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**UNCLASSIFIED//FOR OFFICIAL USE ONLY****(U) CRYPTOLOGIC ALMANAC****(U) Save the *Bismarck*!****German Communications Intelligence Support to Operation Rheinübung May 1941**

(U) The brief but exciting voyage of the ill-fated German battleship *Bismarck* is one of the great naval stories of World War II, and perhaps of the 20th century. How this ship, accompanied by the German cruiser *Prinz Eugen*, dashed into the North Atlantic, sank Britain's largest warship, the battle cruiser H.M.S. *Hood*, and was finally cornered and sunk after being hunted by dozens of Royal Navy ships, is still an exciting tale.

(U) Interestingly, allied communications intelligence had little direct effect on the campaign to sink the *Bismarck*. British codebreakers at Bletchley Park had not quite completely broken into the German Kriegsmarine (Navy) Enigma cipher codenamed Dolphin. At the time of the *Bismarck* deployment, the British were roughly a week or two late in reading the radio traffic of the German surface ships. There were three instances in which allied COMINT played a minor role in the chase: the discovery that the *Bismarck* would be heading to a French port that was derived from the traffic analytic clue when radio control of the *Bismarck* switched from Germany to German naval headquarters in Paris; the direction finding fix when the German battleship broke radio silence on 25 May (although the fix initially was reported incorrectly either because it was plotted incorrectly or that the map used was different from the one used by the British Admiralty); and the intercept of a message from a Luftwaffe radio link that informed a senior officer that the *Bismarck* would arrive in France.

(U) While Allied COMINT played only a marginal role, the question might be asked: What was the role of German COMINT during this campaign? It is known that the Kriegsmarine had a technically proficient and widespread effort centered in the organization known as the B-Dienst, or Beobachter-Dienst, literally, the Observation Service. As it turns out, the role of German COMINT was significant to the outcome. Its achievements and failures, as well as the technical ignorance about signal propagation on the part of the task force commander, Admiral Gunther Lütjens, had much to do with the ultimate fate of the battleship *Bismarck*.

(U) By the time of World War II, the German navy had an established, large, and technically expert COMINT service. It was located in Section Two of the German navy's main staff. The Germans maintained a number of shore stations that had intercept and direction finding capabilities. As the German armies conquered more territory, the navy established new sites in France, Italy, Norway, and the Balkans. During the 1930s, the B-Dienst had monitored the communications of the French and British navies and learned much about their procedures and cryptographic systems, especially during the Spanish Civil War of 1936 to 1939.

(U) Early in World War II, the B-Dienst exploited the British merchant ship and combatant operational codes and ciphers. The Germans also could exploit the communications of the aircraft of the Royal Navy's Fleet Air Arm and the Coastal Command. The navy staff sent out regular reports (called a "Bericht") to all naval commands and major combatants, including the *Bismarck*. One of the important missions of the B-Dienst was intercepting allied convoy communications. In fact, it appears that the positioning of German U-boats against convoys was based heavily, if not almost exclusively, on intelligence derived from COMINT.

(U) To supplement this effort, the B-Dienst also had support units aboard every major combatant in the German navy. They were composed of intercept operators, linguists, and cryptanalysts. These teams were technically excellent and usually included a civilian expert or two. The size of these teams varied according to the size of the ship. In fact, the skipper of the *Prinz Eugen* complained in his after-action report that the team on the *Bismarck* was larger than his unit. Two examples will suffice to explain the ability of these teams.

(U) In late 1940, the German pocket battleship, *Admiral Scheer*, was raiding allied shipping off the coast of southern Africa. One day, the *Scheer* spotted a freighter flying an American flag. As the *Scheer* approached, the commander of the B-Dienst team called the bridge and informed it that the merchant ship was using British merchant callsigns and procedures while transmitting an SOS to the shipping center at Durban, South Africa. It turns out that the ship was a British freighter flying an American flag. A second example occurred during the evacuation of Allied forces from Norway in June 1940. The British aircraft carrier H.M.S. *Glorious*, which was covering the evacuation, was trapped and sunk by German warships. The B-Dienst team aboard one of the combatants began imitating the communications of the carrier and, for a day, convinced the British that the carrier was still afloat!

(U) The first influence of German COMINT in the *Bismarck* operation came on 22 May 1941. The *Bismarck* and *Prinz Eugen* had sailed from the area near Bergen, Norway, the previous day. A desperate British aerial reconnaissance flight late on 22 May discovered that the ships had left. The aircraft radioed its report to its base. The Germans intercepted the message, but did not report this to the *Bismarck* until the next day. (It is possible that the original intercept was from a Luftwaffe COMINT unit, which might explain the delay.) Furthermore, the *Bismarck* was not informed until 24 May that, from COMINT, the German naval staff knew that major elements of the British fleet in its home waters already had left in pursuit. The task force commanders were angry over this lapse in reporting. By this time, the *Bismarck*, shadowed by two British cruisers, HMS *Suffolk* and HMS *Norfolk*, was committed to forcing a passage to the North Atlantic via the Denmark Straits. Whether the German task force would have continued on this voyage knowing that the British home fleet had sallied out to intercept, or retreated to Norway, is unknown.

(U) On the morning of 24 May, the B-Dienst teams aboard both the *Bismarck* and the *Prinz Eugen* intercepted the callsigns of two Royal Navy capital ships. One they could identify as the HMS *Hood*. The other was new to them, but they could determine from the callsign system that it was a new battleship – it was the HMS *Prince of Wales*, which had departed with some of its work crews still

aboard. Alerted that the British ships were in the area and knowing the direction they were approaching from, thanks to bearings taken of the British communications, the German ships had a substantial warning and were ready for the fight. In the ensuing action, the HMS *Hood* was sunk with only three survivors out of a crew of over 1,000, and the *Prince of Wales* was forced to retire due to damage. The *Bismarck* suffered few hits, but one hit a forward fuel bunker that let in water and leaked fuel. The battleship had to reduce speed.

(U) The two German ships continued on a southerly heading. Realizing the *Bismarck* would have to make port, Admiral Lutjens turned the *Prinz Eugen* loose to continue commerce raiding. To do this he had the *Bismarck* double back and attack the British cruisers that continued to track the German ships with their radar. During the attack, the two cruisers had scattered and subsequently lost radar contact with the *Bismarck*. They informed Royal Navy Headquarters. The two ships continued to search with their radar but could not find the *Bismarck*. For the night, at least, the *Bismarck* was free of British coverage.

(U) However, the Germans did not take advantage of this situation. For one thing, the B-Dienst team apparently did not intercept the message from the cruisers that they had lost the *Bismarck*. But more importantly, while the British cruisers could not find the battleship with their radar, the *Bismarck* could still intercept their faint radar signals with its radar receiver. This ability to receive the British radar signals probably convinced Admiral Lutjens that the *Bismarck* was still being tracked by radar. In fact, the signals the Germans were hearing were too weak, diffused, or scattered for the cruisers, which were out of range, to get a reliable return. Not aware that it had escaped the British cruisers, on the morning of 25 May the *Bismarck* transmitted a number of long messages providing its position, situation, and plan to head for France. Although GC&CS could not decrypt these messages, a direction finding fix, initially wrong by some 150 miles, but corrected within 8 hours, was made. At least one author has suggested that the Germans caused the British confusion over the *Bismarck*'s location by sending a false message on the British naval network. However, the real reason was poor direction finding bearings and the subsequent fixes. The next day the *Bismarck* was sighted by a Catalina flying boat. Thus fixed, the Royal Navy closed for the kill.

(U) The failure of the *Bismarck* operation ended any plans for any further surface actions by the capital ships of the Kriegsmarine. German COMINT detected much valuable information that, in retrospect, if handled better, might have saved the battleship. As it was, the German B-Dienst teams would continue to perform well, especially aboard U-boats. It was only after the Allies strengthened their convoy and operational codes in 1943 that German naval COMINT lost its effectiveness.

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