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OPERATION RHINE EXERCISE, MAY 18–27, 1941

Milan Vego

The pursuit and sinking of the German battleship *Bismarck* in May 1941 constituted one of the largest fleet-versus-fleet operations in European waters during World War II. Between May 24 and 27, 1941, the British used five battleships, two battle cruisers, two aircraft carriers, four heavy and seven light cruisers, twenty-one destroyers, eight submarines, and fifty aircraft to hunt the *Bismarck* combat group.¹

The *Bismarck* combat group's ultimately unsuccessful attempt to attack British convoys in the northern Atlantic—Unternehmen RHEINÜBUNG (Operation RHINE EXERCISE)—was, for the Germans, an *operation*; in U.S. terms, a *major operation*. Although the main German forces consisted of only one battleship and one heavy cruiser, planning for the operation was conducted from the operational-strategic to the tactical level of command.

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STRATEGIC SETTING

For most of the interwar years, the Germans considered France and Poland, and possibly Soviet Russia, to be their most likely opponents in a future war; they did not consider war with Britain a serious possibility. In April 1933, the new chancellor, Nazi leader Adolf Hitler, stated that Britain's Royal Navy never again would be considered a potential adversary of the German navy. In line with this, Admiral Erich Raeder (1876–1960),

commander in chief (CINC) of the Kriegsmarine (German navy) from 1928 to 1943, built a fleet that was not intended to challenge Britain again unilaterally, but instead to complement Germany's policies on the continent.²

By 1937, however, German naval strategy had shifted toward the offensive. Raeder envisaged energetic employment of German naval forces to exert strategic pressure on the enemy's superior forces; a more favorable balance of forces was to result. This became the basis for the Kriegsmarine's operational thinking.³ On February 3, 1937, in his meeting with Hitler and Field Marshal Werner von Blomberg (1878–1946), the then minister of war and CINC of the armed forces, Raeder explained the Kriegsmarine's strategy in the case of a war. He stated that what he called *Atlantikkriegführung* (Atlantic warfare) and war in distant ocean areas would be part of the larger war effort. The objective would be to secure control of sea communications by hitting the enemy decisively, thereby contributing to the overall strategic objective.⁴

A major change in German foreign and military policy came on May 24, 1938, when Hitler reversed his earlier, more benign views on Great Britain.⁵ He issued instructions to consider the country a possible enemy, in addition to France and Soviet Russia.⁶ In June 1938, Raeder directed his staff to explore the implications of a war with Britain.⁷ This staff study on German naval warfare then served as the basis for combat instructions issued later in 1938.⁸ In the summer of 1938, the Seekriegsleitung (Naval Warfare Directorate) (SKL) produced a memorandum that concluded that, in a future war with Britain, owing to Germany's unfavorable geographic position and the likelihood of British naval superiority, Germany should focus only on commerce warfare on the high seas. Such a war would be conducted with *Panzerschiffe* (armored ships popularly referred to as "pocket" battleships), cruisers, and U-boats. The Germans harbored some doubts that a successful outcome was even possible.⁹ High naval officials also studied the employment of battleships, with contradictory results: all participants agreed that battleships were necessary, but reached no consensus regarding their employment.¹⁰

Admiral Raeder believed that if a major war broke out, Germany should concentrate all its forces against Britain. The construction of U-boats and the production of aircraft must receive unconditional priority. In his concept, the Luftwaffe would mine the approaches to British ports and destroy transportation facilities, so the Kriegsmarine could conduct trade warfare using U-boats and surface ships, supported by naval aircraft. Raeder also believed that trade warfare could not be limited to belligerents but must include attacks on neutral shipping.¹¹

The Germans were aware that, as things stood, in the case of a war at sea with Britain their position would be inferior. But Hitler wanted Germany to have

a much larger navy, one that could be used as a global instrument of power. So early in 1938, Hitler directed that a formidable force of battleships be built. Raeder therefore revised the existing naval construction program. The result was the so-called Plan Z, which envisaged a Kriegsmarine that was numerically and qualitatively much larger. Hitler formally approved Plan Z in January 1939. The projection was that by 1946 the Kriegsmarine would have in service six new-class fifty-thousand-ton battleships (with diesel engines and 406 mm guns), three new-class ten-thousand-ton pocket battleships, four twenty-thousand-ton aircraft carriers, five ten-thousand-ton heavy cruisers, sixteen eight-thousand-ton light cruisers, twenty-two five-thousand-ton scouting cruisers, sixty-eight destroyers, and ninety torpedo boats. Initially, Plan Z envisaged construction of around 250 U-boats (twenty-seven of two thousand tons, sixty-two 750-ton Type IXs, one hundred five-hundred-ton Type VIIs, and sixty 250-ton Type IIs).¹² In the summer of 1939, the number of U-boats planned was increased to three hundred.¹³

On August 4, 1939, the SKL directed that in the case of a war the Kriegsmarine was to cut off enemy sea communications by using all available forces. Enemy naval forces were to be attacked only if that would contribute to the war on enemy commerce.¹⁴ The day before Germany's September 1 invasion of Poland, Hitler's Directive Number 1 ordered that if Britain and France declared war the Kriegsmarine was to concentrate on commerce destruction, especially against Britain.¹⁵ The Luftwaffe was directed to prepare to conduct air attacks against shipping carrying imports to Britain.¹⁶

Yet when war began with Britain and France on September 3, 1939, the construction for which Plan Z called barely had started, and the Kriegsmarine was unprepared to carry out a protracted war at sea, especially on the open ocean. Britain's naval power was overwhelming compared with that of Germany. At that time the Kriegsmarine had in service six heavy surface combatants: two battleships (which sometimes were referred to as battle cruisers), three pocket battleships, and one heavy cruiser. These were the only units capable of conducting sustained operations on the open ocean. The remainder of the fleet consisted of six light cruisers, twenty-two destroyers, and twenty torpedo boats. Under construction were four battleships, two aircraft carriers, four heavy cruisers, sixteen destroyers, and ten (destroyer-size) torpedo boats. Out of fifty-seven U-boats, only twenty-two were suitable for employment in the Atlantic.¹⁷ Raeder later wrote that the Kriegsmarine was, from the beginning of war, numerically inferior to the naval services of its enemies. The Kriegsmarine lacked aircraft carriers and sufficient escorts for its large surface combatants. It did not have an adequate number of long-range reconnaissance aircraft. Germany also lacked advanced naval bases overseas. In Raeder's view, only unity in planning operations and decisiveness in their execution could neutralize the enemy's advantages.¹⁸

OPERATIONAL SITUATION

Initially, Germany conducted its war on Britain's maritime commerce almost entirely with U-boats. June 1940 brought great improvement to the U-boat situation owing to new bases obtained in Norway and France. Use of the French bases reduced the U-boats' transit distance to their operating areas by some 450 nautical miles. At the same time, British antisubmarine (A/S) defenses were weak. But the Germans could not exploit these advantages, because the number of U-boats at sea was small. Between June 1, 1940, and March 1, 1941, seventy-two U-boats entered into service, while only thirteen were lost. Yet between November 1940 and February 1941 only some twenty-four boats were operational, and only about ten were in the operating area at any time.¹⁹ At the end of February 1941 the number of frontline U-boats was only twenty-two; many of the remaining U-boats were undergoing training.²⁰ However, despite their numerical weakness, the U-boats were highly successful in destroying enemy shipping. From June 1940 to March 1941, U-boats sank 381 ships of over two million *Bruttoregistertonnen* (gross registered tons) (BRT).²¹

In March 1940, the Germans started to employ auxiliary cruisers in distant ocean areas.²² By the end of March 1941, the seven auxiliary cruisers then in service had sunk or captured some eighty ships, of 494,291 BRT. Yet in contrast to the U-boats, the tonnage of enemy ships the auxiliary cruisers destroyed was of secondary importance; their principal purpose was to tie down enemy forces in distant areas, thereby relieving enemy pressure in home waters.²³

Admiral Raeder's views on employing heavy surface ships were influenced greatly by his personal experiences during World War I. The leaders of the former Imperial German Navy had been criticized heavily for their failure to employ the battle line actively during the war, and Raeder was determined that under no circumstance would an analogous situation develop in the employment of heavy surface ships during any new war. The German principal objective in employing heavy surface ships against enemy maritime traffic was to destroy enemy merchant ships. This required that German heavy surface ships remain undamaged for as long as possible. Hence, they had to avoid encounters with equally strong or superior enemy forces.²⁴

The Kriegsmarine was unable to begin using its heavy surface ships against British shipping during the spring and summer of 1940 because it was focusing all its attention on supporting the campaign in Norway and preparing to carry out Plan SEELÖWE (SEA LION), the invasion of England. In September 1940, the Germans attempted for the first time to employ one of their heavy surface ships, the heavy cruiser *Admiral Hipper*, to attack British traffic in the Atlantic. However, that attempt failed when the ship developed engine problems.²⁵ Engine

malfunctions also delayed the next attempt, a sortie by the pocket battleship *Admiral Scheer*. Finally, on October 29, 1940, *Admiral Scheer* left Gotenhafen (Gdynia today) in the Baltic Sea for the Atlantic. It operated in the Caribbean Sea and the Indian Ocean.²⁶ When it returned to Kiel on April 1 after around 160 days, it had cruised 46,000 nautical miles and sunk seventeen ships of 113,233 BRT.²⁷ *Admiral Scheer* also forced the enemy to assign large forces to protect his convoys. In the meantime, *Admiral Hipper* made a foray into the Atlantic from November 30 to December 27, 1940. It returned to Brest, France, because of repeated engine problems.²⁸ In its second foray, *Admiral Hipper* left Brest on February 1 and returned to Kiel on March 28. During this cruise it sank seven ships of 32,896 BRT and heavily damaged two other ships of 9,899 BRT.²⁹

While *Admiral Scheer* and *Admiral Hipper* were at sea on January 22, 1941, the SKL sent battleships *Scharnhorst* and *Gneisenau* out into the Atlantic to attack enemy shipping (Operation BERLIN). Their two-month cruise was highly successful. Some twenty-two ships of 115,622 BRT were either sunk or captured.³⁰ This number included sixteen enemy ships, of eighty thousand BRT, that had been sailing independently. Both battleships returned to Brest on March 22.³¹

From July 1940 to March 1941, German heavy surface ships sank or captured forty-seven ships of over 250,000 BRT.³² During that same period, Luftwaffe bombers sank almost the same tonnage.³³ Yet this put the performance of both categories far behind that of the auxiliary cruisers. However, by the spring of 1941 Germany had battleships, heavy cruisers, and auxiliary cruisers operating in the Atlantic, Pacific, and Indian Oceans.³⁴ Admiral Raeder believed that good opportunities existed in 1941 to destroy enemy shipping in the Atlantic by using surface ships in coordination with U-boats.³⁵ And indeed, British shipping losses from enemy action rose steadily as 1941 unfolded: during February some 403,600 tons of shipping were lost, 529,000 during March, and 687,000 during April. Most of these losses occurred in the Atlantic.³⁶

To Admiral Raeder and the SKL, the results from employing heavy surface ships during the fall of 1940 and the winter and spring of 1941 confirmed that their concept was valid. They had high hopes for even greater future successes after the entry into service within a few months of *Bismarck* and *Tirpitz*, the strongest battleships in the world. At the same time, Raeder and the SKL had no illusions; a day would come when operations with heavy surface ships in the Atlantic would become prohibitively risky. For instance, they considered it only a matter of time before the United States entered the war.³⁷ Hence, their intent was to intensify the employment of their heavy surface forces while it was still possible to do so.³⁸

Operating Area

The area in which the opposing forces operated encompassed rather a large part of the eastern North Atlantic. Prior to combat, the *Bismarck* group moved from Gotenhafen across the southeastern part of the Baltic, through the Danish straits, and along the Norwegian coast up to Trondheim. Almost all the combat actions took place in the area between latitudes 45 and 67 degrees N and between longitudes 10 and 40 degrees W. This area is bounded by Iceland and Greenland to the north, Ireland and Scotland to the east, and the Faeroe and Shetland Islands to the northeast.

The climate in the northeastern Atlantic, the British Isles, and Iceland is influenced greatly by the remnants of the Gulf Stream, the Icelandic Low in winter months, and the North Atlantic Subtropical High. These factors result in mild, rainy winters and relatively dry summers.³⁹ The North Atlantic is well known for its bad weather; fair weather is rare.⁴⁰ In general, clouds cover the area up to 70 percent of the year, mostly with low-altitude formations.⁴¹

In the eastern Atlantic, winds generally blow from the west. While they decrease in the summer, winds higher than force 4 prevail at least 65 percent of the year.⁴²

In the northeastern Atlantic, storms are fairly frequent, especially north of the British Isles. The most dangerous are large storms that stall over the central North Atlantic. They sweep the area with strong southwesterly winds, creating heavy seas for long periods. These extratropical cyclones (large-scale low-pressure weather systems that occur in midlatitudes) are most prevalent during the winter months. Off the west coasts of England, Scotland, and Ireland, winds are strongest from October through March, with December and January the roughest months.⁴³

In the northern part of the North Atlantic, field ice appears in January and lasts until April.⁴⁴ Harbor ice may occur from December to May; during the period in question, it generally prevented the use of ports in Greenland, Labrador, Newfoundland, and Nova Scotia.⁴⁵ Pack ice and icebergs are carried down the east coast of Greenland through the Denmark Strait. Between mid-August and November or December there is little ice in the Denmark Strait; navigation is more restricted during the rest of the year, especially from March to June, when ice covers most of the strait. However, ice seldom is found within the hundred-fathom line, owing to a warm, northward-flowing current.⁴⁶

The North Atlantic itself is too deep for laying mines; however, mines could be laid in the Denmark Strait, off the coasts of Iceland and Britain, and in the Iceland–Faeroes–Shetlands passages.⁴⁷ Iceland's entire coast is fronted by an extensive 110-fathom shelf that extends forty to sixty miles offshore. In January 1941, the British laid some two thousand mines between Iceland and the Faeroe

Islands, more mines in February, and 6,100 more in March. On April 26, mines were laid off the northwest tip of Iceland, with the minefield extending some fifty miles in a northwesterly direction.⁴⁸ Reportedly, the Germans were aware of this minefield.⁴⁹

The duration of the day in the operating area greatly affected the employment of guns, torpedoes, and aircraft. Among other things, long, bright nights in the summer made it difficult to conceal the movement of ships. For example, on May 24, 1941, sunrise at latitude 67 degrees N and longitude 27 degrees W was at 0710, sunset at 0419. Thus, the duration of daylight was twenty-one hours, nine minutes. On the same day, sunrise at latitude 48 degrees N and longitude 42 degrees W occurred at 0258, sunset at 1830; the duration of the day was fifteen hours, thirty-two minutes. Conversely, long nights encompass a large part of the area from late fall to early spring. This heavily constrained the effectiveness of air reconnaissance. Long nights also limited the duration of aircraft contacts and the employment of torpedo aircraft and bombers from carriers and land bases. This greatly increased the likelihood of U-boats attacking successfully. At higher latitudes, long daylight during the summer months made it easy to observe and destroy supply ships. For the Germans, the most favorable time for breaking out into the northern Atlantic was from November through February; the most unfavorable, from May through September.⁵⁰

The area of operations for the German naval forces and the Luftwaffe stretched from the Polish and German coasts in the Baltic Sea to Denmark and Norway's occupied southwestern and western coasts. The most important bases were at Gotenhafen and Danzig (Gdańsk today) and the Bergen area and Trondheim in Norway. The British Royal Navy used a relatively large number of naval/air bases in northern Scotland and the Orkneys. On Scotland's eastern coast, the most important naval bases were at Cromarty, Invergordon, and Inverness. The Firth of Clyde (near Glasgow), Loch Ewe, Liverpool (in northwest England), and Pembroke (in southwest Wales) were the largest bases on Britain's western coast.⁵¹

Scapa Flow was the main base for the Royal Navy's Home Fleet. It is the best anchorage in the Orkneys, offering ships an almost landlocked shelter. Depths range up to 118 feet, while tidal currents within the harbor are almost negligible.⁵² The distance from Scapa Flow to Trondheim is 795 miles.

The British ships and aircraft based in northern Scotland operated from a central position in relation to any hostile force trying to break out through the Denmark Strait and the Iceland–Faeroes–Shetlands passages. Hence, they benefited from divergent and relatively short lines of operation. The distance between the Pentland Firth (a strait separating the Orkneys from Caithness, in northern Scotland) and Reykjavík is about 790 miles. Similarly, the British forces that patrolled the Denmark Strait or were based in Iceland were located in a central position

and hence also had short and diverging lines of operation. In contrast, the German surface ships approaching the British blocking positions had to traverse long and converging lines of operation.

Operational Command and Control

One of the most critical elements in the planning and successful execution of any military action is command and control (C2). Sound command organization or structure is one of the prerequisites for successful C2. Optimally, command organization should be centralized but at the same time allow for sufficient freedom of action by subordinate commanders. This combination can be accomplished by having intermediate levels of command and by applying faithfully, at all levels of command, the German-style mission command. Command organization should delineate clearly the authority and responsibilities among commanders at all levels.

Germany's Kriegsmarine was a highly centralized organization. Raeder argued (correctly) that high headquarters has all the information, the necessary communications facilities, knowledge of enemy radio traffic, and full control of the supply organization.⁵³

Raeder was CINC of the navy, head of the Oberkommando der Marine (Naval High Command), and chief of the SKL. The SKL was responsible for planning and conducting naval warfare beyond home waters. It consisted of several departments, with the 1st, or Operations, Department (1./SKL) being the most important.⁵⁴

The *Flottenkommandant* (fleet commander) was a four-star admiral. As in the Imperial German Navy, the fleet commander was the highest operational commander for surface forces. He was embarked aboard a flagship.⁵⁵ Subordinate to the fleet commander were various type-force commanders. The fleet commander's position was weakened greatly when *Marinegruppenkommandos* (naval group commands) were established, the first being Naval Group Command East, established in Kiel, Germany, in November 1938. It was disbanded in August 1940 and merged into Naval Group Command North on August 8, with headquarters in Wilhelmshaven-Sengwarden.⁵⁶ Naval Group Command North was responsible for all Kriegsmarine activity in the Baltic Sea, the German Bight, Denmark, and Norway.⁵⁷ Naval Group Command West was established at Wilhelmshaven-Sengwarden in August 1939. Initially it was responsible for operations in the German Bight, North Sea, and Atlantic Ocean. Its headquarters was moved to Paris in August 1940. The responsibilities of Naval Group Command West for operations in the German Bight and the North Sea were transferred to Naval Group Command North. Naval Group Command West retained operational control in the Atlantic and became responsible for operations in the English Channel, Bay

of Biscay, and Southwest Approaches (to the British Isles).⁵⁸ The establishment of naval group commands transferred ashore the operational control of seagoing forces, in essence reducing the fleet commander to a tactical commander in combat.⁵⁹ During the *Bismarck* operation, the commander of Naval Group Command North was Admiral Rolf Carls (1885–1945), while Naval Group Command West was commanded by Admiral Alfred Saalwächter (1883–1945).⁶⁰

The German U-boat arm was established officially on September 27, 1935. After January 1936, U-boats were led by the Führer der Unterseeboote (leader of U-boats), with a rank of navy captain; on October 17, 1939, the position was elevated to Befehlshaber der Unterseeboote (commander of U-boats) (B.d.U.), with a rank of rear admiral.⁶¹ At the time of the *Bismarck* foray, the B.d.U. was Admiral Karl Dönitz (1891–1980). He was directly subordinate to the SKL.

The highest British naval authority was the Admiralty, led by First Lord of the Admiralty Albert V. Alexander (1885–1965). (His position was the equivalent of today's Secretary of the Navy in the United States.) The Admiralty itself consisted of five sea lords plus four other high officials. The First Sea Lord and Chief of Naval Staff was Admiral Dudley Pound (1877–1943). He was the highest naval official responsible for naval operations. In contrast to the Air Ministry, the Admiralty's responsibilities included operational planning and execution. The most important Admiralty divisions were Plans, Operations, Trade, and Intelligence. The work of the Plans and Operations Divisions was coordinated closely with the Intelligence Division.⁶²

The Naval Staff was created in 1917. The Plans Division was responsible for making strategic and operational decisions. The Operations Division controlled deployed naval forces in home waters and overseas. It was also responsible for worldwide naval dispositions and day-to-day, even hour-to-hour, movements. Naval area commands and overseas commands enjoyed almost total independence. Yet the Admiralty remained a focal point for the direction of fleet operations. The principal maritime theater for the British was the northern Atlantic.⁶³

The Home Fleet, created in 1902, represented the largest operational level of command in the Royal Navy. Its operating area was the waters around the British Isles. The Home Fleet was organized into a number of type-force commands, with a flag officer leading each one. In September 1939, the main components of the Home Fleet were the 2nd Battle Squadron; the 1st Battle Cruiser Squadron (BCS 1); the 18th Cruiser Squadron (CS 18); Rear Admiral, Submarines (2nd Submarine Flotilla, 6th Submarine Flotilla); Vice Admiral, Carriers; 6th and 8th Destroyer Flotillas; and the Orkneys/Shetlands force. Another element that played a significant role in the operation in question was Force H, established in June 1940. It was based at Gibraltar and operated mainly in the western

Mediterranean. It consisted of one carrier (*Ark Royal*), one battle cruiser (*Renown*), one light cruiser, and six destroyers.⁶⁴

Another major element was Western Approaches Command, which was led by a CINC, a four-star admiral. It was established in Liverpool, England, on September 9, 1939. The Combined Operations Headquarters was moved from Plymouth, England, to Liverpool on February 17, 1941. The main responsibility of Western Approaches Command was the defense and protection of the transatlantic convoys and coastal shipping in the Western Approaches.

The Royal Air Force (RAF) Coastal Command was established in 1936. It became the RAF's only maritime arm after the Fleet Air Arm was transferred to the Royal Navy in 1937. The main responsibility of the Coastal Command was to defend the British (and later Allied) convoys from U-boat and Luftwaffe attacks. In 1941, the principal subordinate commands of the Coastal Command deployed on the British Isles were Number 15 Group, with headquarters in Liverpool; Number 16 Group, at Chatham, in Kent, southeast England; and Number 18 Group, at Pitreavie Castle, near Rosyth, Scotland.⁶⁵

The Opposing Commanders

The two highest commanders of the opposing seagoing forces in the operation were the German fleet commander, Admiral Günther Lütjens (1889–1941), and the British CINC of the Home Fleet, Admiral John Tovey (1885–1971).

Lütjens was considered to be one of the ablest German admirals: highly intelligent, deliberate, and levelheaded in his assessment of situations and people.⁶⁶ He was dedicated, single-minded, stoical, and austere. There was no doubt that he was a man of great personal courage and integrity.⁶⁷ He was not a Nazi believer.⁶⁸

Lütjens entered the Imperial Navy in April 1907 and graduated from its naval academy. During World War I, he spent most of his time in torpedo boats, took part in a series of raids against Dunkirk, and by 1917–18 was a torpedo flotilla leader. During the 1920s, Lütjens commanded a battleship and a torpedo boat flotilla.⁶⁹ He was promoted to captain in July 1933 and served in the Naval Personnel Office. Through the rest of the 1930s, Lütjens commanded a light training cruiser, served as chief of the Naval Personnel Office, and was Commander of Torpedo Boats (which included destroyers).⁷⁰ He was promoted to rear admiral in October 1937 and vice admiral in January 1940. He was Commander, Scouting Forces and deputy to the fleet commander, Admiral Wilhelm Marschall (1886–1976). In March 1940, Lütjens commanded the battleships *Scharnhorst* and *Gneisenau* during the invasion of Norway in April–June 1940.⁷¹ He also was briefly acting fleet commander during the campaign in Norway, when Marschall fell sick.⁷² In July 1940, Lütjens became fleet commander. On September 1, 1940, he was promoted to four-star admiral.⁷³ Lütjens led a highly successful foray with two battleships (*Scharnhorst* and *Gneisenau*) in January–March 1941 (Operation

BERLIN). Admiral Raeder had high confidence and trust in Lütjens, greatly valuing his broad and diverse professional experience.⁷⁴

Admiral John Tovey entered the Royal Navy at the age of fifteen. He was commanding officer of the destroyer *Onslow* in the battle of Jutland in 1916, during which *Onslow* “single-handedly” attacked the German cruiser *Wiesbaden*; Tovey successfully brought his badly damaged ship back to port.⁷⁵ He spent most of his subsequent career in destroyers. Tovey served as Rear Admiral, Destroyers, Mediterranean Fleet in 1938, and then as Vice Admiral, Light Forces in 1940. He was considered a natural leader.⁷⁶ He was aggressive and acted with a great deal of initiative. Admiral Andrew Cunningham (1883–1963), CINC of the Mediterranean Fleet—known as a strict disciplinarian—had a high opinion of Tovey’s professional abilities; however, Admiral Dudley Pound, the First Sea Lord, had a more ambiguous, if not a negative, view. Pound considered Tovey “difficult at times and not overburdened with brains.”⁷⁷ Tovey did what he thought was right; he refused to kowtow to superiors; and he hated yes-men.⁷⁸ Tovey had an awkward initial interview with Prime Minister Winston S. Churchill (1874–1965) that almost cost him the job, but in the end he became CINC of the Home Fleet largely because of the support of First Lord Alexander and Admiral Pound.⁷⁹ Later Churchill found Tovey stubborn and wanted to get rid of him.⁸⁰

Tovey took command of the Home Fleet on December 20, 1940. His appointment broke with tradition because he was a junior vice admiral; normally, the CINC of the Home Fleet was a senior four-star admiral or admiral of the fleet.⁸¹ Tovey immediately began intensive training in night fighting, both in conducting air attacks and in defending against enemy air attacks.⁸²

Vice Admiral Sir James F. Somerville (1882–1949) was in command of Force H. His naval career as a commissioned officer began with service in the armored cruiser *Sutlej*. He became a specialist in wireless telegraphy. During World War I, Somerville served in the battleship *Marlborough*, battleship *Queen Elizabeth*, battle cruiser *Inflexible*, and cruiser *Chatham*. He was promoted to captain in 1921. Throughout the 1920s, he served as Deputy Director of Signals at the Admiralty, next commanded the 4th Battle Squadron and the battleship *Benbow*, and then returned as Director of Signals. In 1931, Somerville commanded the cruiser *Norfolk* in the Home Fleet. Somerville was promoted to commodore in 1932 and a year later to rear admiral. He served as Flag Officer, Destroyers in 1936. After being promoted to vice admiral in September 1937, he became CINC, East Indies in July 1938. Because of illness Somerville retired in early 1939, but was recalled to active duty late in the year. He was deputy to Admiral Bertram Ramsay (1883–1945) during the Dunkirk evacuation. Somerville was appointed commander of the newly established Force H on June 22, 1940.

Operational Intelligence

In 1941, British signal intelligence (SIGINT) was not yet fully developed, and the penetration of German codes was still in its infancy; in 1940, priority had been given to cracking the Luftwaffe's codes because they were readily accessible. Also, the Battle of Britain, not war in the North Atlantic, was the most immediate threat. The Kriegsmarine was very careful in coding its radio messages, and used a very sophisticated, almost impenetrable version of the Enigma machine. The British did not achieve even isolated breakthroughs in Kriegsmarine radio traffic until 1940, and the most important breakthrough was achieved in June 1941—after the sinking of *Bismarck*. Until then, British SIGINT contributed only direction finding (DF) of German naval radio transmissions and some traffic analysis.⁸³

This SIGINT was supplemented with air reconnaissance of German naval bases and shipyards. The Royal Navy did not have land-based reconnaissance aircraft to reconnoiter German naval bases in the Baltic such as Gotenhafen, so it depended on the RAF to perform that function. However, the RAF generally was reluctant to divert any resources from its strategic bombing efforts; it did not want to risk its aircraft on naval targets. Therefore photoreconnaissance contributed little to the operational intelligence available.⁸⁴

The British Special Intelligence Service (SIS) had an extensive network of agents, mostly resistance fighters and Western sympathizers in German-occupied countries. SIS agent reports provided critically valuable information on enemy naval movements.⁸⁵ The British apparently had many agents in Norway who reported on German military activities. They used shortwave transmitters to communicate with their contacts in London.⁸⁶

The Germans' principal sources of information on British forces and their movements were the Kriegsmarine's naval intelligence radio-intercept service, known as B-Dienst, and the Luftwaffe's reconnaissance aircraft. B-Dienst teams also were deployed aboard major surface combatants, including those of the *Bismarck* group. By September 3, 1939, B-Dienst had broken the major British merchant and naval operational codes, and thus was able to track British naval movements. However, changes to the British codes in August 1940 reduced B-Dienst's effectiveness in this area. Still, by October 1940 B-Dienst could read some 30 percent of British signals, and by January 1941 it again had mastered the British code system.⁸⁷

Photo and visual air reconnaissance was the responsibility of the Luftwaffe; however, it generally was not very receptive to Kriegsmarine requirements. Its aircraft lacked the endurance to conduct long-range missions—few Luftwaffe aircraft could fly over British bases. Luftwaffe personnel also lacked the training necessary to conduct visual recognition of naval targets.⁸⁸

THE GERMAN OPERATIONAL CONCEPT

The SKL and Naval Group Commands North and West prepared a number of studies on the employment of heavy forces in the conduct of *Atlantikkriegführung*. These studies served as the basis on which the SKL and naval group commands drafted *operative Weisungen* (operational instructions); a fleet commander issued *Operationbefehle* (operations orders).

On April 2, 1941, Admiral Raeder issued operational instructions to the fleet commander, the commanders of Naval Group Commands North and West, and the Commander of U-boats on the conduct of war in the Atlantic. He pointed out how tactical successes in the North Atlantic could have strategic effects on the war in the Mediterranean and the southern Atlantic. The most decisive effect on the war in the Atlantic would come from cutting off traffic between North America and Britain across the North Atlantic.

Raeder recognized that the numerically inferior German forces could not achieve sea dominance over the North Atlantic readily; however, he hoped the Germans could obtain local and limited control, and thereby gain sea dominance gradually. Raeder believed the enemy would be forced to strengthen significantly the defenses of his convoys, at the price of weakening his position in home waters and the Mediterranean or reducing the frequency of convoys.⁸⁹ Employing Germany's heavy ships over a wide ocean area would force the enemy to fragment his naval strength. This, in turn, would allow the Germans to mass forces against enemy weak points.⁹⁰

However, Raeder's concept was deeply flawed. Even if the Germans were able gradually to obtain sea control in the North Atlantic, they could not maintain it for very long.

German Plans

In his operational instruction issued on April 2, Raeder envisaged the employment of four battleships against enemy shipping in the Atlantic: *Bismarck* and *Tirpitz* from Gotenhafen and *Gneisenau* and *Scharnhorst* from Brest.⁹¹ They would join up in the North Atlantic and operate against convoys. The assumption was that the British would be forced to suspend convoys, and even might be forced to withdraw their battleships from the Mediterranean.⁹² These hopes were crushed when *Gneisenau* was torpedoed on April 6 and *Scharnhorst* experienced such serious machinery problems that it would not be available until the end of June. The British air raids on Kiel led to further delays in repairs to *Admiral Scheer* and *Admiral Hipper*; *Admiral Scheer* would not be available until the end of July, *Admiral Hipper* until August. The first German aircraft carrier, the 33,550-ton *Graf Zeppelin*, was eight months away from completion.⁹³ *Tirpitz* was undergoing sea trials and would not be operational by May 1941.

Raeder made a difficult decision: to employ *Bismarck* and the heavy cruiser *Prinz Eugen* alone. As a result, instead of being a part of a much larger effort, *Bismarck*'s foray became an isolated operation. This, in turn, greatly increased the risk, because the enemy would be able to concentrate all available forces against the *Bismarck* group.⁹⁴

The SKL issued the final operational instruction for RHEINÜBUNG on April 14, 1941. At his meeting with Hitler on April 20, Admiral Raeder pointed out that the first, similar operation in the North Atlantic, conducted by the battleships *Gneisenau* and *Scharnhorst* in January–March 1941, had been a significant tactical success. Moreover, it had considerable strategic effect in the Mediterranean and South Atlantic.⁹⁵ He also claimed that commerce warfare was proceeding successfully.⁹⁶ Raeder informed Hitler that the next battleship operation, by *Bismarck* and *Prinz Eugen*, would be conducted in late April. The Pan-American Security Zone would be respected.⁹⁷ Hitler, while not rejecting the plan, had great misgivings about it; yet he left it to Raeder to make the final decision.⁹⁸ Raeder emphasized to Hitler that dangerous conditions existed at Kiel and Wilhelmshaven, and at Brest as well, where German ships went for repairs after their forays into the Atlantic. Hence, Brest shipyard would be used only in exceptional cases; it was important to acquire use of the Spanish port of El Ferrol. Hitler promised to secure that port for German ships in the fall of 1941. He also asked Raeder to explore whether Organisation Todt could be used to build a large dry dock at Trondheim quickly.⁹⁹

Admiral Lütjens issued his operations order on April 22, 1941. Four days later, Lütjens had a meeting with Raeder to discuss the timing of the operation. Lütjens argued that the operation should be delayed until the damages *Prinz Eugen* had suffered when it ran into a mine were repaired.¹⁰⁰ He also suggested that *Bismarck* might sail out alone, to be followed by *Prinz Eugen*, or that both ships delay sortieing until the next new moon.¹⁰¹ Lütjens further believed that the operation's chances of success would be much greater if the combat group's sortie was delayed until either *Scharnhorst* was repaired or *Tirpitz* became fully operational; the latter had been commissioned in February but, as mentioned, was still undergoing sea trials. He presciently told Raeder that any employment of *Bismarck* alone would trigger a massive response from the enemy, reducing the chances of success. Lütjens and Raeder also discussed the use of Brest after the completion of the operation, with Raeder stating that any stay at the French port should be short, only to embark munitions and supplies. If *Bismarck* were heavily damaged, it should steer to Saint-Nazaire instead; for a longer pause or overhaul, *Bismarck* should head directly for home port. Lütjens stressed the importance of air reconnaissance of the Denmark Strait to locate the ice boundary and any enemy patrols. He also requested that Raeder assign a larger number of aircraft and

U-boats, plus fishing steamers, to support the operation. Raeder concurred, and gave corresponding orders to his chief of staff, Vice Admiral Otto Schniewind (1887–1964).¹⁰² Raeder later praised Lütjens for being so open with him, even though the fleet commander did not accept Raeder's reasoning entirely.¹⁰³ Lütjens had a premonition that *Bismarck's* foray would end badly. After meeting with Raeder, he stopped briefly in the office of the future rear admiral Hans Voss and reportedly said, "I'd like to make my farewells. I'll never come back." He added, "Given the superiority of the British, survival is improbable."¹⁰⁴

Raeder's operational instruction of April 14 stated that the *aufgabe* (task) of the fleet commander was to attack the enemy supply traffic in the Atlantic north of the equator.¹⁰⁵ The situation would determine the duration of the operation.¹⁰⁶ The primary aim was to destroy the largest volume of enemy shipping, particularly that destined for British ports.¹⁰⁷

The operations order that Lütjens issued on April 22 stipulated that the group's tasks were to sail through the Belts (the Danish straits) and the Arctic Ocean into the Atlantic, then attack shipping traffic in the northern Atlantic. Afterward, the group was to sail to a French port to replenish ammunition and supplies. If longer repairs or an overhaul were needed, the ships were to return to home port in Germany.¹⁰⁸ Originally, the operation was planned to start on April 28, to coincide with the new moon; however, it was delayed until May 18 because of the mine damages to *Prinz Eugen* and to conduct crane repairs on *Bismarck*.¹⁰⁹

The forces initially assigned to support the operation consisted of several Luftwaffe squadrons and several U-boats, plus a number of logistical support ships. The commander of the 5th Air Fleet, General Hans-Jürgen Stumpff (1889–1968), was informed about RHEINÜBUNG, and that all available aircraft in Denmark and Norway were to provide continuous fighter cover and a close A/S defense screen, as well as reconnaissance of the North Sea and the Arctic Ocean to the limits of the various aircrafts' effective ranges. They also were to reconnoiter the British naval base at Scapa Flow. Air Leader Stavanger assigned the responsibility for reconnaissance to 1st Squadron, 120th Aufklärungsgruppe (Reconnaissance Group) (designated 1. / F 120), reinforced by one squadron of the 121st Reconnaissance Group (F 121), which flew Junkers (Ju) 88s. Also deployed in support of the *Bismarck* group were naval flying boat squadrons and Heinkel (He) 115 squadrons; these were based in Norway, concentrated in the Skagerrak–Trondheim area. Two reconnaissance squadrons of Ju-88s and 1. / F 120 monitored Scapa Flow continuously. They also provided continuous coverage of the North Sea and the Arctic. Parts of the 30th Kampfgeschwader (Battle Wing) (KG 30), flying Ju-88s, and the 26th Battle Wing (KG 26), flying He-111s and based in Denmark and Kristiansand and Gardermoen, Norway, were put in combat readiness. Fighter protection was provided by Fighter Leader Norway.¹¹⁰

GERMAN ORDER OF BATTLE (PLANNED), APRIL 22, 1941

(F = flagship)

MAIN FORCES

Fleet commander: Admiral Günther Lütjens

1 battleship: *Bismarck* (F)

1 heavy cruiser: *Prinz Eugen*

SUPPORTING FORCES

6 U-boats (2 operating on north–south route, 4 operating on HX route [Halifax, Nova Scotia–U.K. ports])

2 reconnaissance ships (*Gonzenheim*, *Kota Penang*)

2 supply ships (*Ermland*, *Spichern*)

4 requisitioned tankers (*Lothringen*, *Belchen*, *Esso-Hamburg*, *Friedrich Breme*)

4 weather-observation fishing steamers (*Freese*, *München*, *August Wriest*, *Lauenberg*)

2 mine breakers (*Sperrbrecher 13*, *Sperrbrecher 31*)

5th Minesweeper Flotilla (*M-4*, *M-23*, *M-31*, *M-201*, *M-202*, *M-205*, *M-251*, *M-252*, *M-253*)

6th Destroyer Flotilla (*Z-23*, *Z-24*, *Hans Lody* [Z 10], *Friedrich Eckheldt* [Z 16])

5TH AIR FLEET, AIR LEADER STAVANGER

2 reconnaissance squadrons (1. / F 120 [Ju-88s] Stavanger, 1. / F 121 [Ju-88As])

2 battle wings (KG 30 [Ju-88As] Eindhoven, KG 26 [He-111Hs] Stavanger-Sola)

3RD AIR FLEET, AIR LEADER ATLANTIC

5 battle wings (II. / KG 1 [Ju-88As] Rosières-en-Santerre, I. / KG 28 [He-111s] Nantes, KG 40 [FW-200s/Ju-88As] Bordeaux-Mérignac, II. / KG 54 [Ju-88As] Bretigny, I. / KG 77 [Ju-88As] Juvincourt)

1 combat group (KG 100 [He-111Hs], Vannes-Meucon)

2 coastal air groups (KG 406 [He-115s] Hourtin/Brest, KG 506 [Ju-88As] Westerland)

Sources: Operationsbefehl des Flottenchefs für die Atlantikoperation mit “Bismarck” und “Prinz Eugen” (Deckbezeichnung: “Rheinübung”), April 22, 1941, pp. 40–41; Jürgen Rohwer and Gerhard Hümmelchen, *Chronology of the War at Sea, 1939–1945*, 2nd ed. (Annapolis, MD: Naval Institute Press, 1992), pp. 63–64.

But air support of the *Bismarck* group during its movement from Bergen to the Denmark Strait turned out to be very inadequate. The Luftwaffe lacked sufficient numbers of reconnaissance aircraft to provide comprehensive coverage in an area as distant as the Denmark Strait or the Iceland–Faeroes passage. In contrast, the Luftwaffe provided gap-free reconnaissance of the central and northern parts of the North Sea. It also envisaged full air cover for the *Bismarck* group during its operational deployment from Gotenhafen to Grimstadfjord (an inlet in the Korsfjord, near Bergen).¹¹¹ The North Atlantic west of longitude 30 degrees W was free of German aircraft, except for sporadic reconnaissance aircraft; however, Luftwaffe aircraft covered the entire sea area east of longitude 30 degrees W.¹¹² Generally, on a daily basis one or more Focke-Wulf (FW) 200s from Bordeaux or Stavanger conducted reconnaissance of the sea area northwest of Ireland out to approximately longitude 20 degrees W.¹¹³ Coastal reconnaissance was conducted from bases at Brest and Hourtin, France (some thirty-two miles northwest of

Bordeaux), out to longitude 11 degrees W, or variously out to two hundred nautical miles, with He-111s; extension out to longitude 20 degrees W using He-111s and Blohm & Voss 138s was in preparation. Additionally, two reconnaissance ships (*Gonzenheim* and *Kota Penang*), plus some U-boats, were deployed some three hundred nautical miles south of Cape Farewell, Greenland, the southern entrance to the Denmark Strait.¹¹⁴

Initially, four U-boats were assigned to cooperate with the *Bismarck* group.¹¹⁵ One was assigned to conduct weather observation in the area between latitudes 55 and 60 degrees N and between longitudes 20 and 25 degrees W.¹¹⁶ Admiral Lütjens's April 22 operations order stated that activity in the operating area would include some U-boats operating on the north–south convoy route and four others on the HX convoy route (which ran from Halifax, Nova Scotia, Canada, to U.K. ports) after the end of May, plus two reconnaissance ships and five tankers.¹¹⁷

Available to Naval Group Command West were one supply ship; three requisitioned tankers carrying fuel, munitions, and food; and three tankers in reserve.¹¹⁸ Assigned for logistical support of RHEINÜBUNG were two supply ships (*Ermland* and *Spichern*) and four (originally five) tankers (*Lothringen*, *Belchen*, *Esso-Hamburg*, and *Friedrich Breme*).¹¹⁹ The support ships were deployed in waiting positions in the North Atlantic: one supply ship (*Ermland*) between the Azores and the Lesser Antilles, and the other (*Spichern*) four hundred nautical miles west of Faial, Azores; and the tankers *Belchen* and *Lothringen* some 120 and 200 nautical miles, respectively, south of Cape Farewell. One tanker (*Esso-Hamburg*) was deployed some 450 nautical miles (nm) northwest, and another (*Breme*) about seven hundred nautical miles southwest of Faial.¹²⁰

Naval Group Command North would exercise control over the *Bismarck* group until it crossed a line running from the southern tip of Greenland to the northern tip of the Hebrides, when control would pass to Naval Group Command West.¹²¹ Thereafter Naval Group Command West would control the entire operation, with tactical control residing in the hands of Admiral Lütjens aboard *Bismarck*.¹²²

Admiral Lütjens was responsible for the movement of reconnaissance ships, supply ships, and tankers during their presence in the operating area. If breakout into the Atlantic was detected too early, the operation was to be shortened or aborted, depending on the situation. In such a case, either Naval Group Command West or the fleet commander would issue the order. If a sudden change in the situation required withdrawal to the Arctic, Naval Group Command North would make preparations for the arrival of the *Bismarck* group.¹²³

Several U-boats (two at a minimum) would be deployed off Freetown, Sierra Leone. Beginning in mid-June, up to four U-boats would be employed along

the eastern part of the HX route between longitudes 30 and 45 degrees W. Both groups would be subordinate to B.d.U., but if an opportunity arose for direct cooperation, the fleet commander had authority to give orders directly to the U-boats.¹²⁴

RHEINÜBUNG was to consist of five distinct phases: (1) movement from Gotenhafen to Grimstadfjord; (2) movement from Grimstadfjord to the Denmark Strait; (3) breakout into the North Atlantic; (4) attack on enemy shipping; and (5) return to home base. The SKL instruction issued on April 14 directed the *Bismarck* group to sortie from Gotenhafen in the afternoon of April 28. It would advance through the Belts/Skagerrak, then to the Arctic.¹²⁵ During the transit of the Belts, defense against mines would be provided by *Sperrbrecher* (mine breakers) and the 5th Minesweeper Flotilla.¹²⁶ During the group's transit through the Skagerrak, several destroyers would provide A/S protection.¹²⁷

Lütjens's operations order provided a very precise timeline for transiting the Skagerrak and the Kattegat. This was necessary to coordinate properly the mine countermeasures, A/S support, and Luftwaffe air cover. During the transit of Arkona and the Skagen barrier, in addition to mine breakers / minesweepers, four destroyers (*Z-23*, *Z-24*, *Hans Lody* [Z 10], and *Friedrich Eckheldt* [Z 16]) would provide the A/S screen for the *Bismarck* group.¹²⁸ By 1900 on April 30, the *Bismarck* group was to reach Kristiansand; at 0230 on May 1 it would reach the latitude of Stavanger; at 0630 the same day, that of Korsfjord/Bergen; and on May 2, that of Trondheim.¹²⁹

In operational terms, the planned movement of the *Bismarck* group from Grimstadfjord to the Denmark Strait was an *operational maneuver*, followed by a *tactical penetration* into the North Atlantic. The breakout was considered the most difficult part of the entire operation. The aim was to enter the Atlantic unobserved by enemy patrols, but if the *Bismarck* group were sighted the mission still was to be carried out to some extent, in accordance with the operational instructions.¹³⁰

The German leadership incorrectly assumed that enemy patrol forces in the Denmark Strait would consist of auxiliary cruisers.¹³¹ However, it assumed correctly that enemy aircraft also would patrol the Denmark Strait. The Germans knew that a bright night would make unobserved breakout more difficult, whereas low visibility would facilitate breakout. They also assumed that the Luftwaffe's reconnaissance of the northern part of the North Sea would be sufficient to provide an overview of the enemy situation.¹³²

The ice boundary also influenced planning. Naval Group Command North suggested to Lütjens that he execute the breakout between Iceland and the Faeroes because those waters were ice-free. In contrast, the Denmark Strait is narrow to begin with, and the width of the passage available varies with the

position of the ice boundary, which had the potential to make it easier for enemy ships to obtain and maintain contact with the *Bismarck* group. The enemy also could draw on more-southward-deployed units. Another advantage of transiting the gap was the shorter transit time, which saved fuel, whereas use of the strait would require refueling. Unfortunately, Lütjens was bound to follow SKL instructions, which stipulated an undetected breakout through the Denmark Strait into the Atlantic. Refueling would be provided by one tanker (*Weissenberg*), which would wait at latitude 70 degrees N, longitude 01 degree W.¹³³

After the successful breakout, searching for and destroying the largest volume of enemy shipping would be the *Bismarck* group's primary mission. In his operational instructions, Raeder directed that combat with an equally strong enemy should be avoided.¹³⁴ The only exception was if such an engagement would contribute to the accomplishment of the ultimate objective and the risk was low.¹³⁵

The *Gneisenau/Scharnhorst* foray in January–March 1941 had shown that, even when B-Dienst provided the departure date and route of an enemy convoy, detecting those convoys in the broad spaces of the ocean depended on luck; if it happened, it might be only by accident. In his operations order, Lütjens explained that enemy convoys normally were escorted by one battleship, often with two cruisers and two destroyers in addition. *Bismarck* would tie up the battleship, while *Prinz Eugen* would deal with any other ships in the convoy's screen.¹³⁶

Sailing to a French port would be considered only if no significant repairs were required; if lengthier repairs were needed, each ship would return to its home port.¹³⁷ If needed, the general alternate port of return would be Trondheim.¹³⁸

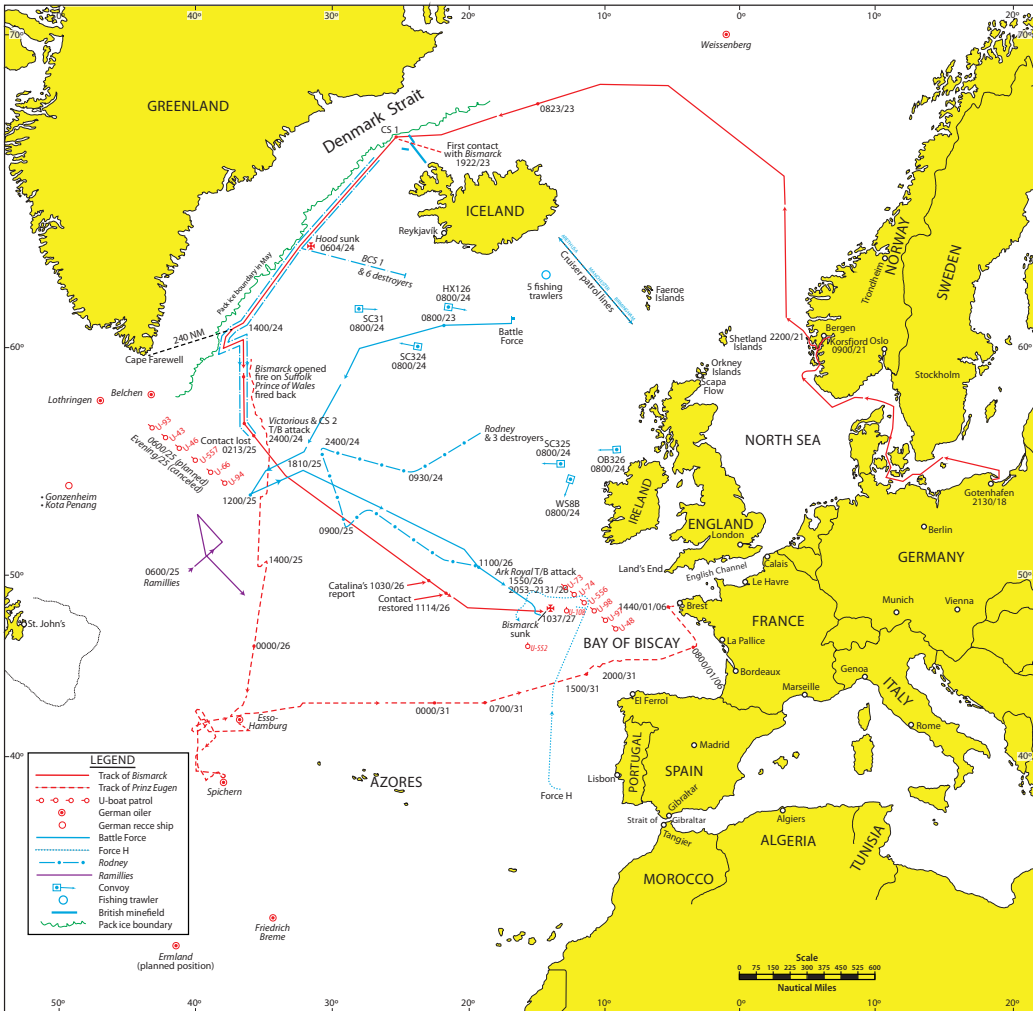
German Execution

Bismarck and *Prinz Eugen* possessed an unmatched power compared with their respective enemy counterparts. However, the Home Fleet and Force H had an enormous numerical superiority, plus effective support from RAF Coastal Command. (For details, see sidebars and map 1.)

The majority of supply ships and tankers sortied about a week prior to the *Bismarck* group. The first to do so was the tanker *Belchen* from La Pallice on May 10; two reconnaissance ships sortied from La Pallice on May 17.¹³⁹ Four tankers and two supply ships would operate in the area between latitudes 45 and 46 degrees N and longitudes 32 and 35 degrees W. In the same area were deployed four weather-observation fishing steamers.¹⁴⁰ Two tankers sailed into the Arctic.¹⁴¹ If bad weather delayed the *Bismarck* group breakout, one tanker was in a waiting position in the Norwegian Sea, while another tanker was at Trondheim.¹⁴²

Prior to his arrival at Gotenhafen, Lütjens stopped at Kiel to see his predecessor, Admiral Marschall. Marschall had been removed from his post because of

MAP 1
BISMARCK COMBAT GROUP'S FORAY INTO THE ATLANTIC, MAY 18–27, 1941
(OPERATION RHEINÜBUNG [RHINE EXERCISE])



differences with Raeder and Naval Group Command West commander Admiral Saalwächter. During the meeting, Marschall advised Lütjens not to follow instructions received from the SKL too literally. Marschall believed the fleet commander must have a certain freedom of action in case the situation changed.¹⁴³ Lütjens responded in a tragically resigned tone: “No! Two fleet commanders have already been relieved of their commands due to the displeasure of the Naval [High] Command. I do not wish to be the third. I know what the Naval Command desires and will carry out their orders.”¹⁴⁴

About one week prior to his arrival at Gotenhafen, Lütjens also visited his friend and former “crew member” (classmate) Rear Admiral Conrad Patzig

(1888–1975), the chief of the Personnel Office. Patzig asked why Lütjens had to go on board as the fleet commander, because the operation was minor in scale, yet the risk of losing his life was acute. Lütjens agreed with Patzig, but believed there was no alternative.¹⁴⁵ He did not want to question Raeder's decision. As mentioned, Lütjens apparently had a premonition of what would happen to him. He told Patzig: "I shall have to sacrifice myself sooner or later. I have renounced my private life and I am determined to execute the task which has been entrusted to me in an honorable manner."¹⁴⁶

On May 12, Hitler met with Field Marshal Wilhelm Keitel, the Oberkommando der Wehrmacht (chief of the Supreme Command of the Wehrmacht), and several high-ranking members of his staff visited *Bismarck* at Gotenhafen. Raeder was not present. Hitler inspected the ship and attended gunnery exercises. He had a long talk with Lütjens. He asked the admiral about the *Scharnhorst/Gneisenau* experience. Lütjens mentioned to Hitler the threat that enemy carrier-borne torpedo aircraft posed to *Bismarck*.¹⁴⁷

Phase I: Gotenhafen–Grimstadfjord (0000 May 18–0900 May 21). In operational terms, the movement of the *Bismarck* group from Gotenhafen to Grimstadfjord represented the *operational deployment*.¹⁴⁸ At about 0600 on May 18, Admiral Lütjens received from naval intelligence the latest status of the enemy heavy ships. The Germans estimated that in home waters were deployed three battleships (*Prince of Wales*, *King George V*, and *Rodney*), one battle cruiser (*Hood*), and only one carrier (*Victorious*). One damaged carrier (*Illustrious*) was probably on the way to the United States. For a long time, there was no information on the whereabouts of another carrier (*Argus*). Force H was in Gibraltar. On the north–south convoy route were deployed one battleship (*Repulse*) and one carrier (*Furious*) (used for ferrying aircraft from Britain to Gibraltar and the Gulf of Guinea). One battleship (*Nelson*) and one carrier (*Eagle*) had left Durban, South Africa, on May 10, but it was unclear whether they were organized as a group.¹⁴⁹

During the forenoon of May 18, Admiral Lütjens issued his *Absicht* (intent) for the pending operation. He stated that if the weather situation were favorable for breaking out (i.e., it was bad), his intent was not to stop at Korsfjord but to proceed directly to the Arctic, refuel from the waiting tanker *Weissenberg*, then break out into the northern Atlantic through the Denmark Strait at high speed. He hoped that if reduced visibility and fog prevailed, an encounter with the enemy cruisers or auxiliary cruisers in the Denmark Strait could be avoided. In the case of an encounter with light forces, *Prinz Eugen* might use its torpedoes, on order from Lütjens.¹⁵⁰

At about 2130 on May 18, *Bismarck* and *Prinz Eugen* sailed from Gotenhafen. They proceeded separately until they reached Arkona, where they joined up at

1100 on May 19.¹⁵¹ On the order of the Befehlshaber der Sicherung der Ostsee (Commander, Security Forces, Baltic), traffic in the Great Belt and Kattegat was stopped for the night of May 19/20 and the morning of May 20, to enhance the secrecy of the *Bismarck* group's movement.¹⁵²

During the morning of May 20, Luftwaffe photoreconnaissance ascertained the presence in Scapa Flow of two battleships (*King George V* and *Rodney*), one battle cruiser (*Hood*), one carrier (*Victorious*), six light cruisers, four destroyers, and two submarines. In the northern Scotland area were probably twelve cruisers that were nonoperational—under repair.¹⁵³ No enemy forces were sighted in the North Sea or the Arctic.

Around noon on May 20, the *Bismarck* group was in the vicinity of the Skagerrak mine barrier, to be escorted by the minesweeper flotilla; around 1600 it was escorted through the mine-free area in the Kattegat. It then was mixed with commercial vessels waiting to pass through the mine-free area in the reverse direction.¹⁵⁴ By evening, the *Bismarck* group was south of Kristiansand.¹⁵⁵

At about 0620 on May 21, the 18th Air Group transmitted a message to the British Admiralty concerning the presence of two enemy battleships and three destroyers.¹⁵⁶ B-Dienst decrypted this message almost immediately, and Naval Group Command North and the SKL agreed that enemy agents had observed the *Bismarck* group in the Great Belt.¹⁵⁷

The original source of the information to the Admiralty about *Bismarck*'s transit was the Swedish cruiser *Gotland*.¹⁵⁸ Major Törnberg (assistant to Major Carl Petersén [1883–1963], head of Sweden's C-Bureau, a unit for secret-intelligence collection) passed the information to the British naval attaché in Stockholm, Captain Henry Denham (1897–1993).¹⁵⁹ In his message the naval attaché stated: "Kattegat today 20th May (a) This afternoon eleven German merchant vessels passed Lenker North (b) at 1500 two large German warships escorted by three destroyers, five escort craft, and ten to twelve aircraft passing Marstrand [in the Bohuslän archipelago, in the northeastern Kattegat] course northwest 2058/20."¹⁶⁰ Raeder knew from Admiral Wilhelm Canaris (1887–1945), chief of the Abwehr (Military Intelligence), that the signal from Stockholm was sent to the Admiralty on the morning of May 21; Canaris had proof positive that British agents had reported the *Bismarck* group's movement.¹⁶¹

German naval intelligence learned that the report on the sighting of the *Bismarck* group had prompted intensive reconnaissance by the 18th Air Group. This group, with headquarters near Rosyth, cooperated with CINC, Rosyth and the Orkneys/Shetlands Naval Command. The B-Dienst intercepts located enemy aircraft in the northern part of the North Sea, off the Norwegian coast, and in the Faeroes area. Yet at the same time, monitoring of the radio traffic of the Home Fleet revealed no sign of special activity.¹⁶²

At 0900 on May 21, the *Bismarck* group entered Korsfjord. *Bismarck* anchored at Grimstadfjord, at the entrance to the Fjøsanger fjord. *Prinz Eugen* refueled at Kalvanes Bay from a tanker.¹⁶³ Surprisingly, *Bismarck* did not refuel, even though it had burned some two thousand tons of oil since Gotenhafen.¹⁶⁴ From enemy radio transmissions, it was clear to the Germans that the enemy knew about the presence of the *Bismarck* group, although as noted no reaction had been detected.¹⁶⁵

Coincidentally, the RAF planned to attack the *Bismarck* group during the night of May 21/22. It also intended to conduct reconnaissance off the Norwegian coast from Trondheim to Kristiansand on May 22.¹⁶⁶ However, in both instances low clouds prevented aircraft from finding their targets.¹⁶⁷ In the evening on May 21, British air reconnaissance ascertained that the *Bismarck* group had left Bergen.¹⁶⁸

On May 21, Admiral Tovey decided to strengthen cruiser patrols in the Denmark Strait and between Iceland and the Faeroe Islands.¹⁶⁹ When the heavy cruiser *Suffolk* arrived at Hvalfjord, Iceland, after being relieved by *Norfolk* in the Denmark Strait, it was directed to rejoin CS 1 after refueling.¹⁷⁰ To save fuel, *Suffolk* would join the patrol just before the earliest arrival of the enemy. The cruiser *Arethusa*, due to arrive at Reykjavík, was directed to remain at Hvalfjord at the disposal of Commander, CS 1.¹⁷¹ BCS 1 (*Hood* and *Prince of Wales*), plus a screen of six destroyers (*Electra*, *Anthony*, *Icarus*, *Echo*, *Achates*, and *Antelope*), sailed from Scapa Flow to Hvalfjord.¹⁷² Vice Admiral Lancelot E. Holland (1887–1941), Commander, BCS 1, was instructed to cover patrols in the Denmark Strait and the Iceland–Faeroes passage, operating north of latitude 62 degrees N.¹⁷³ Tovey issued orders recalling *Repulse* from the Clyde (where it was waiting to escort a convoy to the Middle East) to Scapa Flow.¹⁷⁴ The cruisers *Birmingham* and *Manchester*, then patrolling the Iceland–Faeroes passage, were directed to refuel at Skaalefjord in the Faeroe Islands, then resume patrol.¹⁷⁵ Their assigned patrolling line was between latitude 61 degrees N, longitude 10° 30' W and latitude 64 degrees N, longitude 15 degrees W. Five fishing trawlers were on their routine patrols west of this line. *Arethusa* was directed to join *Manchester* in the Iceland–Faeroes passage.¹⁷⁶

During the evening of May 21, Admiral Max K. Horton (1883–1951), Rear Admiral, Submarines, directed *Minerve*, then on patrol southwest of Norway, to move to a position at latitude 61° 53' N, longitude 03° 15' E, while *P-31* sailed out from Scapa Flow to a position off Stadlandet (Selje, in the northwestern part of Sogne Fjord).¹⁷⁷

Phase II: Grimstadfjord–Denmark Strait (2200 May 21–2000 May 22). The *Bismarck* group left Grimstadfjord at 2200 on May 21. Several hours afterward, enemy aircraft searched for *Bismarck* in the skerries (small, rocky, uninhabited islands) off Bergen. On the basis of this enemy activity, the Germans concluded that the movement of the *Bismarck* group was known, but apparently the enemy

was uncertain about the group's exact location. At 0510, after the *Bismarck* group reached the latitude of Kristiansund, Lütjens released the accompanying destroyers, which would proceed to Trondheim. On the basis of reports he received, Lütjens believed that the major part of the Home Fleet was still at Scapa Flow at noon on May 22. Even if the Home Fleet sailed out on May 22, it would have to transit some 1,200 nautical miles to reach a position near Cape Farewell.¹⁷⁸

At 1200 on May 22, Lütjens directed the *Bismarck* group to increase its speed to twenty-four knots and steer for the Denmark Strait.¹⁷⁹ The group was then some two hundred nautical miles off the Norwegian coast.¹⁸⁰ On the evening of May 22, the sky was covered with clouds and the atmosphere was misty. The meteorologist aboard *Bismarck* predicted that the weather would be favorable for a breakout. Lütjens intended to steer for Cape Farewell.¹⁸¹ Possibly he was influenced by information he had received while at Korsfjord in the forenoon of May 21, from a Luftwaffe officer who told him there was no sign that the Home Fleet had sailed from Scapa Flow. Lütjens probably believed that he must stay ahead of the enemy. He was aware that the enemy knew about his sortie from Gotenhafen and his stay in the skerries off Bergen.¹⁸²

At 1939 on May 22, RAF aircraft reported that the enemy battleship and cruiser, but not the merchant ships, had left Bergen. Three destroyers and one catapult ship were sighted at Trondheim. Most of the Norwegian coast was then under fog.¹⁸³

After receiving a report at 2000 that the enemy warships had departed from Bergen, Tovey believed there were four possibilities regarding enemy activity. The first was that the convoy was carrying important military stores to northern Norway and would sail through the Leads; for some weeks there had been reports of movements of German troops to Kirkenes. The second possibility was that the convoy was carrying a raiding party, perhaps to capture an airfield to support an attack on Reykjavík or Hvalfjord. Third, the enemy battleship and cruiser might try to break out through the Denmark Strait to reach the trade routes, as German ships had done in the past. However, breaking out through the passage between Iceland and Scotland could not be ruled out, especially because the enemy had stopped at Bergen. The fourth possibility was that the enemy ships already had covered an important German convoy as far as the Inner Leads, and now might be returning to the Baltic. Tovey considered the third scenario to be the most likely, and made his dispositions accordingly.¹⁸⁴

At 2043 on May 22, Tovey requested air reconnaissance of all passages between Greenland and the Orkneys and the Norwegian coast, as well as any enemy forces approaching Iceland. The aim was to detect enemy ships breaking out westward. The Admiralty responded to Tovey's request by directing subordinate commands

to conduct reconnaissance of the Iceland–Faeroes gap, the Denmark Strait, the Faeroes–Shetland gap, and the Norwegian coast.¹⁸⁵ An additional air-patrol line about 250 miles west of the Iceland–Faeroes passage also was established by CINC, Western Approaches, Admiral Sir Percy Noble (1880–1955).¹⁸⁶ The 15th Air Group units on Iceland were directed to provide A/S cover for *Hood* and *Prince of Wales* and to keep a close watch on the Denmark Strait.¹⁸⁷ The Admiralty canceled the sailing of the carrier *Victorious* and battleship *Repulse*, which had been assigned to protect pending Convoy WS8B, and put these warships at Admiral Tovey's disposal. *Victorious* was then at Scapa Flow, while *Repulse* was directed to sail from the Clyde to Scapa Flow.¹⁸⁸

Phase III: Breakout to the Northern Atlantic (2000 May 22–1922 May 23). On May 23, the *Bismarck* group continued on a course to transit the Denmark Strait. The weather was favorable for penetration: an easterly wind, overcast skies, moderate-to-heavy rain, and moderate-to-bad visibility (650 feet or less).¹⁸⁹ Overall, the situation for a breakout was considered favorable. However, that same bad weather prevented Luftwaffe aircraft from reconnoitering Scapa Flow on May 23.¹⁹⁰ The Germans also did not have aircraft available to reconnoiter the area between Iceland and the Faeroes.¹⁹¹ Lütjens ordered an increase in speed to twenty-seven knots.¹⁹² In the meantime, Tovey's Battle Force proceeded northward to latitude 60 degrees N—far enough to be in a position to deal with either an attack on Iceland or a breakout.¹⁹³

Also on May 23, Headquarters RAF Iceland received a message from CINC, Western Approaches via Flag Officer in Charge, Iceland to give priority to reconnoitering the Denmark Strait, especially the Akureyri area of Eyja Fjord, in north-central Iceland. A crossover patrol of the Denmark Strait from Iceland to the limit of the ice already had been ordered.¹⁹⁴ But only two air sorties of the Iceland–Faeroes gap were carried out, because of the bad weather, and there was no air reconnaissance of the Denmark Strait; however, Admiral Tovey did not become aware of this until much later.¹⁹⁵ Tovey directed *Suffolk* to patrol within RDF range of the ice-edge boundary in the Denmark Strait.¹⁹⁶ When conditions were clear inshore, *Norfolk* would patrol about fifteen miles abeam of *Suffolk*; when thick inshore, *Norfolk* would patrol to cover the inshore passage.¹⁹⁷

Repulse and three destroyers from Western Approaches Command joined the Battle Force northwest of the Butt of Lewis, Outer Hebrides, during the forenoon of May 23.¹⁹⁸ Tovey intended to detach two cruisers to patrol the Faeroes–Shetlands passage; however, in the end he decided to keep all four cruisers with him.¹⁹⁹

By noon, the *Bismarck* group reached the ice boundary.²⁰⁰ At 1427, the weather forecast for the area north of Iceland was for southeasterly-to-easterly winds,

wind force 6 to 8, mostly overcast, rain, and moderate-to-poor visibility; in the area south of Iceland, it was for winds of force 5 to 7; cloudy to overcast; a low-pressure system east of Iceland; and warm air moving toward the Denmark Strait and the area south of Iceland.²⁰¹

At 1700, the weather in the vicinity of the *Bismarck* group was snow showers, with visibility of around five thousand yards.²⁰² The *Bismarck* group sailed near the ice boundary. On its starboard side there was good visibility, while to port there was fog.²⁰³ After entering the Denmark Strait shortly before 1900, the *Bismarck* group moved into an area of pack ice, with some floating icebergs, a few of which were of enormous size. Thus, on May 23, the width of the ice-free passage in the Denmark Strait was only about twenty nautical miles.²⁰⁴ Both *Bismarck* and *Prinz Eugen* were zigzagging.²⁰⁵

German knowledge of the situation in the Denmark Strait and its approaches was very spotty because of the lack of sufficient FW-200 aircraft. The last report that Lütjens received was provided on May 19 by a single FW-200. The aircraft reported the ice boundary to be seventy to eighty nautical miles away from Iceland. The same day, at a distance of some fifty nautical miles northwest of North Cape, Iceland, another FW-200 had aborted its flight after encountering dense fog.²⁰⁶

At 1922, *Suffolk* sighted *Bismarck* and *Prinz Eugen* at a distance of 12,320 yards and steering on a southwesterly course. The *Bismarck* group's position was then some sixty miles northwest of North Cape.²⁰⁷ At the same time, *Prinz Eugen* sighted what it believed to be an auxiliary cruiser at a distance of 14,200 yards. *Bismarck* fired five salvos but scored no hits. The enemy ship disappeared.²⁰⁸ *Suffolk* used mist as a cover and maintained contact with *Bismarck*.²⁰⁹ At the time of initial contact, Tovey's Battle Force was at latitude 60° 20' N, longitude 13 degrees W. It turned to course 280 and increased speed to twenty-seven knots. Tovey's intent was to reach a position from which he could intercept the enemy east of the Denmark Strait and at the same time support BCS 1. As more information was received, it became clear that the enemy intended to break out through the Denmark Strait.²¹⁰

At 2028, *Suffolk* sighted *Bismarck* again near the ice boundary, at a distance of twelve thousand yards. Four minutes later, *Norfolk* also made contact with *Bismarck* at a distance of 10,560 yards.²¹¹ The Admiralty received *Norfolk*'s message at 2103, before it received *Suffolk*'s.²¹² *Bismarck* opened fire, but *Norfolk* retired safely behind a smoke screen.²¹³ The *Bismarck* group's repeated attempts to break off contact failed.²¹⁴ The B-Dienst personnel aboard both *Bismarck* and *Prinz Eugen* deciphered *Suffolk*'s signal ("one battleship, one cruiser, bearing 330°, distance 6 nautical miles, course 240°") within minutes.²¹⁵ However, they mistook *Norfolk*'s call sign for that of *King George V*.²¹⁶

Lütjens was surprised at encountering enemy cruisers in the Denmark Strait. However, for some reason he did not draw the proper conclusion: that the enemy would try to block his foray into the Atlantic. He believed the British ships were not equipped with advanced search radars; however, *Suffolk* had been fitted with advanced artillery radar (Type 284/285).²¹⁷ *Suffolk's* radar now had an effective range of 26,250 yards.²¹⁸ In contrast, *Norfolk* had the older-model artillery radar (Type 286M).²¹⁹ *Bismarck* and *Prinz Eugen* were fitted with search radar; however, they lacked the accurate gunfire director, and hence were unable to drive off shadowers using “blind” fire.²²⁰

At 2200 on May 23, the B-Dienst intercepted a message sent by a British unit, probably a heavy cruiser, reporting that it had detected in the Denmark Strait, at a distance of six nautical miles, one enemy battleship and one cruiser, both sailing in a southwesterly direction.²²¹ The B-Dienst also learned that CINC, Western Approaches had issued a radio warning to three convoys about the possibility of encountering enemy ships.²²² These German radio intercepts revealed urgent messages being sent to the enemy heavy units.²²³

Norfolk and *Suffolk* shadowed the *Bismarck* group throughout the night of May 23/24. The weather was characterized by rain and mist and the visibility was as low as two miles. The ships “shadowed by sight and/or RDF according to visibility.” *Norfolk* kept farther south and east “to cover move of enemy away from ice.”²²⁴

Phase IV: Encounter in the Denmark Strait, 0538–0613 May 24. BCS 1 (*Hood* and *Prince of Wales*) and its screen arrived at their assigned position at about 0205—sooner than Tovey had anticipated. Both ships turned to a course parallel to that of *Bismarck* and *Prinz Eugen*.²²⁵ At 0200, Admiral Holland detached his destroyers because CS 1 had lost contact with *Bismarck*. This was a serious error, though, because he lost the opportunity to launch torpedo attacks on the German ships.²²⁶ During the rest of the night, *Prince of Wales* obtained positions by using RDF information from *Norfolk* and *Suffolk*.²²⁷

At 0538, *Suffolk* again regained contact with the *Bismarck* group.²²⁸ At 0545, the *Bismarck* group's B-Dienst detachment identified two enemy units: *Hood* and a battleship of the *King George V* class (actually *Prince of Wales*). The enemy ships were at a distance of 31,700 yards and sailing at high speed. At 0552, *Hood* opened fire at a range of 25,000 yards. Two minutes later both German ships responded.²²⁹ They concentrated their fire on *Hood*.²³⁰ The running combat distance varied from 19,650 to 22,750 yards.²³¹ The fire of both *Bismarck* and *Prinz Eugen* was excellent. *Hood* was hit by the second or third salvo, which started fires aboard that spread rapidly.²³² At 0600, *Hood* was straddled again. There was a huge explosion and *Hood* blew up.²³³ It sank in three to four minutes.²³⁴ *Hood*

had been able to fire only five or six salvos.²³⁵ Out of a ship's company of ninety-five officers and 1,324 men, only three survived.²³⁶

After the sinking of *Hood*, *Prince of Wales* engaged *Bismarck*. Both *Prinz Eugen* and *Bismarck* shifted their fire onto *Prince of Wales*. The firing range was reduced to eighteen thousand yards. Within two minutes, *Prince of Wales* was hit with four 15-inch shells and probably three 8-inch shells. Its salvos now were falling short and had a very large spread. Hence, Captain John Leach, the commanding officer of *Prince of Wales*, decided to break off the engagement.²³⁷ By then the range had been reduced to only 14,600 yards.²³⁸ At 0613, *Prince of Wales* turned away under a smoke screen.²³⁹ The ship had two guns out of action and considerable damage to its bridge.²⁴⁰ Yet it had performed well, even though its crew was only partly trained.²⁴¹ *Bismarck* had received two heavy and one light hits. It left a trail of oil from one of its tanks.²⁴²

At 0632, Lütjens sent a signal to Naval Group Command North informing it that one battle cruiser, probably *Hood*, had been sunk, while one battleship, either *King George* or *Renown*, was damaged and had withdrawn. Two enemy heavy cruisers maintained contact with *Bismarck*. In the meantime, B-Dienst decrypted a series of messages sent by *Suffolk* and *Norfolk*.²⁴³

Lütjens's Fateful Decision. Admiral Lütjens made the decision not to pursue the damaged *Prince of Wales*. Perhaps the main reason was that continuing the engagement would have required sailing at higher speed, resulting in higher fuel consumption. This would have had an especially negative effect on *Prinz Eugen*, because of its shorter range. Lütjens also was probably unsure whether he could destroy *Prince of Wales* as quickly as he had *Hood*. Moreover, his principal mission was to destroy enemy shipping, not the enemy's heavy surface ships.²⁴⁴

After sinking *Hood*, Lütjens could steer to Bergen, Trondheim, or Saint-Nazaire to attend to the damages he had suffered in the Denmark Strait. The route to Bergen ran between the Faeroes and the Shetlands, with a transit distance of 1,150 nautical miles. This was the shortest route and the fastest way to reach an area where the Luftwaffe could provide effective cover. Its major drawback was that the *Bismarck* group would have to sail within the effective range of many enemy aircraft and naval bases. The possibility existed that the Home Fleet, based at Scapa Flow, might appear. These reasons made this route the most dangerous for the *Bismarck* group to take.

The route to Trondheim ran either south of Iceland (approximately 1,300 nm) or through the Denmark Strait (approximately 1,400 nm).²⁴⁵ The major advantage of the route through the Denmark Strait was that the *Bismarck* group would sail into an area of extensive low visibility and close to the ice boundary, making the threat from enemy aircraft much smaller than on the other routes. However, the threat

of encountering enemy heavy ships could not be excluded entirely. The *Bismarck* group needed to make only seven hundred nautical miles good toward Trondheim for the Luftwaffe to protect it effectively. This route also offered the best chance of avoiding the main body of the Home Fleet if it made a foray into the Arctic.²⁴⁶

The route to Saint-Nazaire was about 1,700 nautical miles long—making it the longest route—and more than two thousand nautical miles if the *Bismarck* group made a temporary swing westward. A major disadvantage of this route was that *Bismarck* would run the risk of encountering a large concentration of enemy forces. But the advantage of this route was that the vast expanse of the North Atlantic might make it possible to shake off the shadowers. Another advantage was that reaching Saint-Nazaire would offer *Bismarck* a much more favorable position for conducting war in the Atlantic.²⁴⁷ A major disadvantage of this route was that the enemy could use land-based and carrier-based aircraft to detect and attack the *Bismarck* group, then concentrate his heavy surface ships to prevent *Bismarck* from actually reaching Saint-Nazaire.

Lütjens chose to steer for Saint-Nazaire. We only can speculate about his reasons. In any case, it is clear that once the element of surprise was lost the best option was to cancel the entire operation and return home.²⁴⁸ Some SKL staffers and the commanders of Naval Group Command North and Naval Group Command West argued that Lütjens should have been directed to return home, but Raeder believed that such a decision should be left to Lütjens to make.²⁴⁹ A better option for Lütjens would have been to pursue *Prince of Wales*, destroy it, then sail for Trondheim via the Denmark Strait.

THE BRITISH OPERATIONAL REACTION

Operational Concentration, May 24–25

The Admiralty broadcast CS 1 sightings of the *Bismarck* group on May 24. Among other things, it directed Admiral Somerville to sail from Gibraltar with Force H to join the convoy that *Repulse* was to have brought south of the Clyde, which now had only the cruiser *Exeter* as an escort. At the same time, the Admiralty added that “should reconnaissance today (24th) indicate that one or both German battle cruisers have left Brest it will be necessary you alter these instructions.” The Admiralty also ordered CS 18 (*Manchester*, *Birmingham*, and *Arethusa*), which had been patrolling the Iceland–Faeroes passage, to join north-east of Langanes, Iceland, “in readiness to form a patrol line in event of enemy breaking back.” It also arranged for air patrols with the same purpose.²⁵⁰

At 0800, the Battle Force was about three hundred miles away to the southeastward of the Denmark Strait and sailing at twenty-seven knots.²⁵¹ Tovey believed that the enemy, having sunk *Hood*, was unlikely to turn back. Hence, the best

hope was to intercept *Bismarck* with the Battle Force. Tovey ordered a course change to 260, then 240. The most unfavorable situation for the Home Fleet would be if the enemy hugged the eastern coast of Greenland, then sailed toward Norway's western coast to take fuel from a waiting tanker. If that happened, *Bismarck* would be able to escape the pursuit by *King George V*.²⁵² The Admiralty directed Rear Admiral William F. Wake-Walker (1888–1945), commander of CS 1, to “continue to shadow *Bismarck* even if you run out of fuel, in order that the commander in chief [Tovey] may catch up in time.”²⁵³

At 0801, Lütjens sent a repeat message to the SKL and both naval group commanders about the encounter in the Denmark Strait. He also reported that the free fairway in the Denmark Strait was some fifty miles wide and contained floating mines.²⁵⁴

After the engagement with *Prince of Wales*, the *Bismarck* group sailed on a southwesterly course. *Bismarck* tried repeatedly but unsuccessfully to shake off the shadowers. *Suffolk* masterfully used RDF to maintain contact.²⁵⁵

In the meantime, the Admiralty made a series of tactical decisions to direct a number of ships in the Atlantic to take part in the pursuit of *Bismarck*. Collectively these decisions resulted in an operational concentration. *Rodney* had sailed from the Clyde on May 21 en route to Boston for refit, accompanying the troop transport *Britannia*. The Admiralty gave the position of *Bismarck* and directed *Rodney* to close in, leaving *Britannia* behind, with one destroyer to screen it.²⁵⁶ At 1022, *Rodney*, then some 520 miles west of Bloody Foreland, county Donegal, Ireland, was directed to steer best course to close the enemy. *Ramillies*, which was escorting Convoy HX127, was then a thousand miles south of the *Bismarck* group; at 1144, it was ordered to leave the convoy and proceed to contact the enemy from the west.²⁵⁷ At 1234, the Admiralty ordered *Revenge* to sail from Halifax and overtake Convoy HX128. The cruisers *Edinburgh* (then cruising near latitude 45 degrees N and longitude 21 degrees W) and *London* (escorting the 19,000-ton troopship *Arundel Castle* from Gibraltar) received orders to “give up their task and steer toward the enemy, husbanding fuel against future needs.”²⁵⁸

At 1340, the SKL and both naval group commanders received Lütjens's message sent at 0801 on May 24. This was when they first learned about the outcome of the encounter in the Denmark Strait, the extent of damage to *Bismarck*, and Lütjens's intent to sail for Saint-Nazaire.²⁵⁹

At 1400, the *Bismarck* group's position was about 240 nautical miles north-northeast of Cape Farewell.²⁶⁰ Lütjens sent a signal to the SKL and the naval group commanders that the battleship *King George* was maintaining contact with his group. If there were no combat, his intent was to break off from the shadowers during the night of May 24/25.²⁶¹ At 1420, Lütjens directed *Prinz Eugen* to maintain its present course until three hours after *Bismarck*'s maneuver to the west to

BRITISH ORDER OF BATTLE, MAY 18, 1941

(F = flagship)

HOME FLEET

CINC, Home Fleet: Admiral Sir John C. Tovey

2 battleships: *King George V* (F) (at Scapa Flow), *Rodney* (en route from the Clyde to Boston with *Britannia*)1 aircraft carrier: *Victorious* (825 Sqdn) (at Scapa Flow, to escort Convoy WS8B)**1ST BATTLE CRUISER SQUADRON (BCS 1)**

Vice Admiral Commanding, Battle Cruiser Squadron: Lancelot E. Holland

2 battle cruisers: *Hood* (at Scapa Flow), *Repulse* (at the Clyde, to escort Convoy WS8B)1 battleship: *Prince of Wales* (at Scapa Flow)**1ST CRUISER SQUADRON (CS 1)**

Rear Admiral Commanding, CS 1: William F. Wake-Walker

2 heavy cruisers: *Norfolk* (on Denmark Strait patrol), *Suffolk* (refueling at Reykjavik)**2ND CRUISER SQUADRON (CS 2)**

Rear Admiral Commanding, CS 2: Neville Syfret

4 light cruisers: *Aurora*, *Galatea*, *Kenya*, *Neptune* (at Scapa Flow)**18TH CRUISER SQUADRON (CS 18)**

Commodore C. M. Blackman

4 light cruisers: *Manchester*, *Birmingham* (on Faeroes–Iceland passage patrol); *Arethusa* (en route to Reykjavik); *Edinburgh* (on patrol off the Azores)**DESTROYERS***Inglefield*, *Intrepid* (en route to Scapa Flow); *Achates*, *Active*, *Antelope*, *Anthony*, *Echo*, *Electra*, *Icarus*, *Nestor*, *Punjabi* (at Scapa Flow); *Jupiter* (at Londonderry); *Eskimo*, *Mishona*, *Somali*, *Tartar* (at sea with *Rodney* and *Britannia*)**WESTERN APPROACHES COMMAND (Liverpool)**1 light cruiser: *Hermione* (en route to Scapa Flow to join CS 2)5 destroyers (escorts for *Repulse*): *Lance* (at Scapa Flow); *Assiniboine*, *Legion*, *Saguenay* (at the Clyde); *Columbia* (at Londonderry)**PLYMOUTH COMMAND**4th Destroyer Flotilla: *Cossack*, *Maori*, *Sikh*, *Zulu*; *Piorun* (Polish) (at the Clyde, as escorts for Convoy WS8B)**NORE COMMAND**1 destroyer: *Windsor* (at Scapa Flow)**FORCE H (at Gibraltar)**

Flag Officer Commanding, Force H: Vice Admiral Sir James F. Somerville

1 battle cruiser: *Renown*1 aircraft carrier: *Ark Royal* (810, 818, 828 Sqdns)1 light cruiser: *Sheffield*5 destroyers: *Faulkner*, *Foresight*, *Forester*, *Fury*, *Hesperus***AMERICA AND WEST INDIES COMMAND**2 battleships: *Ramillies* (escorting Convoy HX127), *Revenge* (at Halifax, Nova Scotia)**SOUTH ATLANTIC COMMAND**1 heavy cruiser: *Dorsetshire* (escorting Convoy SL74)**SUBMARINES**

Rear Admiral, Submarines: Max K. Horton (Aberdour / north London)

P-31 (at Scapa Flow); *Sealion*, *Seawolf*, *Sturgeon* (in English Channel); *Pandora* (en route from Gibraltar to United Kingdom); *Tigris* (at the

Clyde); *H44* (at Rothesay); *Minerve* (Q185) (French) (off Norway's southwestern coast)

RAF COASTAL COMMAND

No. 15 Group (Liverpool)

No. 16 Group (Chatham, Kent)

No. 18 (Pitreavie Castle, Scotland)

Sources: Training and Staff Duties Division (Historical Section), Naval Staff, Admiralty, London, "Appendix A: *Bismarck* Operations; List of H.M. Ships, C.B. 3081 (3)," in *Battle Summary No. 5*, pp. 38–40; Schofield, *Loss of the Bismarck*, pp. 72–75; Air Marshal, CINC, Coastal Command, "Dispatches of CINC Home Fleet on the Sinking of the *Bismarck*," September 3, 1946, app. A, AIR 15/204, TNA; Müllenheim-Rechberg, *Battleship Bismarck* (1980), pp. 264–67; Rohwer and Hümmelchen, *Chronology of the War at Sea*, pp. 63–64.

shake off the shadowers. *Prinz Eugen* then would refuel from a tanker (*Belchen* or *Lothringen*). After receiving the signal "Hood," it would operate independently and conduct commerce raiding.²⁶²

At 1440, Dönitz issued an instruction to the U-boats to establish a patrol line southeast of Cape Farewell. The aim was to lure enemy ships approaching from the north. At that time, Lütjens's intent was to operate in the area halfway between Greenland and Newfoundland. The *Bismarck* group would carry out a swing and lure pursuing enemy forces over the U-boat patrol line. The distance of the U-boat patrol line from the British coast was about 1,400 nautical miles.²⁶³ The depth of the patrol line would be ten nautical miles. Dönitz ordered the U-boats to reach their assigned positions by 0600 on May 25.²⁶⁴

At 1445, the Admiralty requested that Admiral Wake-Walker provide information on the percentage of fighting effectiveness *Bismarck* retained and about his intent to have *Prince of Wales* reengage. In his response at 1545, Admiral Wake-Walker stated that he had no evidence that the damage the enemy had received had reduced his speed at all. Wake-Walker also believed that the enemy would not reengage but would try to avoid any combat.²⁶⁵ Wake-Walker also stated that *Prince of Wales* "should not reengage until the other heavy ships are in contact and unless interception fails; doubtful if she has speed to force action."²⁶⁶ The reason for not reengaging *Bismarck* was that the cruisers of CS 1 might be damaged and thereby forced to reduce their speed. This would make it impossible to maintain contact with *Bismarck*. Admiral Tovey believed that, under the circumstances, Wake-Walker was justified in his decision. Tovey believed that his forces were more likely ultimately to destroy *Bismarck* if he used the cruisers to maintain contact until the approaching reinforcements arrived.²⁶⁷

At 1455, Tovey reported that *Victorious*, escorted by CS 2 (*Galatea*, *Aurora*, *Kenya*, and *Hermione*), was detached to launch an aerial torpedo attack at about 2200, when within a hundred-mile range of the enemy.²⁶⁸ The aim was to reduce *Bismarck*'s speed. Tovey believed that keeping *Victorious* with the Battle Force

until the morning of the next day (May 25) would not be helpful in locating *Bismarck* if it had slipped away during the three hours of darkness. The remainder of the Battle Force (*King George V* and *Repulse*) and its escorts steered an intercepting course. The aim was to bring the enemy to action soon after sunrise.²⁶⁹

At 1800, Tovey was with *King George V*, *Repulse*, *Victorious*, and two cruisers.²⁷⁰ CS 18 (*Manchester*, *Birmingham*, and *Arethusa*) was returning from a point northeast of Iceland to Hvalfjord to refuel. The battleship *Revenge* left Halifax at 1505 to overtake Convoys HX128 and SC32. Admiral Somerville, with his Force H (*Renown*, *Ark Royal*, *Sheffield*, and a half dozen destroyers), was directed to join Convoy WS8B after daylight on May 26.²⁷¹

In the meantime, the shadowers shortened the distance to *Bismarck*. At 1830, *Bismarck* opened fire on *Suffolk*. *Prince of Wales* fired several salvos at *Bismarck* from thirty thousand yards. However, this brief encounter did not result in damage to any of the ships.²⁷²

At 1842, Naval Group Command West sent a radio message in which it agreed with Lütjens's intent to release *Prinz Eugen* to operate independently. It informed Lütjens that preparations were under way at Saint-Nazaire and Brest to receive *Bismarck*. It also suggested that if *Bismarck* successfully broke away from its shadowers it should remain in its present isolated area.²⁷³ However, *Bismarck*'s reduced speed made breaking off contact more difficult. Neither Raeder nor the two naval group commanders knew whether Lütjens had considered the possibility of avoiding the enemy by moving northward, or which factors he had considered when he selected Saint-Nazaire.²⁷⁴

At 2210, nine Swordfish torpedo bombers took off from *Victorious*; at 2300, they were followed by three Fulmar fighters; at 2400, two more Fulmars took off. The weather was showery with squalls, good visibility, and a northwesterly wind. Sunset was at 0052.²⁷⁵ At about midnight on May 24/25, twelve aircraft (seven Swordfish and five Fulmars) from *Victorious* carried out a torpedo attack on *Bismarck*; however, they claimed just one hit on the ship. This first air attack failed to inflict any serious damage on *Bismarck*.²⁷⁶

In the meantime, at 2331, the Admiralty sent new orders to Force H "to steer so as to intercept *Bismarck* from the southward. Enemy must be short on fuel, and will have to make for an oiler; her future movements may guide to this oiler."²⁷⁷

Loss of Contact with Bismarck, 0213 May 25

CS 1 lost contact with *Bismarck* at 0213 (*Prince of Wales* claimed this happened at 0126) on May 25.²⁷⁸ Heretofore, despite frequent and abrupt changes in the visibility, *Norfolk* and *Suffolk* had maintained contact with *Bismarck* skillfully for thirty hours.²⁷⁹ When Tovey received the information that contact with *Bismarck* was lost, he believed that the German battleship had three options: rendezvous with a tanker, possibly off the east coast of Greenland or farther south, such as

near the Azores or Canary Islands; make for a dockyard on the west coast of France, or possibly an Italian port in the Mediterranean; or return to Germany for repairs.²⁸⁰

At 0300, Force H was approximately 850 miles west of Porto, Portugal. Heavy seas had delayed its progress.²⁸¹ CS 2, with *Victorious* and four accompanying cruisers, was directed to organize a search northwest of *Bismarck*'s last known position. *Norfolk* and *Suffolk*, after remaining at the enemy's last known position for some time, proceeded westward to cover the southwestern sector. *Rodney*, with three destroyers, reported that it was steering to intercept the enemy if it showed up in the southeastern sector. *Repulse* had yet to be detached to Newfoundland to refuel, while *Prince of Wales* was directed at 0620 to join Tovey's Battle Force. The Admiralty directed *London* to search the area around latitude 25° 30' N, longitude 42° W, where an enemy tanker was believed to be located.²⁸²

At 0800 on May 25, *Bismarck* was some one hundred miles astern of *King George V*, sailing southeast.²⁸³ At 0854, Lütjens sent a message in which he erroneously stated that the enemy ships still were shadowing *Bismarck*. The sending of this signal gave away his position to the British radio-intercept operators. At 1030, Tovey received from the Admiralty a series of DF fixes. They indicated that the signals appeared to come from the same ship that had transmitted several signals soon after the torpedo attack by aircraft from *Victorious* the previous night (i.e., *Bismarck*). When these fixes were plotted incorrectly on *King George V*, they showed a position too far north. This provided a misleading indicator that the enemy was retreating northward toward the North Sea. This information confirmed Tovey's existing belief that *Bismarck* was heading north.²⁸⁴ This is why Tovey directed the entire Home Fleet to search to the north. *King George V* changed course to 055, increased speed to twenty-seven knots, and headed toward the Iceland–Faeroes passage.²⁸⁵ But Tovey's decision was unsound.

The Admiralty, for its part, apparently was not entirely convinced that *Bismarck* was sailing northward. So at 1023 the Admiralty directed Admiral Somerville and CS 1 to proceed “on assumption that enemy turned towards Brest.”²⁸⁶ In another signal sent at 1100, the Admiralty signaled to Somerville to “act as though the enemy is proceeding to a Bay of Biscay port.” The Admiralty had great difficulty obtaining accurate information about the position of *Bismarck*. A DF fix at 1320 located *Bismarck* at a position within fifty miles of 55° 15' N, 32° W. The Admiralty transmitted this information to Tovey at 1419, and he received it at 1530. At 1428, the Admiralty directed *Rodney* to ignore the signal sent at 1108, which had directed the battleship to proceed in the direction of Brest, and to comply with Tovey's instructions that assumed *Bismarck* was proceeding to Norway via the Iceland–Scotland passage. At 1621, Tovey sent a query to the Admiralty: “Do you consider that enemy is making for Faroës.”²⁸⁷

However, by the late afternoon and early evening of May 25 the Admiralty's view about *Bismarck's* movements had changed in favor of the Bay of Biscay destination. At 1805, the Admiralty canceled the signal it had sent to *Rodney* at 1428 and directed the ship to act on the assumption that the enemy was proceeding toward a French port. Finally, at 1924, the Admiralty informed Tovey and all other forces that it believed *Bismarck* was heading toward a French port. Tovey already had come to the same conclusion at 1810, when he decided to turn his force onto a southeasterly course, heading toward the Bay of Biscay.²⁸⁸

Final confirmation came in the evening and from an unlikely source. General Hans Jeschonnek (1899-1943), the Luftwaffe chief of staff, sent a message to the Naval High Command asking whether *Bismarck* would be coming into a French port for repairs. (The reason for this might have been personal: Jeschonnek's son served in *Bismarck*.) This message was sent in the Luftwaffe's Enigma code, and hence was readable to the British decoders. Jeschonnek's message was deciphered quickly and passed on to the Admiralty, and at 1812 was sent to Tovey as well. Tovey's error had given *Bismarck* a chance to escape.²⁸⁹

In the meantime, at 1320 on May 25, Raeder briefed Hitler on *Bismarck's* situation. He reported that during the night of May 24/25 the enemy had maintained contact with *Bismarck*. Because the enemy used advanced radar, *Bismarck* had not been able to break off contact. Near *Bismarck* were one battleship (*King George V*), two heavy cruisers, and one carrier. Lütjens reported around midnight on May 24 that *Prinz Eugen* had been detached for refueling in the mid-Atlantic. This maneuver went unobserved by the enemy. Lütjens intended to reach Saint-Nazaire. All available U-boats and light naval forces would be used to support *Bismarck*.²⁹⁰

At 1932, Naval Group Command West informed Lütjens about pending actions in support of *Bismarck*. Air units would be used during the approach phase to a French port. Luftwaffe aircraft would conduct reconnaissance out to longitude 15 degrees W. Bombers would be used out to longitude 14 degrees W. Long-range reconnaissance would be conducted out to longitude 25 degrees W. By 1313 on May 25, six U-boats had deployed to their assigned positions (see map 1). The approaches to Brest and Saint-Nazaire would be strongly controlled. There also was a possibility that *Bismarck* could return to the port of La Pallice.²⁹¹

In the evening on May 25, Tovey still had *Repulse* in company with *King George V*. *Rodney* was sailing on a southeasterly course toward the Bay of Biscay. The Admiralty recalled *Ramillies* to rejoin *Britannia* and sail to Boston. At 2100, CS 1 was at latitude 55° 50' N, longitude 31° 28' W. It sailed on a southeasterly course (120) at twenty-six knots. It was some one hundred miles behind Tovey's Battle Force. However, it was low on fuel, with only fifty percent remaining. The cruiser *London* proceeded to search for an enemy tanker halfway between the

Azores and the Leeward Islands. On the morning of May 26, the cruiser *Edinburgh's* fuel was at only 13 percent of capacity. That evening, *Prince of Wales* was directed to sail to Iceland for refueling.²⁹²

At 0053 on May 26, Naval Group Command West reported that four FW-200s would provide loose coverage between latitudes 43° 30' N and 54° 25' N and out to longitude 25 degrees W. With additional aircraft they would provide heavier coverage out to longitude 19 degrees W in the northern part and to longitude 14 degrees W in the southern part. Despite bad weather, the four FW-200s covered their assignment. Because of the stormy weather it was not possible to send German destroyers to the area to relieve the enemy pressure on *Bismarck*.²⁹³

Bismarck's situation worsened on May 26. That morning *Bismarck* was some seven hundred nautical miles away from the French coast. Some thirty-one hours had passed since the British cruisers had lost contact with *Bismarck*, but now three British forces were converging on *Bismarck*, plus several single large surface combatants. The 4th Destroyer Flotilla (*Cossack*, *Sikh*, *Zulu*, *Maori*, and *Piorun*) was detached from Convoy WS8B. The ships were directed to join and screen *King George V* and *Rodney*. One destroyer (*Jupiter*) at Londonderry was directed to join the same screen. After receiving the first enemy report on the morning of May 26, the cruiser *Dorsetshire* left Convoy SL74 and proceeded to join the Battle Force.²⁹⁴

In the meantime, other British forces that were unable to reach *Bismarck's* most probable track moved to cover its alternative possible movements. Two light cruisers (*Manchester* and *Birmingham*) of CS 18 patrolled within the Iceland–Faeroes passage, while another light cruiser of the same squadron (*Arethusa*) patrolled the Denmark Strait. *Victorious* and CS 2 were positioned to prevent the enemy from gaining access to the Iceland–Faeroes passage. If necessary, CS 2 would be detached to fuel at Hvalfjord. *Prince of Wales* was on the way to Hvalfjord and destroyers were directed to screen both *Prince of Wales* and CS 2.²⁹⁵

Flag Officer Commanding, North Atlantic was instructed to arrange air and submarine patrols to prevent passage of the Strait of Gibraltar. The battleship *Nelson* was recalled from Freetown to Gibraltar to reinforce the forces converging on *Bismarck*. The cruiser *London* was recalled from its search for the enemy tanker between the Azores and the Leewards and was directed to escort Convoy SL75, which was approaching the Bay of Biscay. *Suffolk* was sent to search in the Davis Strait (between Greenland and Canada's Baffin Island) for the enemy supply ships and tankers believed to be in the area and from which *Prinz Eugen* might refuel.²⁹⁶

The Admiralty's arrangement on May 25 provided for RAF commands to cooperate by conducting reconnaissance from Iceland and the Faeroes to and including the coast of Norway. Canadian aircraft conducted six-hundred-mile

searches from Newfoundland. One of the American air squadrons based in Newfoundland also took part in the searches.²⁹⁷ Coastal Command established two patrols across *Bismarck's* probable track, from latitude 52° 19' 30" N to 48 degrees N, out to longitude 23° 30' W.²⁹⁸

Contact with Bismarck Restored

Finally, at 1030 on May 26, *Bismarck* was detected some six hundred nautical miles west of Land's End, by a Catalina seaplane of Coastal Command based at Plymouth.²⁹⁹ However, the Catalina lost contact because of anti-aircraft (AA) fire from *Bismarck*.³⁰⁰ *Ark Royal* launched two long-range aircraft to search for *Bismarck*.³⁰¹ At 1114, an aircraft from *Ark Royal* reestablished contact with *Bismarck*. *Bismarck's* position was latitude 49° 20' N, longitude 20° 50' W, or forty miles from the position the Catalina had reported some forty-five minutes earlier.³⁰² After this point, *Bismarck* was kept under almost continuous surveillance for the rest of the day.³⁰³ Visibility in the area was variable, the wind northwesterly at force 7–8.³⁰⁴ *Bismarck* steered a southeasterly course at twenty-two knots. The distance between *Bismarck* and Tovey's Battle Force was too great to close unless *Bismarck's* speed could be reduced. This could be accomplished only by a torpedo attack by *Ark Royal's* aircraft. At 1052, the Admiralty directed Admiral Somerville not to have *Renown* engage unless *Bismarck* already was engaged heavily with *King George V* or *Rodney*.³⁰⁵

A major and increasingly critical problem for the Home Fleet was the fuel situation, especially regarding the battleships. *King George V* had only 1,200 tons of fuel remaining, or 38 percent. *Rodney* had to part company at 0800 on May 27. When these ships joined the Battle Force, they had to share the A/S screen provided by only three destroyers (*Somali*, *Tartar*, and *Mishona*)—and those destroyers had to leave that night for lack of fuel. The British suspected that there were several U-boats in the area. They also assumed that every available enemy destroyer and U-boat in western France would be ordered to sail out as well. The Admiralty warned Tovey to expect heavy air attacks.³⁰⁶

Tovey considered it essential to have fuel reserves sufficient to allow battleships to return to their home bases. After the loss of *Hood* and the damage inflicted on *Prince of Wales*, *King George V* was the only effective battleship in home waters. Tovey was not willing to expose *King George V* unscreened and sailing at low speed to almost certain attack by U-boats unless there was a good chance to achieve results that were commensurate with the risk. Tovey's decision was that unless *Bismarck's* speed was reduced, *King George V* would leave the pursuit at 2400 on May 26 and proceed to refuel.³⁰⁷

At 1115, *Bismarck* reported its position some six hundred nautical miles west of Brest. In the afternoon Lütjens was directed that if the bad weather in the Bay

of Biscay prevented him from proceeding to Saint-Nazaire he should steer toward Brest. Reichsmarschal Göring directed the Luftwaffe to make all efforts with the aircraft available to support *Bismarck's* return.³⁰⁸

At 1315, Somerville detached the cruiser *Sheffield*.³⁰⁹ The Admiralty also directed Somerville not to engage *Bismarck* until other battleships arrived in the vicinity; Force H's *Renown* was no match for *Bismarck*.³¹⁰ In the afternoon, *Sheffield* obtained contact with *Bismarck*. The first aerial striking force from *Ark Royal* flew at about 1450.³¹¹ *Sheffield* vectored the attack in.³¹² The aircraft reached *Bismarck* at about 1550 and carried out their torpedo attack.³¹³ However, all the torpedoes missed their target.³¹⁴

At 1630, an aircraft from *Ark Royal* reported *Bismarck's* position at latitude 47° 40' N, longitude 18° 15' W. *Bismarck* was steering a southeasterly course (120) at twenty-two knots. Somerville directed *Sheffield* to maintain contact with *Bismarck*, while he kept *Ark Royal* and *Renown* outside the effective range of *Bismarck's* heavy guns.³¹⁵

In one message from Lütjens, the SKL learned that *Bismarck's* loss of fuel from its ongoing leak was more serious than hitherto believed. Naval Group Command West considered sending one supply ship (*Ermland*) during the night of May 26/27 to refuel *Bismarck*.³¹⁶ By the evening the situation was considered very serious, but the SKL expected that *Bismarck* would be able to defend itself against torpedo attacks and in the early morning would be within the effective range of Luftwaffe aircraft.³¹⁷

Six U-boats were concentrated not far away from *Bismarck*; four had torpedoes, while two were without. At 1900, one U-boat (*U-48*) was directed to sail at highest speed toward *Sheffield*, yet it never established contact.³¹⁸ At 2000, one U-boat (*U-556*) obtained contact with a battleship of the *King George* class, and the carrier *Ark Royal* passed within effective range, but the U-boat had no torpedoes, and it lost contact.³¹⁹

At 1910, fifteen Swordfish aircraft flew off from *Ark Royal*.³²⁰ *Sheffield* directed them to *Bismarck*.³²¹ Weather conditions were bad: skies 7/10 covered by low rain clouds; winds force 6; seas rolling, with a northwesterly swell; and daylight fading.³²² The first wave of aircraft attacked at 2053.³²³ The British attack was not synchronized, spreading over thirty-eight minutes, and only two of thirteen torpedoes fired scored a hit. One torpedo hit the armor belt and had little effect. But the second torpedo sealed *Bismarck's* fate: it damaged the ship's propellers, wrecked its steering gear, and jammed its rudders.³²⁴ This severely affected *Bismarck's* ability to maneuver, and therefore to continue sailing toward a French port.³²⁵ The German AA fire was intense and accurate; *Bismarck's* AA guns shot down seven British aircraft.³²⁶

The Germans intercepted many of the British radio messages to the destroyers and Force H.³²⁷ Observation and radio intercepts indicated that *Bismarck* was surrounded by at least three, possibly four, battleships; the carrier *Ark Royal*; two heavy cruisers; one light cruiser, and possibly a second; and the 4th Destroyer Flotilla, with many modern destroyers.³²⁸ This spelled a situation that was hopeless for *Bismarck*. It was also tragic, because, except for being unable to maneuver, the ship retained its full striking power.³²⁹ At that time, *Bismarck* was only four hundred nautical miles from Brest, but enemy forces in the vicinity made it impossible to bring tankers to refuel.³³⁰ Very bad weather prevented the Germans from using their destroyers or bringing out tugs to take *Bismarck* in tow. *Scharnhorst* and *Gneisenau* were undergoing repairs. *Bismarck*'s only support would come from the Luftwaffe and the U-boats operating in the Bay of Biscay.³³¹

Admiral Tovey decided to detach from the Battle Force all five destroyers of the 4th Destroyer Flotilla. They were directed to shadow and attack *Bismarck*. Their reports to Tovey throughout the night were invaluable. Tovey requested that Force H, with *Ark Royal* and *Renown*, withdraw southward to clear the way for his battleships to close with *Bismarck* in the morning. The heavy cruiser *Norfolk* also arrived in the area.³³²

At about midnight, Lütjens sent a message to Naval Group Command West: "Ship is able to defend itself and propulsion plant intact. Does not respond to steering with engines, however."³³³ The weather conditions were unfavorable. The horizon was clear from northwest to northeast, but other sectors experienced rainstorms and poor visibility. *Bismarck* made frequent changes of course between southwest and northeast. Its speed was only ten to twelve knots.³³⁴ Between 0122 and 0146 on May 27, three British destroyers (*Cossack*, *Zulu*, and *Maori*) carried out torpedo attacks on *Bismarck*. Each destroyer achieved one hit.³³⁵ *Bismarck*'s speed was reduced to only eight knots and its movements became even more erratic. Yet *Bismarck* still was able to deliver heavy and accurate fire.³³⁶

At 2400, Lütjens sent a message to Hitler: "We fight to the last in our belief in you, my Führer, and in unshakable confidence in Germany's victory." At the same time he also sent a message to Naval High Command and Naval Group Command West: "Unable to maneuver. We fight until the last grenade. Long live the Führer." At 0153, Hitler sent a message to Lütjens: "Thank you in the name of the entire German people." He also addressed *Bismarck*'s crew: "All of Germany is with you. What can still be done will be done."³³⁷

At 0542, Naval Group Command West informed Lütjens that two FW-200s had taken off at 0330 to conduct reconnaissance from 0445 to 0515, with another three bomber groups taking off at 0530.³³⁸ This was despite the fact that the weather was highly unfavorable for air operations.³³⁹ Some German aircraft

established contact with enemy cruisers and destroyers, but their effect on the *Bismarck* situation was negligible.³⁴⁰

At 0835, Naval Group Command West informed Lütjens that at about 1100 on May 27, the Spanish cruiser *Canarias* and two destroyers would leave El Ferrol en route to *Bismarck*'s position, to be available to render assistance. They would proceed at twenty to twenty-two knots.³⁴¹

The End

In the morning on May 27, weather conditions were winds northwesterly at force 8, skies overcast, rainsqualls, and visibility of thirteen miles or so. Sunrise was at 0702.³⁴² *Bismarck* sailed on course 330 at ten knots (see map 2). At 0755, Tovey's force had the enemy on bearing 120 at twenty-one miles. Tovey directed a course change to the east (080) to close with *Bismarck*.³⁴³ At 0900, *King George V* and *Rodney* turned to a southerly course (170) and opened fire with their main guns. By 0930, *Bismarck* was on fire and virtually out of control; however, its speed was not reduced, and its main guns still were firing. It also used its secondary armament.³⁴⁴ At 0954, *Norfolk* joined the action. All three ships fired independently at ranges as short as 3,300 yards. By 1000, *Bismarck*'s main guns were out of action, and ten minutes later the secondary guns stopped firing. *Bismarck* was now a wreck, on fire fore and aft and wallowing heavily.³⁴⁵ Tovey ordered a stop to the action, and all firing ceased at 1022. The cruiser *Dorsetshire* (which had left Convoy SL74) had just arrived at the scene of the action.³⁴⁶ Tovey ordered *Dorsetshire* to close in to finish off *Bismarck* by torpedoing. So perhaps it was *Dorsetshire*'s torpedoes that sank *Bismarck*, although German sources maintain that the ship was sunk by activating scuttling charges.³⁴⁷ *Bismarck* sank at 1037, at latitude 48° 10' N, longitude 16° 12' W. Its colors still flew.³⁴⁸

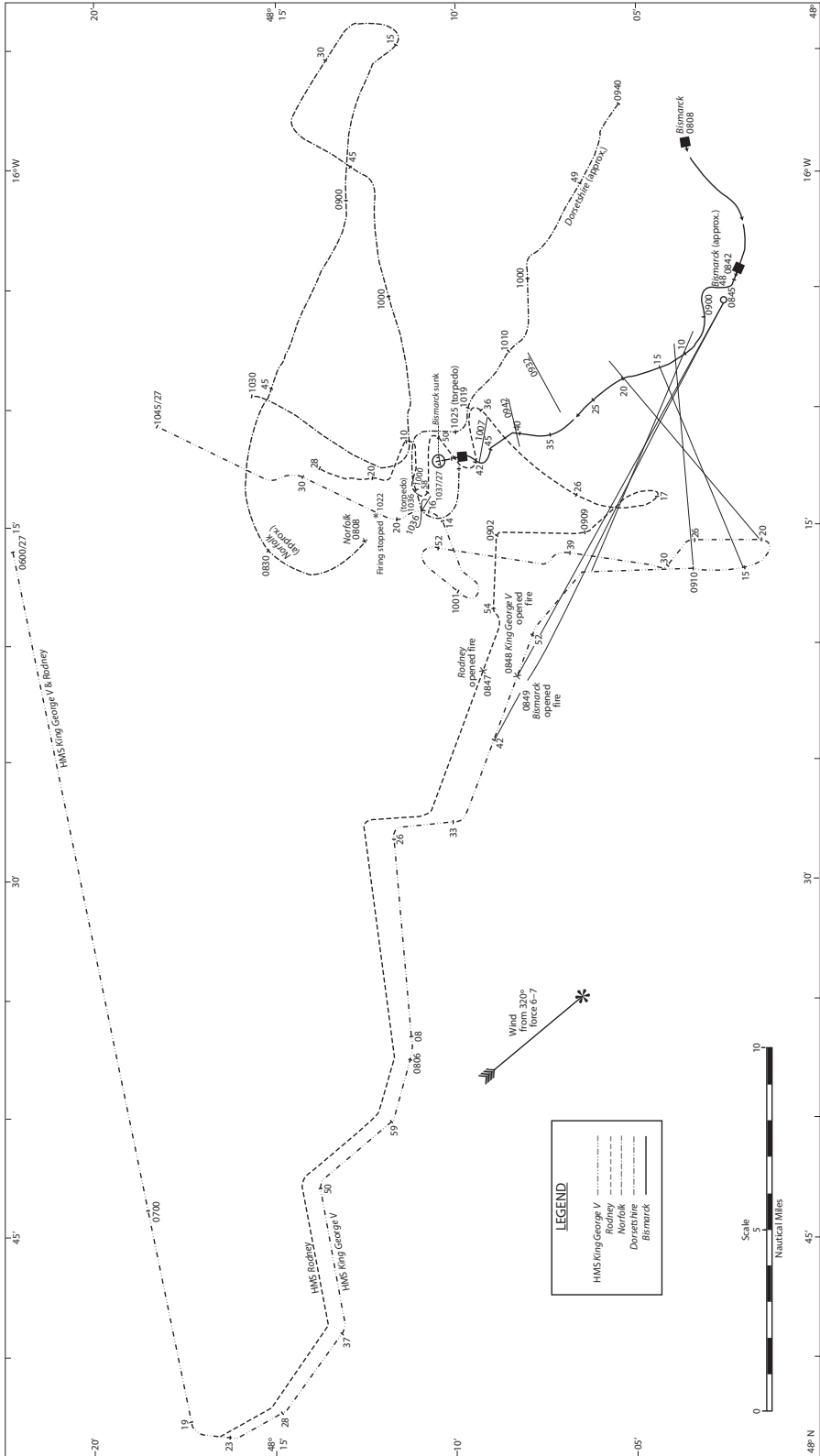
Out of 2,200 men aboard the ship, only 115 were saved.³⁴⁹ The cruiser *Dorsetshire* took aboard eighty-five survivors and the destroyer *Maori* twenty-five. Then the British ships stopped their efforts because of their concern that U-boats were in the vicinity. *U-74* saved three men and one weather steamer (*Sachsenwald*) picked up two men on May 28.³⁵⁰

Bismarck showed a remarkable resilience. Out of seventy-one torpedoes fired, at least eight, if not twelve, hit the ship.³⁵¹ The number of hits by 16-inch shells is unknown, but must have been very large. World War I had demonstrated the Germans' ability to build tremendously stout ships, and apparently they had not lost it during the interwar years.³⁵²

Withdrawal of the Home Fleet

The ships of the Home Fleet returned to their bases in northern Scotland. *King George V* and *Rodney*, with three destroyers (*Cossack*, *Sikh*, and *Zulu*), proceeded northward. *Dorsetshire* and *Maori* rejoined them at 1230 on May 27, and nine

**MAP 2
FINAL ATTACK ON BISMARCK, MAY 27, 1941**



other destroyers rejoined at 1600 on May 28. They received several signals warning of heavy enemy attacks on that day, but only four enemy aircraft appeared. However, at 1200 on the 28th, one hundred miles to the south, destroyers *Mishona* and *Tartar* suffered heavy attacks, and *Mishona* was sunk. *Rodney*, screened by *Maori*, and *Columbia* were detached to the Clyde at 1700 on May 28. *Dorsetshire* was detached to the Tyne at 2316. Fog delayed the battleships, but they entered Loch Ewe eventually, at 1230 on May 29.³⁵³

In his after-action report, Tovey wrote: "She [*Bismarck*] had put up a most gallant fight against impossible odds, worthy of the old days of the Imperial German Navy." He opined that it was unfortunate that "for political reasons" this fact could not be made public.³⁵⁴ Tovey praised the cooperation, skill, and understanding that all forces had displayed during the prolonged chase of *Bismarck*; flag officers and commanding officers invariably acted as "I would have wished before and without receiving instructions from me."³⁵⁵ The Admiralty exercised excellent strategic control. The coordination of the movements and actions of the many disparate forces across a large part of the northern Atlantic was superb. Admiral Tovey wrote that "the accuracy of information supplied by the Admiralty and the speed with which it was passed were remarkable, and the balance struck between information and instructions passed to the forces out of visual touch with me was ideal."³⁵⁶

The failure of RHEINÜBUNG and the sinking of *Bismarck* had a major effect on the future employment of German heavy surface combatants against British and Allied shipping in the North Atlantic. Admiral Raeder wrote later that prior to May 27, 1941, he had considerable freedom of action in determining the employment of heavy surface ships, as long as there were no negative effects on the actions of other services of the Wehrmacht. But because of the loss of *Bismarck*, Hitler in his subsequent instructions greatly limited that freedom. Among other things, he prohibited the sending of heavy ships to conduct commerce warfare in the Atlantic, and the Kriegsmarine attempted no such operations for the remainder of the war.³⁵⁷

CONCLUSION AND OPERATIONAL LESSONS LEARNED

The main reasons for the failure of RHEINÜBUNG were as follows: the German surface ships' base of operations was extremely unfavorable in multiple ways; the plan was overly reliant on the ships breaking out into the North Atlantic undetected; and—perhaps most important—air reconnaissance was inadequate, and the ships were operating beyond the effective range of Luftwaffe aircraft.

The deployment and combat employment of the forces opposing RHEINÜBUNG took place over the vast space of the North Atlantic. The harsh weather conditions significantly affected the employment of surface ships and aircraft

and the effectiveness of their weapons and sensors. Bad weather in the Denmark Strait favored the Germans because it greatly enhanced the chances of an undetected breakout into the North Atlantic.

The German surface ships and aircraft operated from a very long and fragmented base of operations. Gaining access from the Arctic to the open waters of the North Atlantic was extremely difficult. The British not only controlled Iceland and all three passages to the Atlantic but also kept under surveillance the southern part of the Arctic and southern Norway. Any German attempt to breakout to the North Atlantic was inherently a high-risk endeavor. Although the Germans were well aware that British monitoring of the northern passages had improved steadily over the course of 1941, they apparently were overconfident in their ability to use bad weather to make an unobserved breakout through the Denmark Strait.

Success in a war at sea is difficult and sometimes impossible to achieve without favorable positions for basing one's naval forces and aircraft. Disadvantages of geography can be reduced but not eliminated by having highly capable ships and aircraft. One of the key responsibilities of operational commanders and their staffs is to evaluate realistically all aspects of the operating areas. In planning a major naval/joint operation, it is critical to maximize the advantages and minimize the disadvantages of one's base of operations.

Both the Kriegsmarine and the Royal Navy were highly centralized organizations. Admiral Raeder was generally reluctant to allow full freedom of action to subordinate operational commanders. The operational, and in many cases the tactical, organization of the Kriegsmarine underwent frequent—and sometimes unnecessary—changes. The establishment of naval group commands did not simplify but instead considerably complicated the C2 of German seagoing forces. Naval group commands should not have been entrusted with operational command of fleet forces. Raeder made an unsound organizational decision by directing Lütjens, a four-star admiral, to command a single combat group at sea; by doing so, Lütjens became subordinate in some matters to a junior admiral (Saalwächter, the commander of Naval Group Command West). Perhaps such a decision would have been appropriate if the entire operation had been carried out using four battleships, as originally envisaged. The Kriegsmarine failed to move the fleet headquarters ashore. If that had been done, the fleet commander would have been a supported commander, while the naval groups' commanders would have been supporting commanders.

In the Royal Navy, the Admiralty exercised strategic, and in some cases operational, control over all seagoing forces and shore commands. It also often usurped the responsibilities of subordinate commanders by making purely tactical decisions. The Home Fleet was the largest and most important seagoing force in

home waters. Like the Kriegsmarine's Fleet Command, the Home Fleet consisted of several type commands. Each of these was responsible for both administration and operations. In combat, it is far more flexible and effective to organize diverse forces into task forces/groups subordinate directly to the respective fleet commanders. Type commanders should be responsible solely for combat training and administration.

A major factor in the successful outcome of a major naval/joint operation is sound operational command organization. Optimally, unity of effort should be based on unity of command. A single operational commander should have full authority over and responsibility for subordinate tactical forces. Such authority should not be shared among two or more commanders. Prior to the planning process, higher authority should designate a single supported commander. All other commanders should support the supported operational commander fully.

Both British and German operational and tactical intelligence relied primarily on information obtained via air reconnaissance. Especially useful was photoreconnaissance. At this time the British ability to penetrate and read the German Enigma messages was not as effective as it would be later in the war. In contrast, the German B-Dienst seems to have been highly effective in decrypting British radio messages. One of the German advantages was that B-Dienst teams embarked in major surface combatants, and they usually were very quick in decrypting enemy messages. The major advantage the British enjoyed over the Germans was their establishment of a highly effective network of agents in Norway and other Scandinavian countries; perhaps the most effective of these was the British naval attaché in Stockholm and his helpers within the Swedish secret service.

Operational intelligence is one of the key elements for preparing sound plans for a major naval/joint operation. It combines strategic and tactical intelligence. Operational intelligence should be based on information collected from diverse sources. Human intelligence is a critical and irreplaceable source for obtaining an accurate, timely, and relevant operational picture of the situation.

German naval operational planning was methodical and thorough. Normally, plans for a major operation were based on a relatively large number of staff studies and critical comments on these studies by the SKL and naval group commanders. The SKL and naval group commanders usually would issue broad instructions, while tactical commanders would draft operations orders for subordinate commanders. The SKL's objective was to employ the Kriegsmarine's heavy surface forces and auxiliary cruisers to complement the U-boats in their war on the British transatlantic convoys. Raeder's intent was to weaken British naval strength in either home waters or the Mediterranean, and either to increase convoy defenses or to reduce the number of convoys.

For the Germans, an almost insurmountable problem was their numerical inferiority in surface forces and a lack of adequate and reliable air support. Hence, the loss of any major surface combatant such as a battleship would have a much greater negative effect than such a loss would have on the Royal Navy. For all the high quality of its staff studies and the solid planning it conducted, the SKL made some very unrealistic assumptions about the effect that employment of battleships would have on the naval situation in the North Atlantic. Perhaps the single most important reason they were unrealistic was geography. Even if the Germans incrementally had achieved sea control in the North Atlantic, they were not in a position to maintain that control for any length of time; both the Kriegsmarine and the Luftwaffe lacked sufficient strength and favorable bases of operations to control such a vast area of ocean.

Sea control cannot be achieved by focusing on destroying the enemy forces defending convoys. Doing so invariably will result in a protracted war of attrition. Sea control is accomplished primarily by destroying a major part of the enemy forces in a major naval/joint operation in the initial phase of the war at sea. The obtaining of sea control aims at accomplishing an operational or strategic objective; however, consolidating one's operational/strategic success by maintaining sea control also is critical—otherwise the fruits of victory will be lost.

There is no doubt that the decision Raeder faced—whether to employ the *Bismarck* combat group by itself in a new major operation against enemy convoys in the Atlantic—was a difficult one. The original intent—employing four battleships—probably had a much greater chance of success. Another good option would have been to delay the operation until *Tirpitz*, at least, was fully operational. The employment of both *Bismarck* and *Tirpitz* jointly would have compounded greatly the British problem in terms of preventing their breakouts and their subsequent attacks on the transatlantic convoys. In using the *Bismarck* group alone, Raeder took a high—and imprudent—risk. Everything depended on the *Bismarck* group breaking out undetected; otherwise, it was reasonable to expect (and not just in retrospect) that the British would make an all-out effort to destroy the *Bismarck* group. Even if *Bismarck* successfully avoided detection and subsequently attacked the convoys, it was almost certain the British would do everything possible to prevent its return either through the Denmark Strait or into a French port in the Bay of Biscay. Raeder's concept of employing heavy cruisers and auxiliary cruisers to attack enemy ocean shipping was essentially sound; however, battleships—especially those of the *Bismarck* class—were another matter. The risk involved in employing such major surface combatants beyond the effective range of Luftwaffe aircraft was simply too great, and hence unacceptable. The Germans were well aware of the air threat to their surface

ships, yet apparently their faith in their ability to break them out into the North Atlantic undetected was too strong.

The operational deployment of the *Bismarck* group from Gotenhafen to Korsfjord, Bergen, proceeded uneventfully. But after the Admiralty and Home Fleet received information from the naval attaché in Stockholm about the passage of the *Bismarck* group through the Great Belt, they acted quickly. The cruise patrol in the Denmark Strait was strengthened. A part of the Home Fleet then in Scapa Flow was put into a state of increased combat readiness. Air reconnaissance of the Norwegian ports and Arctic waters was intensified. Admiral Tovey properly evaluated the situation and made sound decisions for the subsequent disposition of his forces. Prior to the encounter in the Denmark Strait, Tovey's dispositions of the Battle Force and cruiser patrols covered all three northern passages, while keeping his Battle Force centrally positioned and able to intervene in a timely fashion toward the west or east.

The Germans suspected that British agents had sighted the movement of the *Bismarck* group, but Admiral Lütjens made no major changes to his plans despite his suspicions. Perhaps the chances of a successful breakout into the North Atlantic would have been greater if the *Bismarck* group had sailed to Trondheim instead of Korsfjord, and had remained there for several weeks. This would have kept the British in suspense about the direction and timing of the group's next movement.

Tactically, Lütjens handled the *Bismarck* group much better than his counterpart, Admiral Holland, handled his forces. The gunnery of both *Bismarck* and *Prinz Eugen* was superior to that of the British ships. Holland made a mistake in detaching his destroyers prior to the encounter, thereby missing the opportunity to use them for a torpedo attack on the *Bismarck* group. Lütjens made a sound tactical decision in not pursuing the damaged *Prince of Wales*; his main mission was to attack enemy convoys, not to engage enemy heavy surface ships. *Bismarck* had suffered damages in the encounter with *Prince of Wales* and their extent was not precisely known at the time he had to make his decision. Reengaging *Prince of Wales* might well have resulted in additional damage to *Bismarck*.

Why Admiral Lütjens decided on the morning of May 24 to steer for Saint-Nazaire instead of turning north and heading for Trondheim or Bergen is not known. He probably had good reason to believe that it would be possible to break away from his pursuers and make a westward swing into the open spaces of the North Atlantic. Yet he was well aware that once his group was discovered the British would make an all-out effort to destroy it. He also was much concerned with the threat that enemy carrier-borne torpedo planes posed. At the same time, the *Bismarck* group would operate well beyond the effective range of Luftwaffe bombers. In retrospect, it seems that after the encounter with BCS 1 the sound

decision would have been to withdraw back through the Denmark Strait. If Lütjens had made the decision to do so quickly, he would have had a very good chance of not encountering enemy heavy forces on his way to Trondheim or Bergen. In addition, the *Bismarck* group would have reached the protective cover of Luftwaffe aircraft much sooner than on the route to Saint-Nazaire.

The British cruisers' masterful use of their search radars made it impossible for the Germans to shake off their pursuers. This was a major reason the Admiralty and Admiral Tovey eventually were able to concentrate an overwhelming force against *Bismarck*. The Admiralty took a high but prudent risk in detaching so many ships from convoy duty to take part in the pursuit. In the final phase of the operation, *Bismarck's* chances diminished steadily. Perhaps if *Bismarck* had not unluckily received the torpedo hit that disabled its rudder there would have been some chance for the ship to reach the safety of a French port. Whether that would have allowed *Bismarck* to survive is a question no one can answer for certain.

NOTES

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2. Holger H. Herwig, "The Failure of German Sea Power, 1914–1945: Mahan, Tirpitz, and Raeder Reconsidered," *International History Review* 10, no. 1 (February 1988), pp. 88–89.
3. Gerhard Bidlingmaier, "Die strategischen und operativen Überlegungen der Marine 1932–1942," *Wehrwissenschaftliche Rundschau* (June 1963), p. 314.
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10. Cited in Werner Rahn, "German Navies from 1848 to 2016: Their Development and Courses from Confrontation to Cooperation," *Naval War College Review* 70, no. 4 (Autumn 2017), p. 35.
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12. Rahn, "Strategische Optionen und Erfahrungen," p. 218; Bidlingmaier, "Die strategischen und operativen Überlegungen," p. 317.

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14. Kurt Assmann, *Deutsche Seestrategie in zwei Weltkriegen* (Heidelberg, F.R.G.: Scharnhorst Buchkameradschaft, 1957), p. 137.
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16. *Ibid.*, p. 50.
17. Assmann, *Deutsche Seestrategie in zwei Weltkriegen*, pp. 132–33.
18. Anlage 2: June 1941, "Betrachtungen zur Weiterführung des Atlantikhändelskrieges mit Überwasserstreitkräften," 1. SKL, Teil C VII, Überlegungen des Chefs der SKL und Niederschriften über Vorträge und Besprechungen beim Führer, Januar 1941–Dezember 1941, RM 7/182, Bundesarchiv-Militärarchiv, Freiburg im Breisgau [hereafter BA-MA], p. 3.
19. Ruge, *Der Seekrieg*, p. 155.
20. Bernd Stegeman, "Die zweite Phase der Seekriegführung bis zum Frühjahr 1941," in *Das Deutsche Reich und der Zweite Weltkrieg*, ed. Klaus A. Maier et al., vol. 2, *Die Errichtung der Hegemonie auf dem europäischen Kontinent* (Stuttgart, F.R.G.: Deutsche Verlags-Anstalt, 1979), p. 345.
21. *Ibid.*, p. 348.
22. Assmann, *Deutsche Seestrategie in zwei Weltkriegen*, p. 142. Auxiliary cruisers were converted merchant vessels. Their appearance was altered with fake masts and funnels. They approached their unsuspecting victims under false flags, and with their guns and torpedo capabilities concealed. The German auxiliary cruisers (*Hilfskreuzer* or *Handels-Stör-Kreuzer*) of World War II usually were armed with six 150 mm guns, one 75 mm gun, two 37 mm and four 20 mm AA guns, and four to six 533 mm torpedoes, and carried from one hundred to more than two hundred mines. For reconnaissance they used two Heinkel He-114 or Arado Ar-196 float planes. Each was assigned a coded ship number (e.g., the auxiliary cruiser *Orion's* designation was Schiff 36). Gordon Williamson, *Kriegsmarine Auxiliary Cruisers* (Long Island City, NY: Osprey, 2009), pp. 4–7, 12.
23. Stegeman, "Die zweite Phase der Seekriegführung," pp. 351–52.
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28. Ruge, *Der Seekrieg*, p. 164.
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30. *Ibid.*, p. 358.
31. Assmann, *Deutsche Seestrategie in zwei Weltkriegen*, p. 145.
32. Stegeman, "Die zweite Phase der Seekriegführung," p. 358.
33. *Ibid.*
34. Gerhard Bidlingmaier, *Einsatz der schweren Kriegsmarineeinheiten im ozeanischen Zufuhrkrieg: Strategische Konzeption und Führungsweise der Seekriegsleitung, September 1939–Februar 1942* (Neckargemünd, F.R.G.: Scharnhorst Buchkameradschaft, 1963), p. 156.
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36. James P. Levy, *The Royal Navy's Home Fleet in World War II* (New York: Palgrave Macmillan, 2003), p. 83.
37. Raeder, *Von 1935 bis Spandau 1955*, p. 258.
38. Assmann, *Deutsche Seestrategie in zwei Weltkriegen*, pp. 145–46.
39. U.S. Government, *Sailing Directions (Planning Guide): North Atlantic Ocean and Adjacent Seas*, Publication 140 (Springfield, VA: National Geospatial-Intelligence Agency, 2017) [hereafter Pub. 140], pp. 476–77.
40. J. R. Chambers [Cdr., USN], "The North Atlantic Ocean, Newfoundland, and the Maritime Provinces to the British Isles, Including Greenland and Iceland" (staff presentation delivered at Naval War College, Newport, RI, April 21, 1941) [hereafter Chambers presentation], p. 1.
41. *Ibid.*, p. 2.

42. Ibid., pp. 1–2. Force 4 on the Beaufort scale is approximately eleven to sixteen miles per hour. Sir Francis Beaufort developed the Beaufort scale in 1805. It adjudges wind strength on a scale of 1 to 12, on the basis of observations of conditions, not numerical measurement.
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91. *Ibid.*, p. 5.
92. Schofield, *Loss of the Bismarck*, p. 12.
93. Bercuson and Herwig, *The Destruction of the Bismarck*, p. 43.
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96. Vortrag Ob. d. M. beim Führer am 20. April 1941, 1. SKL, Teil C VII, Überlegungen des Chefs der SKL und Niederschriften über Vorträge und Besprechungen beim Führer, Januar 1941–Dezember 1941, RM 7/182, BA-MA, p. 2.
97. This zone was established in October 1939; originally it varied in width from three hundred to one thousand nautical miles. On April 18, 1941, President Franklin D. Roosevelt extended the zone to longitude 26 degrees W (2,300 nautical miles east of New York, and only fifty nautical miles off Iceland). *Ibid.*, p. 3.
98. Raeder, *Von 1935 bis Spandau 1955*, p. 268.
99. Vortrag Ob. d. M. beim Führer am 20. April 1941, p. 3. Organisation Todt was a civil and military engineering/construction group in Nazi Germany. It was named after Fritz Todt (1891–1942), its founder and leader.
100. Vortrag Flottenchef bei Ob.d.M., April 26, 1941, in *Rheinübung-Bismarck Operation*, Band 1, Heft 1, Vorbereitende Weisungen und Operationsbefehle, März 1941–Mai 1941, RM 7/1700, BA-MA, p. 141.
101. The term *new moon* refers to the phase of the moon when it is in conjunction with the sun and therefore invisible from Earth, or shortly thereafter when it appears as only a slender crescent.
102. Vortrag Flottenchef bei Ob.d.M., April 26, 1941, pp. 141–42.
103. Raeder, *Von 1935 bis Spandau 1955*, p. 266.
104. Cited in Burkard von Müllenheim-Rechberg, *Battleship Bismarck: A Survivor's Story* (Annapolis, MD: Naval Institute Press, 1990), p. 61.
105. "Unternehmung der Kampfgruppe *Bismarck* zum Handelskrieg in Atlantik," p. 3.
106. Ob.d.M. to Flottenkommando, Operative Weisung für Flottenkommando zum Einsatz des Schlachtschiffes *Bismarck* und des Kreuzers *Prinz Eugen* im Atlantik (Deckname RHEINÜBUNG), April 14, 1941, in *Rheinübung-Bismarck Operation*, Band 1, Heft 1, Vorbereitende Weisungen und Operationsbefehle, März 1941–Mai 1941, RM 7/1700, BA-MA, p. 1.

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108. Flottenkommando, Operationsbefehl des Flottenchefs für die Atlantikoperation mit *Bismarck* und *Prinz Eugen* (Deckname RHEINÜBUNG), April 22, 1941, 1. SKL, Teil C I Ib, Westraum-Atlantikküste-Flottenoperationen, Januar 1941–Dezember 1941, RM 7/132, BA-MA, p. 2.
109. “Unternehmung der Kampfgruppe *Bismarck* zum Handelskrieg in Atlantik,” p. 5.
110. Brennecke, *Schlachtschiff Bismarck*, pp. 67–68.
111. “Annex: Unternehmung der Kampfgruppe *Bismarck* zum Handelskrieg im Atlantik,” pp. 135–36.
112. Chambers presentation, p. 5.
113. Ob.d.M. to Flottenkommando, Operative Weisung für Flottenkommando zum Einsatz des Schlachtschiffes *Bismarck* und des Kreuzers *Prinz Eugen* im Atlantik (Deckname RHEINÜBUNG), p. 3.
114. *Ibid.*, pp. 4–5.
115. “Annex: Unternehmung der Kampfgruppe *Bismarck* zum Handelskrieg im Atlantik,” p. 135.
116. Ob.d.M. to Flottenkommando, Operative Weisung für Flottenkommando zum Einsatz des Schlachtschiffes *Bismarck* und des Kreuzers *Prinz Eugen* im Atlantik (Deckname RHEINÜBUNG), p. 3.
117. Flottenkommando, Operationsbefehl des Flottenchefs für die Atlantikoperation mit *Bismarck* und *Prinz Eugen* (Deckname RHEINÜBUNG), p. 40.
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119. “Annex: Unternehmung der Kampfgruppe *Bismarck* zum Handelskrieg im Atlantik,” p. 135.
120. Brennecke, *Schlachtschiff Bismarck*, p. 41.
121. Ob.d.M. to Flottenkommando, Operative Weisung für Flottenkommando zum Einsatz des Schlachtschiffes *Bismarck* und des Kreuzers *Prinz Eugen* im Atlantik (Deckname RHEINÜBUNG), p. 4.
122. Operationsbefehl des Flottenchefs für die Atlantikoperation mit *Bismarck* und *Prinz Eugen* (Deckname RHEINÜBUNG), April 22, 1941, in *Rheinübung-Bismarck Operation*, Band 1, Heft 1, Vorbereitende Weisungen und Operationsbefehle, März 1941–Mai 1941, RM 7/1700, BA-MA, p. 2.
123. Ob.d.M. to Flottenkommando, Operative Weisung für Flottenkommando zum Einsatz des Schlachtschiffes *Bismarck* und des Kreuzers *Prinz Eugen* im Atlantik (Deckname RHEINÜBUNG), pp. 4–5.
124. *Ibid.*, pp. 5–6.
125. “Annex: Unternehmung der Kampfgruppe *Bismarck* zum Handelskrieg im Atlantik,” p. 133.
126. The literal translation of *Sperrbrecher* is “obstacle breaker.” The mine breaker was a type of mine-defense ship that the Germans used in both world wars. It was a converted merchant ship filled with buoyant material and crewed by merchant seamen. It sailed through a minefield ahead of other ships to detonate mines in its path.
127. Operationsbefehl des Flottenchefs für die Atlantikoperation mit “*Bismarck*” und “*Prinz Eugen*” (Deckbezeichnung: “*Rheinübung*”), April 22, 1941, 1. SKL, Teil C I Ib, Westraum-Atlantikküste-Flottenoperationen, Januar 1941–Dezember 1941, RM 7/132, BA-MA, p. 41.
128. *Ibid.*
129. Operationsbefehl des Flottenchefs für die Atlantikoperation mit “*Bismarck*” und “*Prinz Eugen*” (Deckbezeichnung “*Rheinübung*”), April 22, 1941, in *Rheinübung-Bismarck Operation*, Band 1, Heft 1, Vorbereitende Weisungen und Operationsbefehle, März 1941–Mai 1941, RM 7/1700, BA-MA, pp. 2–3.

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131. Operative Weisung für Flottenkommando zum Einsatz des Schlachtschiffes "Bismarck" und des Kreuzers "Prinz Eugen" im Atlantik (Deckbezeichnung "Rheinübung"), April 14, 1941, in *Rheinübung-Bismarck Operation*, Band 1, Heft 1, Vorbereitende Weisungen und Operationsbefehle, März 1941–Mai 1941, RM 7/1700, BA-MA, p. 1.
132. "Annex: Unternehmung der Kampfgruppe *Bismarck* zum Handelskrieg im Atlantik," p. 134.
133. Bidlingmaier, *Einsatz der schweren Kriegsmarineeinheiten*, pp. 210–11.
134. Operative Weisung für Flottenkommando zum Einsatz des Schlachtschiffes "Bismarck" und des Kreuzers "Prinz Eugen" im Atlantik (Deckbezeichnung "Rheinübung"), p. 5.
135. "Unternehmung der Kampfgruppe *Bismarck* zum Handelskrieg im Atlantik," p. 2.
136. "Allgemeiner Befehl für die Atlantikunternehmung," Anlage 1 to Flottenkommando B.Nr. 100/41 A1 Chefs, Operationsbefehl des Flottenchefs für die Atlantikoperation mit "Bismarck" und "Prinz Eugen" (Deckbezeichnung: "Rheinübung"), April 22, 1941, 1. SKL, Teil C IIb, Westraum-Atlantikküste-Flottenoperationen, Januar 1941–Dezember 1941, RM 7/132, BA-MA, pp. 45–46.
137. "Annex: Unternehmung der Kampfgruppe *Bismarck* zum Handelskrieg im Atlantik," p. 133.
138. Operative Weisung für Flottenkommando zum Einsatz des Schlachtschiffes "Bismarck" und des Kreuzers "Prinz Eugen" im Atlantik (Deckbezeichnung "Rheinübung"), p. 6.
139. Bercuson and Herwig, *The Destruction of the Bismarck*, p. 60.
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182. Oberkommando der Kriegsmarine, *Die Atlantikunternehmung der Kampfgruppe Bismarck-Prinz Eugen, Mai 1941*, p. 14.
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187. Episode notes for "Battle of the Denmark Straits and Sinking of the Battleship *Bismarck*," AIR 20/1329, TNA, p. 1907.
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193. "Sinking of the German Battleship *Bismarck*," p. 3.
194. "Battle of the Denmark Straits and Sinking of the Battleship *Bismarck*," p. 197.
195. "Sinking of the German Battleship *Bismarck*," p. 3.
196. *RDF* was the British term at the time for radar—not to be confused with *radio direction finding*. The United States coined the term *radar*, for radio detection and ranging, in 1940.
197. "Sinking of the German Battleship *Bismarck*," p. 3.
198. "Report of Operations in Pursuit of the *Bismarck*," p. 3/423. (Note: some documents in the British archives provide a page number for each individual document and another as part of the respective volume.)
199. "Sinking of the German Battleship *Bismarck*," p. 3.

200. Bidlingmaier, *Einsatz der schweren Kriegsmarineeinheiten*, p. 212.
201. Rheinübung-Bismarck Operation, Band 1, Heft 3, Laufende Meldungen und Befehle, RM 7/1700, BA-MA, p. 1; Oberkommando der Kriegsmarine, *Die Atlantikunternehmung der Kampfgruppe Bismarck-Prinz Eugen, Mai 1941*, p. 15.
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225. "Sinking of the German Battleship *Bismarck*," p. 4.
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227. "Sinking of the German Battleship *Bismarck*," p. 4.
228. "Unternehmung der Kampfgruppe *Bismarck* zum Handelskrieg in Atlantik," p. 14.
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