The History of the Twentieth Century
Episode 338
"The Battle of the Atlantic"
Transcript

[music: Fanfare]

You would have thought that the experience of the First World War would have taught the German Navy that U-boats were its most effective weapon.

But they didn't, and they would have to learn that lesson all over again.

Welcome to *The History of the Twentieth Century*.

[music: Opening War Theme]

Episode 338. The Battle of the Atlantic.

Today I want to talk about naval battles in the first year or so of the war between Germany and Britain. I have described a few of these to you along the way, but today I want to look at the German Navy and its conflicts with the British Royal Navy in a more focused way. We're going to cover the period from the beginning of the war through early 1941.

If you think back to the last war, you'll remember that Britain and Germany were in a naval race in the years leading up to that war, with Germany expending a lot of effort to build a fleet of dreadnought battleships capable of challenging the Royal Navy, at least in the waters of the North Sea, and Britain expending a lot of effort to build enough dreadnought battleships to maintain the Royal Navy's lead over the German Navy.

You'll also remember that when war came, the German Navy's impact on it was minimal. The only branch of the Navy that really made a difference was the U-boat fleet.

After the war, most of the German Navy's best ships were interned at the British port of Scapa Flow, where, after months of waiting, the Germans chose to scuttle them rather than allow the Allies to take control of them.

The Treaty of Versailles restricted the German Navy to a total of 15,000 sailors, of whom only 10%, or 1,500, could be officers. The Treaty permitted Germany only a skeleton of a fleet: six

pre-dreadnought battleships, six cruisers, twelve destroyers, twelve torpedo boats, and no U-boats. None. Zero. Zip. *Nada. Nichts. Aucune. Ingen. Ot mean*. Get it?

The Treaty allowed the Navy to replace any ship more than 15 years old, but set tonnage limits. A maximum of 10,000 tons for a battleship replacement, 6,000 for a cruiser, 800 for a destroyer.

In the early years of the Weimar Republic, the Navy, formerly the Kaiserliche Marine, the Imperial Navy, now styled the Reichsmarine, or the National Navy, was largely scorned by the German government and public. Everyone remembered how much the Kaiser and his government spent building all those battleships that, once the war begin, remained timidly in port as the Royal Navy blockaded Germany and slowly starved everyone. The old Navy had been the flashpoint for the leftist uprising of 1918 that had overthrown the Kaiser and undermined the war effort, and then after the war ended, it scuttled itself. Not much of a record.

As I suggested, the one branch of the Navy that had bragging rights was the U-boat fleet, but unrestricted submarine warfare smeared the good name of Germany, had helped bring America into the war, and was one of the main reasons the Allies imposed such harsh treaty terms.

The new Reichsmarine, sensitive to its image as a haven for leftist agitators, adopted a strict policy of "no politics, only loyalty to the civilian government." Prospective recruits were carefully screened and anyone with a history of political extremism was turned away. This produced a Navy that was neither a haven for leftists, nor a haven for rightists, ahem, like the Army.

The Reichsmarine had difficulty articulating a mission for itself. The Soviet Union presented no naval threat. Poland was a potential enemy, with a navy small enough not to frighten the German admirals, but Poland was allied with France, and the German Navy was in no position to take on the French. The best that could be hoped for in this scenario would be a Navy capable of taking to the high seas and preying on French shipping, in the hope this would force the French Navy to disperse in order to escort convoys, so that not enough French ships would be left to blockade Germany. This thinking led the Reichsmarine to adopt long-range commerce raiding as one of its missions.

This all presupposes that the United Kingdom remain neutral during this hypothetical conflict. If the Royal Navy went to war against Germany again, all bets were off. The admirals believed that taking on the British in the last war had been a terrible mistake, one that should never be repeated. The Reichsmarine would not even hypothesize a battle against the Royal Navy during its war games and fleet exercises. Best not even to think about it.

The Treaty of Versailles barred Germany from acquiring U-boats, but, as with so many of the Treaty's restrictions on the German military, the Germans were cheating. In 1922, the Reichsmarine and a consortium of German shipbuilding companies set up IvS, a Dutch shipbuilding firm in The Hague, and this company designed and built submarines and submarine

components for the Spanish, Soviet, Finnish, and Turkish navies. This allowed the German firms to keep their submarine-building skills up to date. IvS employees, many of whom were former sailors in the German Navy, traveled to the purchasing countries to "train" their crews; they were also refreshing their own skills in submarine operation.

By the late Twenties, it was an open secret that the German military was violating the restrictions of the Treaty of Versailles, as we've already talked about on the podcast. But even in Germany, there were some politicians and some newspapers that disapproved of all this and spoke out against it. This controversy came to a head in 1928, when Hermann Müller of the Social Democratic Party was chancellor. Remember, he was the last chancellor from the SDP until 1969. There was a government shakeup, with a new minister of defense, Wilhelm Groener, and new service chiefs for the Reichswehr, the Army, and the Reichsmarine, the Navy. It was at this moment, October 1, 1928, that Admiral Erich Raeder became head of the Navy.

Raeder was very correct and appropriately loyal to Germany's civilian leaders, but he found himself having to fend off criticism of the Navy. The new defense minister, Groener, was a retired Army officer who openly and publicly questioned the need for Germany to have a Navy at all. And then there was this rising political star, Adolf Hitler. In his writings, Hitler was critical of the old Imperial Navy and dismissive of the Reichsmarine.

These were treacherous political waters, but Raeder navigated them deftly. He was able to win approval from the government and the Reichstag for funding to build a total of three replacement battleships for three of the aging hulks the Treaty of Versailles had saddled him with.

Remember that I said the Treaty of Versailles permitted Germany to build replacement ships, but set an upper limit of 10,000 tons for battleships. That's awfully small for a battleship. Compare that to the treaty that came out of the Washington Naval Conference, where the Allies were talking among themselves. That treaty set 10,000 tons as the upper limit, not for a battleship, but for a cruiser.

You are already acquainted with these three cruiser-sized replacement battleships. They were *Deutschland, Admiral Graf Spee,* and *Admiral Sheer,* cruiser sized, but armed with battleship-sized guns. The Germans called this class of ship *Panzerschiffe,* armored ships. The British called them "pocket battleships." These were innovative ships. They were designed to be faster than any ship that could outgun them and able to outgun any ship that could keep up with them. Their hulls were welded rather than riveted, and they had all-diesel propulsion. They also had a crazy long range: 19,000 kilometers, making them eminently suited to commerce raiding, the main role the Reichsmarine saw for itself.

Although these three ships officially met the 10,000 ton requirement, you should not by now be surprised to hear that they were actually larger than that, as large as 12,000 tons because of course the Germans were cheating on the Treaty.

In November 1932, the Reichsmarine prepared an expansion plan, which proposed to add six new battleships, one aircraft carrier, more cruisers, destroyers, and minesweepers and sixteen submarines. Then Adolf Hitler became chancellor. Raeder was worried at first, since Hitler had been a critic of the Navy, and because he had the support of Army generals who were known to be hostile to the Navy, but he soon learned to his relief that Hitler was all in favor of building up the German Navy, soon to be renamed the Kriegsmarine, the war navy, or maybe the combat navy.

As you already know, in those early years, Hitler hoped to win over the British, or at least keep them neutral, and the Anglo-German Naval Agreement of 1935 was a part of that strategy. In this treaty, Germany agreed to limit its capital ships to 35% of the Royal Navy, a low enough ratio to satisfy British security concerns, but this treaty effectively amounted to a German renunciation of the Treaty of Versailles, at least as far as the Navy was concerned, and with British consent.

This number, 35% of the Royal Navy, gave the German Navy an allowance of 183,000 tons' worth of battleship. This tonnage was enough to cover the three pocket battleships already in service, with enough left over to permit the construction of four new battleships that were already on the German Navy's drawing boards: two fast battleships, real battleships, around 32,000 tons, and two even larger battleships of about 42,000 tons.

The first two of these ships would become *Gneisenau*, commissioned in May 1938, and *Scharnhorst*, commissioned in January 1939. You may recall I already told you about their first major engagement, during the invasion of Norway, in which they sank the British aircraft carrier *Glorious*.

The latter two of these ships would become *Bismarck*, commissioned August 1940, and *Tirpitz*, commissioned February 1941, both after the war began, please note.

These four battleships represented all the capital ships the German Navy planned to build during the Thirties anyway, so agreeing to the 35% cap in the treaty with Britain represented no real sacrifice on the German side. In late 1938, Raeder developed a plan for a massive expansion of the Navy, which became known as Plan Z. Hitler approved Plan Z in January 1939. Plan Z would have violated the Anglo-German Naval Agreement, but that ceased to be a problem on April 28, 1939, when Hitler renounced that agreement.

Plan Z was a German admiral's dream. It called for the construction of six more battleships, three battlecruisers, four aircraft carriers, twelve more *Panzerschiffe*, and much, much more, to be completed by 1948. This would be enough of a fleet to seriously challenge the Royal Navy, and the building program wouldn't end there. By sometime in the 1950s, Germany would be ready to take on the United States Navy.

None of this ever happened, because the war broke out just months later. Plan Z was cancelled after it had barely begun, and for us today it mostly represents an historical "what if?" to ponder,

but it also tells you something important about the strategic thinking of the Reichsmarine and of Admiral Raeder. They were still focused on large surface ships.

The experience of the previous war for Germany was that large surface ships were all but useless, while U-boats terrorized the Allies. You might think that the German Navy of the 1930s would take that into account and put more emphasis on submarines. But, no. Surface fleets were still the prestige units of a modern navy, while submarines continued to be regarded as less prestigious. They were an unchivalrous, dishonorable, and morally dubious way to conduct naval warfare. The stigma of submarines as an unfair terror weapon that primarily targeted civilians was still very much in place.

Nevertheless, the German Navy kept a hand in submarine design and construction ever since the early Twenties. When Hitler became chancellor and began Germany's secret military buildup, it included development and construction of submarines, despite the prohibition in the Treaty of Versailles. When the Germans and the British negotiated their 1935 naval agreement, the Germans asked for the right to build submarines up to 45% of the British submarine tonnage. The British agreed to this on one condition: that Germany renounce unrestricted submarine warfare against merchant shipping. The German side agreed to this.

In a matter of days following the conclusion of the Anglo-German Naval Agreement in 1935, the Kriegsmarine held a public ceremony to commission *U-1*, its first submarine. And just like that, the despised and dreaded German U-boat was once again patrolling the Atlantic.

In 1936, Raeder appointed Karl Dönitz to the command of the German Navy's U-boat arm. Dönitz was a capable officer. He had served on U-boats in the last war, and Raeder saw him as a loyal and intelligent officer. Dönitz, on the other hand, had previously been in command of the cruiser *Emden* and was unhappy being assigned to the less prestigious U-boat command, seeing it as a setback to his naval career.

But over time, he warmed to his new job and became an advocate for building a larger U-boat fleet. Modern U-boats were much more advanced than the boats that had served in the last war. Their hulls were welded instead of riveted, meaning they were tougher and could dive deeper. Their diesel engines and electric motors were both more powerful, and modern torpedoes were larger and more difficult to detect.

Perhaps most important of all, modern radio technology meant that commanders in Germany could maintain continuous contact with U-boats at sea, and Germany's Enigma code machines would keep those communications secret. U-boat commanders could also communicate directly with each other.

In the last war, the British had resorted to convoys to protect their merchant ships. Convoys made it harder for a U-boat on patrol to find merchant ships, and when it did, it would have to attack alone against a convoy that might be defended by several escort ships. Radio changed

everything. A convoy might now be spotted by reconnaissance aircraft and its position and heading communicated to U-boats in the vicinity. Or, U-boats could patrol in groups. The group could spread out along a line perpendicular to the expected route of a convoy; when one of the boats spotted the convoy, it could share that information and a group of U-boats could attack the convoy in coordination. The escorting ships would have to break from the convoy and pursue individual U-boats; those that were not being pursued could then attack the defenseless merchant ships.

Dönitz calculated that in the event of war with Britain, 300 U-boats would be enough to starve the British into submission. That number would allow for 100 U-boats to be on patrol in the Atlantic at any given time, and he figured a force of that size could sink a million tons of merchant shipping every month. The British only had about 17 million tons of merchant shipping; therefore, it would take only a year or so before Britain could no longer import food and raw materials in the quantities it would need to fight a war.

When war came in September 1939, the Kriegsmarine was hopelessly outmatched by the combined navies of Britain and France. The Allied side had a combined total of 22 battleships, with seven more under construction to Germany's two, with two more under construction, and three pocket battleships. The Allies had seven aircraft carriers, with eight more under construction. Germany had no aircraft carriers, with one under construction. Germany had eight cruisers and twenty destroyers; the Allies had ten times as many of both classes of ship.

With regard to submarines, the Allies had about 120 in service at the time, while the Germans had 27, out of which 20 were combat ready. These were already out at sea on patrol when Britain declared war.

Hitler ordered the U-boats not to attack French ships, because he believed France was not as committed to the war as Britain was and might be persuaded to make peace. In the case of Britain, Hitler was hoping his well-dispersed fleet of 20 U-boats would quickly score multiple hits against British ships in multiple locations around the Atlantic and thus convey the impression that Germany's U-boat fleet was much larger than it actually was.

Hitler and the admiralty ordered the U-boats to begin attacking British ships, including merchant ships, although in the latter case they were supposed to follow international law and order merchant ships to stop and be boarded. No surprise attacks on civilian vessels.

The first surprise attack on a civilian vessel came less than nine hours later. *U-30*, patrolling west of the British Isles, spotted what the captain apparently took to be a British troop transport and fired three torpedoes at it. Two of them malfunctioned, but the third blew a hole in the ship's engine room, and it began to sink.

It was only then that the U-boat commander realized his target was not a troop transport, but a passenger liner, S.S. *Athenia*, which had left Liverpool the previous day, bound for Canada. The

frightened commander chose not to report the attack to Admiral Dönitz but to continue his patrol as if nothing had happened, because this was a court-martial offense.

Athenia sank fourteen hours later. Of the 1,418 passengers and crew aboard, most were rescued, although 117 died either in the torpedo explosion or in accidents during the rescue operation. The sinking of *Athenia* naturally brought back painful memories of the sinking of *Lusitania* in 1915. Fifty-four of those killed were Canadians; 28 were Americans. One of the Canadians killed was a young girl, which prompted headlines in Canada like TEN-YEAR-OLD VICTIM OF TORPEDO.

In Berlin, there was great concern that this incident might prompt the United States into entering the war. Both the Navy and the Hitler government vehemently denied that *Athenia* had been sunk by a U-boat. How sincere these denials were is a matter of historical debate. On the one hand, U-30 had not reported in, so the Navy could not know for certain that one of its submarines was involved; on the other hand, the Navy presumably knew that the sinking occurred in the patrol zone assigned to U-30, so there's that.

U-30 returned to port on September 27, and at that time, its commander reported to Dönitz that his boat had indeed sunk the liner. Dönitz sent him to Berlin to explain his actions directly to the Chief of Naval Command, Grand Admiral Erich Raeder. Raeder decided against a court martial, on the grounds that the mistake was understandable. The log book of *U-30* was altered to remove all references to the sinking.

A few weeks later, the Nazi Party newspaper, the *Völkischer Beobachter*, blamed the sinking on the British government, alleging that Winston Churchill had ordered *Athenia* sunk in order to generate international sympathy. This accusation reminds me of the similar accusation that the British bombed their own pavilion at the World's Fair in New York. Those devious Brits!

It took until the Nuremberg war crimes trials in 1946 for the truth of all this to come out.

The British began using convoys to protect merchant ships from U-boat attacks in the Atlantic and Indian Oceans, but the Admiralty resisted sending Royal Navy destroyers on convoy duty, arguing they were more urgently needed elsewhere. Churchill and the Admiralty wanted to go on offense and hunt down the U-boats, using task forces that included an aircraft carrier, which would provide aerial reconnaissance.

This didn't work out so well. You may recall that before the month of September was out, one British carrier, *Courageous*, was sunk by the U-boat it was hunting, and a second, *Ark Royal*, narrowly avoided the same fate when the torpedoes fired at it detonated prematurely. And you'll recall the following month a U-boat sank the British battleship *Royal Oak* while it was docked at Scapa Flow.

This initial run of U-boat successes didn't last. These boats had to come home to resupply and refit and rest their crews, while the pocket battleship *Admiral Graf Spee* claimed the spotlight

with its dramatic raiding campaign in the South Atlantic and Indian oceans, until the ship was damaged and its crew forced to scuttle it in Montevideo harbor.

The harsh winter of 1939-40 kept most U-boats in port, and in spring they were assigned to support the German invasion of Norway, which was a frustrating experience for the U-boat crews. Not a single British warship was sunk by a U-boat during the Norwegian campaign, despite dozens of good opportunities. German torpedoes kept exploding prematurely, or not at all. Back home, the Navy and the manufacturer kept insisting it was the U-boat crews who were at fault for not setting the torpedoes properly. It took nearly a year to work out that the torpedoes were indeed flawed, and to correct the design. Those of you who have read ahead in the history of the twentieth century know that the United States Navy will experience similar difficulties with its Mark 14 torpedo two years from now, which will also take a long time to work out.

The fall of Denmark meant that the Danish-controlled territories of the Faroe Islands, Iceland, and Greenland were now on their own. The British occupied the Faroe Islands and Iceland, but the neutral United States objected to either German or British occupation of Greenland, and so the US government declared itself the protector of Greenland's neutrality. A year later, in April 1941, the Danish ambassador in Washington, Henrik Kauffmann, signed an agreement with the US State Department to allow American soldiers to occupy positions in Greenland. Kauffmann did this despite orders to the contrary from the government in German-occupied Copenhagen, he disregarded those orders and the government charged him with high treason.

Iceland was officially a sovereign nation in personal union with Denmark. The British landed troops on Iceland in May 1940; in July 1941, the United States military took over occupation duties in Iceland. The government of Iceland remained neutral throughout the war, although it accepted the British and American occupations. In 1944, Iceland held a referendum in which Icelanders voted overwhelmingly to dissolve the union with Denmark and become a republic.

After the fall of Norway and of France, the naval war in the Atlantic changed dramatically. First of all, the loss of the French Navy as an ally and the addition of the Italian Navy as an enemy increased demands on the Royal Navy substantially. Fleets in the eastern and western Mediterranean had to be reinforced.

Second, German occupation of Norway and France allowed both the German surface fleet and U-boats easier access to the Atlantic. The German Navy had always been handicapped by geography; German ships and submarines have always had to go around the British Isles to reach the open sea. This was now no longer true. The Navy could now station its forces in Norway or on the Atlantic coast of France, and from these ports German ships and submarines could bypass Great Britain and proceed directly into the Atlantic. This also shortened the distance they had to travel by hundreds of kilometers, allowing that much more time and fuel to be spent on patrol. The Germans took full advantage of this. They built heavily reinforced submarine pens at the

French ports of Bordeaux, Brest, La Rochelle, and Lorient. These were essentially submarine bunkers, with thick cement walls and roofs that were virtually impervious to British bombs.

Third, and most serious, the Royal Navy, now on its own,

+ was running out of destroyers. It had already lost seven during the campaign in Norway and a further six during the Dunkirk evacuation. Now, with no French fleet to back them up, Royal Navy destroyers were called upon to escort British convoys from as far away as the Panama Canal or the Indian Ocean. Destroyers were also needed to escort larger battleships and carriers in British fleets, including the crucial Mediterranean theater. And after the fall of France, when it appeared possible that the Germans might attempt a naval invasion of southern England, it was essential to keep destroyers on patrol in the English Channel as the first line of defense. This was hazardous duty, as the Luftwaffe had air superiority over the English Channel and they were attacking everything and anything that moved through those waters. The Royal Navy lost ten destroyers in the Channel.

It was in this context that Winston Churchill made his request to Franklin Roosevelt for fifty unused American destroyers to augment the Royal Navy's destroyer force. The British eventually got their destroyers, but it would be 1941 before they were able to make a difference.

During this period, from June 1940 until early 1941, when Britain stood alone and destroyers were in short supply, it was a good time to be a U-boat commander. Nearly 300 Allied ships were sunk. U-boat crews referred to this period as *"Die Glückliche Zeit,"* that is, "The Happy Time."

To give you an idea of the numbers: during the last quarter of 1939, German U-boats sank an average of 38 ships per month, amounting to an average tonnage of 123,000 tons per month, which is an impressive number, though far short of the million tons per month Admiral Dönitz believed his U-boat force was potentially capable of. By the third quarter of 1940, German U-boats were sinking an average of 52 ships per month, amounting to an average tonnage of 449,000 tons per month. That's nearly half of Dönitz's target.

In addition, Germany had some powerful surface ships. Of the three pocket battleships, *Graf Spee* had been scuttled and *Lützow* had been damaged during the Norway campaign, but the third, *Admiral Scheer*, was ready for duty. *Scheer* went on a raiding campaign in October 1940 and quickly demonstrated that while convoys were good for protecting merchant ships from submarines, they also created a mass of attractive targets for a battleship. *Scheer* was able to operate in the Atlantic and the Indian Oceans for five months, resupplied by German cargo ships. By the time *Scheer* returned to Germany at the end of March, 1941, it had traveled a total of 85,000 kilometers and sunk seventeen British merchant ships totaling over 100,000 tons, making *Scheer* the most successful German surface raider of the war.

In January 1941, the Reichsmarine sent *Scharnhorst* and *Gneisenau* out to sea to raid British shipping, which forced the Royal Navy to assign battleships to convoy escort duty. The captains of the two German battlecruisers were under orders not to engage British battleships, so there were several occasions when they located convoys but broke off the attack when they found battleship escorts. Even so, in two months the two ships sank 22 British ships totaling more than 100,000 tons, before being ordered to return to Brest and help cover the return of *Admiral Scheer* from its five months at sea.

The lesson the Royal Navy learned from these German surface raids was that they needed to beef up naval and aerial patrols in the seas between Britain and Iceland and between Iceland and Greenland, in order to better locate and intercept German raiders before they reached the shipping lanes. The new forces dedicated to this task included two of the Royal Navy's newest battleships, *King George V* and *Prince of Wales*, the battlecruiser *Hood* and the aircraft carrier *Victorious*.

Unaware of these changes in British naval deployments, in May 1941, Admiral Raeder and the Kriegsmarine tried another raiding operation, this time led by Germany's newest and largest battleship, *Bismarck*, one of the largest battleships in the world, escorted by the cruiser *Prinz Eugen* and two destroyers.

On May 22, the German ships left port in Norway and made their break for the Atlantic shipping lanes. They chose to proceed through the Denmark Strait, which is the strait between Iceland and Greenland. By keeping their distance from the British Isles, the Germans hoped to avoid detection.

They failed. On May 23, the British cruisers *Norfolk* and *Suffolk* sighted the German ships off the coast of Greenland. They were fired upon and escaped into a fog bank, but the British ships continued to track the Germans on radar and radioed their sighting to the British Admiralty.

Early the following morning, May 24, the Germans were intercepted by the British battleship *Prince of Wales* and the battlecruiser *Hood*. The British ships opened fire at dawn. The Germans returned fire, with both *Bismarck* and *Prinz Eugen* targeting *Hood*. German shells started a huge fire on *Hood*, followed by an explosion in the ship's magazine. The explosion destroyed *Hood*'s stern and the ship sank in a few minutes. 1415 British sailors died; there were but three survivors. After taking a few hits from the Germans, *Prince of Wales* broke off the attack. The captain of *Bismarck* requested permission to pursue *Prince of Wales* and finish it off, but he was overruled. The policy was to avoid engagements with British battleships; in fact, the German force's orders didn't cover a situation like this because no one was expecting a German victory.

The sinking of *Hood* was a dramatic victory for *Bismarck* against the world's pre-eminent navy. German propaganda played up the victory in the Battle of the Denmark Strait, which came at the same time German paratroopers were capturing Crete in the Mediterranean, though when Adolf

Hitler was told of the battle, his only reaction was to ask why *Bismarck* didn't sink *Prince of Wales* as well.

But the Germans had stirred up a hornet's nest. The Royal Navy was infuriated by the loss of *Hood* and ordered every available ship to hunt for *Bismarck. Norfolk, Suffolk,* and *Prince of Wales* shadowed the Germans and kept the British Admiralty apprised of their location. And *Bismarck* had not escaped the battle unscathed. A couple of hits from *Prince of Wales* had damaged *Bismarck,* including rupturing some of its fuel tanks. The mighty German battleship was leaking fuel.

The German Admiralty decided that *Prinz Eugen* would continue its raiding mission, but *Bismarck* would be detached from the force and ordered to the French port of Brest. The British lost contact with *Bismarck* on the 24th, but found the ship again on the 25th, after it sent a radio message to Germany. The British deduced from the ship's position that it was headed for Brest, but even with its damage, *Bismarck* was still faster than its pursuers.

On May 26th, a British reconnaissance plane spotted *Bismarck* a thousand kilometers west of Brest. The German ship was at this time still out of range of land-based Luftwaffe air cover. The British carrier *Ark Royal* launched torpedo bombers which attacked *Bismarck* and scored three hits, one of which damaged the ship's rudder. Unable to navigate, *Bismarck* could not now reach port.

The British battleships *Rodney* and *King George V* closed with Bismarck overnight. The following morning, May 27th, they attacked. The British battleships scored four hits, and three torpedoes from the cruiser *Dorsetshire* struck *Bismarck*. The Germans scuttled their brand new battleship. British ships rescued 114 members of Bismarck's crew; the other 2,200 died.

After the loss of *Bismarck,* Adolf Hitler ordered an end to surface raiding in the Atlantic. But German shipyards were ramping up U-boat production. U-boats were small and quick and easy to produce. In 1940, the German Navy lost 24 U-boats, but German shipyards produced 50 that year and that number was increasing. The Luftwaffe had failed to defeat the British by aerial bombardment; surface raiding had proved too costly. Could the Reichsmarine defeat Britain by strangling its economy with U-boats? Clearly, the British needed those American destroyers, and they needed to get them out on patrol as soon as possible.

We'll have to stop there for today. I thank you for listening, and I'd especially like to thank Suzanne for her kind donation, and thank you to Daniel for becoming a patron of the podcast. Donors and patrons like Suzanne and Daniel help cover the costs of making this show, which in turn keeps the podcast available free for everyone, so my thanks to them and to all of you who have pitched in and helped out. If you'd like to become a patron or make a donation, you are most welcome; just visit the website, historyofthetwentiethcentury.com and click on the PayPal or Patreon buttons.

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I'm pleased to be able to tell you that a short story of mine appears in the recently released fantasy anthology, *Artifice and Craft*. It's a collection of stories about magical artifacts. It is available as an ebook or a paperback at Amazon, Barnes and Noble, and Kobo.

And I hope you'll join me next week, here on *The History of the Twentieth Century*, as we consider another important military technology that will play a big role in the story of the Second World War: cryptography. A military has to get messages from the commanders to the front lines and certainly doesn't want the enemy listing in. Hence the use of codes and ciphers. The Germans thought they had an unbreakable one. The Enigma Machine, next week, here, on *The History of the Twentieth Century*.

Oh, and one more thing. After *Bismarck* was sunk and Hitler called off surface raiding in the Atlantic, the German Navy had one of the world's largest battleships and no role for it. I'm referring to *Tirpitz, Bismarck*'s sister ship. Late in 1941, after Germany invaded the Soviet Union, Raeder proposed stationing *Tirpitz* and some support vessels in Norway, where they would be able to attack British convoys on their way to Murmansk with aid for the Soviets. This would force the British to provide large escort forces for every convoy, whether *Tirpitz* attacked or not. In other words, it was the fleet-in-being strategy all over again.

[music: Closing War Theme]