meant that most attacks were conducted against independent vessels by individual U-boats. It was not until September 1940 that Dönitz successfully used the

wolf-pack tactic against a convoy, sinking eleven of fifteen merchant ships.[59] Despite sinking 2,186,158 tons of merchant shipping in 1940, this translated to overall convoy losses that year of just 1.63 percent—insufficient to be decisive. Thus, to supplement the U-boat campaign, surface ships once again were deployed to wage cruiser warfare. The Reichsmarine believed this would force the Royal Navy to disperse its forces, would disrupt enemy naval operations, and would prevent a concentration against the U-boats.[60] Germany's commerce raiders were ordered not to engage equal or superior enemy ships.

The heyday of surface operations lasted from 1940 until 1941, during which time the conduct of the surface fleet, in conjunction with the U-boats, caused disproportionate havoc to Britain's shipping and prevented the Royal Navy from concentrating its forces fully.[61] In October 1940, *Admiral Scheer* became the first German capital ship to break out into the Atlantic since the war began.[62] Showcasing both the qualities of the class and the efficiency of the supply-ship system in a voyage that stretched as far as the Indian Ocean, *Scheer* sank 99,059 tons of merchant shipping before returning to Germany in March 1941. An attack on Convoy HX84 in the North Atlantic resulted in the sinking of five ships totaling 38,720 tons, along with the escorting armed merchant cruiser *Jervis Bay*. Although a relatively minor achievement, the attack caused the next two HX convoys to be recalled to port and held up further convoys for twelve days. The heavy cruiser *Admiral Hipper* made a follow-on sortie in November. It achieved meager results but was the first heavy German warship to put in successfully to the French port of Brest, in December 1940, where it posed a more immediate threat to Atlantic shipping.[63] Meanwhile, disguised auxiliary cruisers were deployed into the Atlantic, the Indian Ocean, and the Pacific. In July, one auxiliary cruiser, *Widder,* forced the British Admiralty to stop independent shipping and divert convoys away from the West Indies, while another, *Atlantis,* would sink a record 145,687 tons before meeting its end in November 1941 against HMS *Devonshire*.[64]

Although it may appear that the surface fleet was merely being used as a stopgap until more U-boats were made available, the operations of the surface fleet played a far more significant strategic role in the first half of the war at sea than often is acknowledged. These operations not only disrupted Britain's shipping; they also often forced Britain to disperse its naval power across the globe. Three Royal Navy task forces, including four cruisers and two aircraft carriers, were dispatched to find *Scheer*. A sighting by HMS *Glasgow* brought an additional carrier and four cruisers into the hunt.[65] Through the continuous deployment of powerful surface warships, Raeder also hoped to affect the overall strategic situation. He calculated that this threat to their merchant shipping would force the British to split their forces even further between the Atlantic and the Mediterranean.[66] On 25 December 1940, *Hipper* intercepted a convoy carrying forty thousand

troops to the Middle East, but was driven off after a brief engagement with British escorts. This encounter nonetheless had significant consequences; the Admiralty rushed to assign heavy warships to convoy escort.[67] Although fewer ASW vessels were diverted than Germany's naval high command expected, the commitment of British heavy escorts demonstrates the Admiralty's level of anxiety and validates the threat Raeder's surface fleet posed. The surface fleet, therefore, did not operate as a mere transitional force in anticipation of a larger U-boat fleet.

Four heavy German warships were active from January until March 1941, a period that marked the first successful complex, anticommerce naval operation in the Atlantic theater. Operation BERLIN was the largest and the most successful Atlantic operation conducted by the German surface fleet during the war. It began in January 1941, when *Scharnhorst* and *Gneisenau,* under the command of Vice Admiral Günther Lütjens, ventured into the Atlantic and, aided by nine supply ships, sank or captured 116,610 tons of shipping over sixty days. Distant cooperation among *Scharnhorst, Gneisenau,* and U-boats led to the tracking and interception of Convoy SL67 on 7–8 March, which resulted in five ships being sunk by the U-boats. Before steering for France, Lütjens intercepted several more merchant ships that had been dispersed from a convoy because of an attack by U-boats.[68] On 9–11 February, during *Hipper*'s second sortie, *U-37,* FW-600 aircraft, and *Hipper* carried out the first successful asymmetrical attack against Convoy HG30.[69] The next day, this also led to *Hipper*'s greatest success: sinking seven of nineteen unescorted ships from Convoy SLS64.[70]

Dispersed as it was, the Royal Navy could not deal effectively with the multifaceted threat posed by Germany's surface fleet, U-boats, and auxiliary cruisers. As Stephen Roskill notes, Britain lost significant merchant shipping during this period. The German surface ships, "for a time, completely dislocated our Atlantic convoy circles, with serious consequences to our vital imports. Their [*Scharnhorst* and *Gneisenau*'s] depredations forced the wide dispersal of our already strained naval resources, and successfully diverted attention from the returning *Scheer* and *Hipper;* while, by their subsequent arrival in a Biscay port, they became an imminent threat to all our Atlantic shipping."[71] Despite the best efforts of Admiral John Tovey, commander in chief of the Home Fleet, all four warships reached port safely: *Scheer* and *Hipper* to Germany, and *Scharnhorst* and *Gneisenau* to Brest in France.

The pressure that these forays exerted was especially important because in February the number of active U-boats was at its lowest level of the entire war. Furthermore, the U-boats now were confronted with improved radar, escorts, and ASW tactics, forcing Dönitz to redeploy his units farther west and away from convoy congestion zones.[72] Still, total tonnage sunk from January until March amounted to 1,253,339 tons. The U-boats sank the largest portion of these losses, accounting for 566,585 tons, but the surface fleet and auxiliary cruisers

contributed nearly a quarter of the overall total, with 301,885 tons. The surface raiders therefore made an invaluable contribution to Germany's attempt to consummate a blockade of Britain, by dispersing British naval strength, disrupting military convoys, and sinking the shipping tonnage they did.

So far, the deployment of the surface fleet had aided the German war effort dramatically, despite its inferior size and strength relative to the Royal Navy. For the first time in history, German battleships were operating in the Atlantic against British shipping with near impunity. Only when they reached port in France were the ships seemingly vulnerable, to heavy air raids.[73] Additionally, the German surface fleet soon reached its zenith with the commissioning of the battleships *Bismarck* and *Tirpitz* and the heavy cruiser *Prinz Eugen.* Anticipating further success, in April 1941 Raeder outlined plans for a new operation, codenamed RHINE EXERCISE. In a manner reminiscent of Germany's prewar planning and Castex's theories, the new warships, along with *Scharnhorst* and *Gneisenau,* now would be free to engage their dispersed enemy counterparts. This, it was expected, would change further the balance of naval power, creating favorable circumstances to achieve victory in the war at sea. Reflecting his faith in the operation, Raeder even gave orders that U.S. naval forces could be engaged as well.[74]

However, Raeder's original cohort of four capital ships and two cruisers was reduced quickly. The British Admiralty, realizing the threat that a concentration of German surface forces posed, attempted to keep the ships from going to sea by heavy Royal Air Force bombardment of Brest that damaged *Gneisenau.* Meanwhile, mechanical problems kept *Scharnhorst* in port, and *Tirpitz* could not be made ready in time for the operation. This left only *Bismarck* and *Prinz Eugen*. Nonetheless, determined to keep up the pressure on British shipping, the operation commenced on 18 May under the command of Admiral Lütjens. It famously would end with the destruction of *Bismarck* on 27 May 1941.[75]

Although the drama of *Bismarck*'s loss has overshadowed the strategic importance of the operation, to the Admiralty even a reduced sortie of German surface fleets was a major threat, especially in light of Operation BERLIN's success against British shipping. The Admiralty therefore had mobilized a force of nineteen major warships drawn from the Home Fleet, Force H (stationed at Gibraltar), and convoy escorts to hunt *Bismarck* and *Prinz Eugen*.[76] This traditionally has been seen as an exaggerated response to *Bismarck*'s victory over the battle cruiser *Hood,* pride of the Royal Navy.[77] However, had *Bismarck* arrived safely in France it would have been united with *Scharnhorst, Gneisenau,* and *Prinz Eugen,* and perhaps even *Tirpitz*—and Germany could have commenced RHINE EXERCISE once again.[78] However, a chance torpedo hit on *Bismarck*'s rudder, delivered by an aircraft from *Ark Royal,* crippled the German ship, providing Admiral Tovey enough time to bring up his forces—before they ran out of fuel—to finish the

German battleship. The loss of *Bismarck* was a critical juncture in the war at sea, as it brought a sudden end to Raeder's surface-fleet strategy.

Although *Prinz Eugen,* having been detached from *Bismarck* before the battleship met its end, made it safely to France, never again did German surface ships challenge the Royal Navy offensively. German supply ships and auxiliary cruisers also became prime targets for the Royal Navy, with ten destroyed by the end of 1941.[79] Pressure from Britain and the United States also helped curtail resupply efforts in and from neutral ports.[80] Shocked by the loss of *Bismarck,* Hitler exerted increased personal control over the deployment of surface ships, refusing to allow further operations. Indeed, the loss of *Bismarck* marked the German surface fleet's last Atlantic operation, and in February 1942 Hitler, over Raeder's protests, ordered the remaining heavy warships to Norway to provide defense and to disrupt Arctic convoys to Russia.[81]

By 1942, therefore, the surface fleet largely ceased to be a major strategic threat to British operations in the Atlantic. By then, however, the U-boats had surpassed their prewar numbers and were achieving great success. Convoy attacks peaked in 1941, and in 1942 the highest proportion of shipping of the entire war was sunk. By 1943, though, the U-boat campaign also was on the wane, while Germany suffered major defeats across North Africa and in Russia.[82] Raeder retired that year and Dönitz took over as head of the Kriegsmarine. Although the commerce-raiding potential of Germany's surface fleet never materialized fully during the war, this should not overshadow the very real threat it posed from 1939 to 1941.

After the war Dönitz claimed, "The sinking of the *Bismarck* was a grave loss for the navy. . . . On the other hand, the strong reaction of English naval forces proved that the strategic object had succeeded—that of keeping the English Fleet busy, added to the direct success attained by sinkings."[83]

However, the German surface fleet was much more than a mere placeholder force while the U-boat arm was built up. Indeed, the war at sea between Britain and Germany was not purely a U-boat war, nor was the German surface fleet made up of antiquated ships destined to sink or expire over the course of the conflict. Even Churchill's famous comment on the U-boat menace was in reference to the years 1940 and 1941—a time that, as this article has highlighted, was in fact the heyday of the German surface fleet's attacks against British merchant shipping and when U-boat numbers were relatively low.[84] In reality, the German surface fleet played a pivotal role in the war at sea from 1939 to 1942.

In the aftermath of the First World War, many German naval thinkers reflected. They appraised the respective roles of U-boats and the surface fleet, theorizing about what functions these units could perform in a future naval war. Guided by the experience of that war and influenced by the anticipated success of ASW

measures, they generally accepted that U-boats could not be relied on as the decisive instrument of naval warfare. This was not, however, a case of traditionalist myopia. Cruiser warfare was of particular interest to Raeder, who believed that only a surface fleet, operating in conjunction with U-boats and, later, airpower, could disperse an enemy naval force sufficiently to accomplish the piecemeal weakening of its parent country, militarily and economically.

Technological development during the 1930s provided further clarity on the potential of the surface fleet. The Germans produced remarkable innovations such as the *Panzerschiff*, which seemingly vindicated their faith in the capital ship as the core of any modern fleet. This also was due in no small part to the still-primitive state of U-boat development. Still, they concluded by the late 1930s that no single form of naval power, be it U-boat or capital ships, was sufficient on its own to be a decisive force. As a result, German planners opted to build a balanced fleet that integrated submarines, aircraft, and auxiliary combatants with the battleship as its nucleus, rather than the classic surface fleet. The German navy formulated an appropriate strategy for challenging the Royal Navy, but it lacked the capability to implement it in 1939. Still, despite his initial pessimism, Raeder committed his small force to offensive operations.

Far from being merely a transitional period leading to the ascent of the German U-boats to being the foremost weapon for waging war on British commerce, the early years of World War II saw Germany's surface fleet making a concerted effort to disrupt and destroy British commerce and naval power, which created a major strategic threat to the British. The seizure of Norway and France allowed the effective deployment of German naval forces against British sea trade. The surface fleet made crucial contributions to the war at sea by disrupting and dispersing the Royal Navy, not just supporting the still-sparse U-boat fleet. Indeed, the British Admiralty devoted extensive resources to preventing the concentration of German surface forces during the war, knowing how significantly a major German thrust would threaten critical transatlantic trade. This validation of Germany's hybrid strategy in conception, if not in execution, similarly validates the importance of surface fleets in the understanding of the European war at sea, and the conduct of commerce war in general.

NOTES

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1. Winston Churchill, *The Second World War* (London: Cassell, 1948–1954), vol. 2, p. 529. For a review of the literature on the German navy, see Klaus Schmider, "Recent Research into the Reichsmarine and Kriegsmarine," *Global War Studies* 8, no. 2 (2011), pp. 66–81.
2. Erich Raeder, "Reflections of the C.-in-C., Navy, on the Outbreak of War, September 3, 1939," in *The Fuehrer Conferences on Naval Affairs, 1939–1945* (London: Chatham, 2005) [hereafter *FCNA*], p. 38.
3. Erich Raeder, *My Life,* trans. Henry W. Drexel (Annapolis, MD: Naval Institute Press, 1960), pp. 345–46. Raeder's memoirs were ghost-written by Adm. Erich Förste.
4. See, e.g., A. T. Mahan, *The Influence of Sea Power upon History, 1660–1783* (Boston: Little, Brown, 1890).
5. See Cajus Bekker, *Hitler's Naval War,* trans. and ed. Frank Ziegler (London: Macdonald and Jane's, 1974), pp. 30–35; Jak P. Mallmann Showell, *The German Navy in World War Two: A Reference Guide to the Kriegsmarine, 1935–1945* (London: Arms and Armour, 1979), pp. 23–24; Holger Herwig, "The Failure of German Sea Power, 1914–1945: Mahan, Tirpitz, and Raeder Reconsidered," *International History Review* 10, no. 1 (1988), p. 68; John B. Hattendorf, ed., *The Influence of History on Mahan*: *The Proceedings of a Conference Marking the Centenary of Alfred Thayer Mahan's* The Influence of Sea Power upon History, 1660–1783 (Newport, RI: Naval War College Press, 1991); Holger H. Herwig, "Innovation Ignored: The Submarine Problem—Germany, Britain, and the United States, 1919–1939," in *Military Innovation in the Interwar Period,* ed. Williamson Murray and Allan R. Millett (Cambridge, U.K.: Cambridge Univ. Press, 1996); and Williamson Murray, "Flawed from the Start: Why Germany's Kriegsmarine Lost the Battle of the Atlantic," *Military History Quarterly* (Spring 2015), pp. 70–75.
6. See, for example, Duncan Redford, "From Pre- to Post-*Dreadnought:* Recent Research on the Royal Navy, 1880–1945," *Journal of Contemporary History* 45, no. 4 (2010), pp. 866–76; Joseph A. Maiolo, "Did the Royal Navy Decline between the Two World Wars?," *RUSI Journal* 159, no. 4 (2014), pp. 18–24; and Werner Rahn, "German Navies from 1848 to 2016," *Naval War College Review* 70, no. 4 (Autumn 2017), p. 28. Vincent P. O'Hara, *The German Fleet at War, 1939–1945* (Annapolis, MD: Naval Institute Press, 2004) provides a broad analysis of key operations conducted by the German surface fleet, but devotes little attention to the creation of the fleet itself.
7. See Philip K. Lundeberg, "The German Naval Critique of the U-boat Campaign, 1915–1918," *Military Affairs* 27, no. 3 (Autumn 1963), and Friedrich Ruge, "German Naval Strategy during World War II," *Naval War College Review* 5, no. 9 (May 1953), p. 1. According to Terraine, between 1926 and 1927, "eight out of ten naval studies were concerned with U-boats." John Terraine, *Business in Great Waters: The U-boat Wars*, *1916–1945* (London: Mandarin Paperbacks, 1990), p. 169.
8. The resumption of unrestricted submarine warfare and the loss of American lives that resulted helped to sway public opinion toward believing that Germany posed a significant threat to the security of the United States.
9. These included hydrophones that could detect the sound of a U-boat under the waves and depth charges that could be detonated at a predetermined depth.
10. Derek Nudd, "The Battle of Jutland, through a Looking-Glass" *Mariner's Mirror* 105, no. 4 (2019), pp. 430–31.
11. Reinhard Scheer [Adm.], *Germany's High Sea Fleet* (London: Frontline Books, 2014), p. 310.
12. On 17 October 1917, two German cruisers, *Brummer* and *Bremse,* attacked a North Sea convoy, sinking nine of its twelve ships and its two escort destroyers. Henry Newbolt, *From April to the End of the War,* vol. 5 of *Naval Operations* (London: Longmans, Green, 1931), pp. 152–55, 194.
13. Arno Spindler, "The Value of the Submarine in Naval Warfare: Based on the German Experience in the War," U.S. Naval Institute *Proceedings* 52/5/279 (May 1926), pp. 842, 850.
14. Albert Gayer, "Summary of German Submarine Operations in the Various Theaters of War from 1914 to 1918," U.S. Naval Institute *Proceedings* 52/4/278 (April 1926), pp. 647–48.
15. Spindler, "The Value of the Submarine," pp. 852–53.

16. Gayer, "Summary of German Submarine Operations," pp. 657–58.
17. For analysis of the Imperial Japanese Navy and the creation of the submarine fleet, see Peter Hooker, "In the Shadow of the Fleet: The Development of Japan's Submarine Force, 1917–1941," *International Journal of Maritime History* 30, no. 3 (August 2018), pp. 458–71.
18. Holger Herwig, introduction to *The Naval Strategy of the World War,* by Wolfgang Wegener, trans. Holger Herwig, Classics of Sea Power (Annapolis, MD: Naval Institute Press, 1989), pp. xv–lv.
19. Wegener, *The Naval Strategy of the World War,* p. 63.
20. Ibid.
21. Joseph A. Maiolo, "Deception and Intelligence Failure: Anglo-German Preparations for U-boat Warfare in the 1930s," *Journal of Strategic Studies* 22, no. 4 (1999), pp. 55–76.
22. Karl Dönitz, *Memoirs: Ten Years and Twenty Days,* trans. R. H. Stevens and David Woodward (Yorkshire, U.K.: Frontline, 2012), p. 14.
23. Peter Padfield, *Dönitz: The Last Führer* (repr. London: Cassell, 2001), pp. 154–55.
24. Herwig, "The Failure of German Sea Power," p. 86.
25. Keith Bird, *Erich Raeder: Admiral of the Third Reich* (Annapolis, MD: Naval Institute Press, 2006), p. 54.
26. Erich Raeder, *The War at Sea, 1914–1918: Cruiser Warfare in Foreign Waters,* p. 284, S.L. 3927, Admiralty Library, U.K.
27. Tobias R. Philbin III, "Reflections on the Strategy of a Continental Commander: Admiral Franz Hipper on Naval Warfare," *Naval War College Review* 30, no. 2 (Fall 1977), pp. 80–81. Werner Rahn highlights an assessment of using surface ships to wage a war on enemy merchant shipping as early 1898; Rahn, "German Navies from 1848 to 2016," p. 17. For an examination of strategic interest in cruiser warfare by the German navy prior to the First World War, see Peter Overlack, "The Function of Commerce Warfare in an Anglo-German Conflict to 1914," in *Maritime Strategy 1914: Perspectives from Australia and Beyond,* ed. Tom Frame (Canberra, ACT: Barton, 2015), pp. 42–66. Hipper was promoted full admiral in 1918.
28. Raoul Castex, *Strategic Theories*, trans. Eugenia C. Kiesling, Classics of Sea Power (Annapolis, MD: Naval Institute Press, 1994), pp. 102–105, 120–21.
29. Donald A. Cribbs, "The Influence of Maritime Theorists on the Development of German Naval Strategy from 1930 to 1936" (master's thesis, Army Command and General Staff College, 2004). See also Kenneth Hansen, "Raeder versus Wegener: Conflict in German Naval Strategy," *Naval War College Review* 58, no. 4 (Autumn 2005), p. 94.
30. Capital ships were defined as displacing ten thousand tons or more and possessing a main armament with an eleven-inch bore or greater.
31. The only capital ships capable of matching *Deutschland* were the Royal Navy battle cruisers *Hood, Renown,* and *Repulse.*
32. Gerhard Koop and Klaus-Peter Schmolke, *Pocket Battleships of the* Deutschland *Class* (Barnsley, U.K.: Seaforth, 2014), pp. 11–12.
33. G. H. Bennett and R. Bennett, *Hitler's Admirals* (Annapolis, MD: Naval Institute Press, 2004), pp. 26–28.
34. Joseph A. Maiolo, "The Admiralty and the Anglo-German Naval Agreement of 18 June 1935," *Diplomacy & Statecraft* 10, no. 1 (1999), pp. 93–94. Whaley has suggested that the construction of qualitatively superior warships by Germany undermined the treaty. This is somewhat misleading, as follow-on warships mainly considered the French threat and were designed not to cause tensions with Britain. Barton Whaley, *Covert German Rearmament, 1919–1939: Deception and Misperception* (Frederick, MD: Univ. Publications of America, 1984), p. 91.
35. Unsigned memorandum, Berlin, 28 August 1935, doc. no. 275 in Auswärtiges Amt, *April 1, 1935–March 4, 1936,* Documents on German Foreign Policy, 1918–1945, ser. C (1933–1937), vol. 4 (London: H.M. Stationery Off., 1962), p. 587.
36. See, for example, Jason Lavery, "Finnish-German Submarine Cooperation 1923–35," *Scandinavian Studies* 71, no. 4 (Winter 1999), pp. 393–418.

37. Günter Hessler, *The U-boat War in the Atlantic,* vol. 1, *1939–1941* (London: Tactical and Staff Duties Division, 1950), p. 109.
38. Wilhelm Deist et al., *The Build-Up of German Aggression,* trans. P. S. Falla, Dean S. McMurry, and Ewald Osers, vol. 1 of *Germany and the Second World War* (Oxford, U.K.: Oxford Univ. Press, 1990), pp. 466–67; Dönitz, *Memoirs,* pp. 61–62.
39. Karl Heinz Kurzak, "German U-boat Construction," U.S. Naval Institute *Proceedings* 81/4/626 (April 1955), p. 377.
40. Hessler, *The U-boat War,* vol. 1, pp. 109–10.
41. Gerhard Koop and Klaus-Peter Schmolke, *Battleships of the* Scharnhorst *Class* (Barnsley, U.K.: Seaforth, 2014), p. 10.
42. Raeder, *My Life,* pp. 196–98.
43. For a concise history of *Bismarck*'s construction, see Timothy P. Mulligan, "Ship-of-the-Line or Atlantic Raider? Battleship *Bismarck* between Design Limitations and Naval Strategy," *Journal of Military History* 69, no. 4 (October 2005), p. 1022. MacIntyre and Bathe erroneously claim that *Scharnhorst* was powered by diesel engines. They also characterize the *Scharnhorst* class as *battleships,* as do German sources, while other sources use the term *battle cruisers*. Donald MacIntyre and Basil W. Bathe, *The Man-of-War* (London: Methuen, 1968), p. 197.
44. Bird, *Erich Raeder,* p. 118.
45. Quoted in ibid.
46. Ibid., p. 120.
47. Rahn, "German Navies from 1848 to 2016," pp. 35–36.
48. At this point, Hitler still believed he could wage war on the European continent without drawing Britain into the conflict, in which case he would need a powerful surface fleet to balance the Royal Navy more than a commerce-raiding force. Bird, *Erich Raeder,* pp. 124–28.
49. Bekker, *Hitler's Naval War,* pp. 24, 33–34. See also app. 2 of this text for the production plan of the Plan Z fleet, p. 372.
50. Quoted in Eberhard Rössler, *The U-boat: The Evolution and Technical History of German Submarines,* trans. Harold Erenberg (London: Arms and Armour, 1981), p. 112.
51. Office of Naval Intelligence, trans., "Battle Instructions for the [German] Navy (Issue of May 1939)" (unpublished typescript, n.d.), p. 9, available at history.navy.mil/.
52. Ibid., p. 10.
53. See Roy O. Stratton, "Germany's Secret Naval Supply Service," U.S. Naval Institute *Proceedings* 79/10/608 (October 1953). For a study of the secret supply chain for the German navy in collaboration with the Spanish government, see Juan J. Díaz Benítez, "The Etappe Kanaren: A Case Study of the Secret Supply of the German Navy in Spain during the Second World War," *International Journal of Maritime History* 30, no. 3 (August 2018), pp. 472–87.
54. "Battle Instructions for the [German] Navy," pp. 9–10. Germany's principle of economic warfare against Britain was reiterated in the operation orders to *Deutschland* and *Graf Spee* in the weeks prior to the outbreak of war. "Operational Orders for *Deutschland* and *Admiral Graf Spee*," Berlin, 4 August 1939, in *FCNA,* p. 35. Raeder reflects on Plan Z at the outbreak of war in Raeder, "Reflections of the C.-in-C., Navy, on the Outbreak of War," p. 37; and in his memoirs, Raeder, *My Life,* p. 273.
55. For the British reaction, see Joseph A. Maiolo, "The Knockout Blow against the Import System: Admiralty Expectations of Nazi Germany's Naval Strategy, 1934–9," *Historical Research* 72, no. 178 (June 1999), pp. 202–28.
56. "Memorandum by Admiral Doenitz, F.O. U-boats. Date 1.9.39: The Building-Up of the U-boat Arm," 1 September 1939, in *FCNA,* p. 36.
57. Data on convoy losses from Malcolm Murfett, *Naval Warfare 1919–1945: An Operational History of the Volatile War at Sea* (London: Routledge, 2009), pp. 530–33. Overall shipping losses and surface fleet successes and losses are from Stephen Roskill, *The War at Sea, 1939–45*, vol. 1, *The Defensive* (London: H.M. Stationery Off., 1954), pp. 604–605, 615–16.
58. Hessler, *The U-boat War,* pp. 106–108. Raeder continuously requested that priority be given to the U-boats; Dönitz does not acknowledge these efforts in his memoirs.
59. Dönitz, *Memoirs,* p. 105.

60. *Graf Spee* and *Deutschland* had conducted cruiser warfare since 1939. *Deutschland* did not achieve much success. *Graf Spee,* after some success, was destroyed following the famous battle of the River Plate in December 1939.
61. The author published an earlier analysis and overview of German surface-fleet operations during the war in Peter Hooker, "Unprepared but Undaunted," *Naval History* (December 2017), pp. 14–19.
62. For operational orders, see German Naval Staff Operations Division, *War Diary,* pt. A, vol. 12, *August 1940* (Washington, DC: Chief of Naval Operations, 1947), p. 163. It often is claimed that the two *Scharnhorst*-class ships were the first. This likely is because of the change in classification of the *Panzerschiffe* to heavy cruisers during the war.
63. Bekker, *Hitler's Naval War,* pp. 206–209.
64. Roskill, *The War at Sea,* vol. 1, p. 277.
65. Koop and Schmolke, *Pocket Battleships,* pp. 124–27.
66. Bird, *Erich Raeder,* pp. 176–78.
67. O'Hara, *The German Fleet at War,* pp. 70–73.
68. For an examination of Operation BERLIN, see Peter Handel-Mazzetti, "The *Scharnhorst-Gneisenau* Team at Its Peak," ed. Philip Lundeberg, U.S. Naval Institute *Proceedings* 82/8/642 (August 1956). See also Richard Garrett, Scharnhorst *and* Gneisenau: *The Elusive Sisters* (Newton Abbot, U.K.: David & Charles, 1978).
69. Hessler, *The U-boat War,* p. 67.
70. Roskill, *The War at Sea,* vol. 1, p. 372.
71. Ibid., p. 379.
72. Dönitz, *Memoirs,* p. 131.
73. Raeder took this success as validation of his prewar emphasis on economic warfare. Erich Raeder, "Report by the C.-in-C., Navy, to the Fuehrer on March 18, 1941, at 1600," in *FCNA,* p. 182. For the attacks on French coastal ports, see Erich Raeder, "Report by the C.-in-C., Navy, to the Fuehrer on April 20, 1941," in *FCNA,* p. 191.
74. Bird, *Erich Raeder,* p. 177; "The Operation of the *Bismarck* Task Force against Merchant Shipping in the Atlantic," undated, in *FCNA,* p. 201.
75. For an examination of *Bismarck*'s famous sortie, see David J. Bercuson and Holger H. Herwig, *The Destruction of the* Bismarck (New York: Overlook, 2001). See also *FCNA,* pp. 201–218, for documents from the German Naval Archives relating to the loss of the ship.
76. Roskill, *The War at Sea,* vol. 1, pp. 407–408.
77. *Hood* was sunk in the first five minutes of the engagement after a hit by *Bismarck* caused a detonation in the ship's ammunition magazines; all but three of the 1,418 crewmembers were killed in the resulting explosion.
78. Bercuson and Herwig, *Destruction of the* Bismarck, p. 224.
79. They were later replaced by a new class of U-boat, the Type XIV supply boat or "milch" cow.
80. Díaz Benítez, "The Etappe Kanaren," pp. 483–84.
81. Erich Raeder, "Report by the C.-in-C., Navy to the Fuehrer in the Evening of December 29, 1941, at Wolfsschanze," in *FCNA,* pp. 248–49; Erich Raeder, "Memorandum Concerning the Report the C.-in-C., Navy, Made to the Fuehrer January 12, 1942, on the Planned Passage of the Brest Group through the Channel," in *FCNA,* pp. 256–59.
82. Duncan Redford, "The March 1943 Crisis in the Battle of the Atlantic: Myth and Reality," *History* 92, no. 305 (2007), pp. 65–67.
83. Karl Dönitz, *The Conduct of the War at Sea* (Washington, DC: Chief of Naval Operations, 1946), p. 14.
84. Churchill, *The Second World War,* vol. 2, pp. 525–29.