On the Threshold of Victory: Communications Intelligence and the Battle for Convoy HX-228, 7-12 March 1943

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In March 1943 the Battle of the Atlantic, the decisive campaign of World War II, was still to be decided.[1] The contest against the U-boats in the Atlantic was the one campaign of the war which the Allies had to win. If they could not defeat the U-boats in 1943, Britain might be neutralized; aid to Russia would cease; the offensive in the Mediterranean would stall; and, most important, an invasion of Europe in 1944 would be impossible. In the first months of 1943 the number of German U-boats operating against convoys in the North Atlantic was growing steadily, as was the number of Allied ships lost to submarine attack. In January 1943 the Allies had lost twenty-seven ships to enemy action in the Atlantic, a figure that increased to forty-six in February and to eighty-two in March, by which time the Battle of the Atlantic had reached a crisis. To many observers, especially those in the Admiralty in London, this was the darkest period of the entire conflict.[2] It was at this point that four Allied convoys crossing between North America and the United Kingdom were attacked incessantly by U-boats in a series of hard-fought convoy battles. One of these was for Convoy HX-228.

On 28 February 1943 HX-228, consisting of sixty merchant ships, sailed from New York. On 6 March it was joined off Newfoundland by the warships that were to escort it to Britain. This escort comprised four destroyers and four corvettes of the B-3 Escort Group, commanded by Commander A. A. Tait, RN.[3] HX-228 was also accompanied by an American escort force, TU-24.4.1, consisting of the destroyers *Belknap* and *George E. Badger,* whose purpose was to screen the aircraft carrier *Bogue,* which was carrying nine Wildcat fighters and twelve Avenger torpedo aircraft of Squadron VC-9. This was an extremely strong escort and marked the first time that an Allied aircraft carrier was employed to escort a convoy of merchant ships across the North Atlantic.[4]

As HX-228 and its escort steamed out into the North Atlantic on a course approximately east-northeast, the Germans began to deploy their U-boats.[5] From cryptographic intelligence - specifically from reading Naval Cypher Number 3 - they had a good knowledge of the movements of Allied convoys.[6] Beginning on 6 March, the *Befehlshaber der Unterseeboote* (BdU) began to put in train the necessary measures to intercept HX-228. By 9 March eleven U-boats were formed into a group, code named *Neuland;* they would be deployed in a patrol line running between 50°N and 53°N along

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31 ° W, across the expected path of HX-228 and, ominously enough, beyond the range of Allied shore-based aircraft.[7]

Allied knowledge of the location and deployment of U-boats in the North Atlantic, on the other hand, was at best obscure. Their intelligence estimated that fifty-four U-boats were operating in the Atlantic north of 50° N and that about half of these were within 500 miles of St. John's, Newfoundland.[8] At the time of the establishment of the *Neuland* patrol line, Allied attention had been drawn northward away from HX-228, for it was the beginning of a major battle involving another eastbound convoy, SC-121, some 300 miles south of Cape Farewell.[9] It is true that the Allies were reading the German coded radio messages to and from U-boats at sea and that cryptographic intelligence in many instances gave the Allies detailed knowledge of their deployment.[10] But there were still critical delays in decryption which often rendered the decoded radio messages of little or no operational value. For instance, at 1053 on 7 March the Allies intercepted the BdU's orders calling for the establishment of the *Neuland* patrol line across the intended route of HX-228. Yet this message was not decoded until 2052 on 14 March, making the resulting information of little more than historical interest."

The first indication to the convoy that U-boats were in the vicinity of HX-228 came at 0740 on the morning of 10 March, at approximately 30° 15'N, 31° 00'W, when the HF/DF set on HMS *Harvester* obtained a bearing on a radio transmission from *U-336* reporting the sighting of HX-228.[12] *U-336* was the southernmost U-boat in the *Neuland* patrol line.[13] Upon intercepting *U-336s* radio transmission Tait, in an attempt to avoid a battle by forcing *U-336* to lose contact, requested that USS *Bogue* dispatch an aircraft to fly down the HF/DF bearing to locate and attack the U-boat that had emitted the radio signal. Shortly thereafter, *Harvester* received a report that an aircraft from *Bogue* had sighted a U-boat. This, however, was quickly followed by another report that the first communication was actually in error. It was later learned after the aircraft had returned to *Bogue* that a U-boat had in fact been sighted and attacked. Unfortunately, a failure of the aircraft's bomb-releasing mechanism made the attack miscarry.[14] For reasons which are unclear, the Americans did not continue the operation by launching additional aircraft to search the entire area for U-boats.

When the BdU received *U-336's* report on the sighting of HX-228, it ordered the U-boats of the *Neuland* group to "operate on the *U-336's* report at maximum speed."[15] At the same time four additional U-boats, not members of the *Neuland* group, were also given directives to operate against HX-228.[16] In response, during the next twenty-four hours approximately nine U-boats made contact with HX-228. For example, at 1655, at approximately 50° 25', 32° W, *U-444* reported the convoy's course as sixty degrees. Indeed, before being sunk by Allied forces, *U-444* would shadow HX-228 and transmit a series of reports to assist other U-boats in making contact with the Allied force.[17]

At 1500, the three American warships which had been escorting HX-228 were detached because of fuel shortages and sailed for Newfoundland. Moreover, a series of failures of the bomb-releasing mechanism had rendered *Bogue"s* aircraft ineffective, as was demonstrated by the failure to attack *U-336* successfully.[18] Unfortunately, the departure of these ships caused the strength of HX-228's escort to be greatly reduced at an inopportune moment, just as the convoy came into contact with the U-boats of the *Neuland* group.

The first attack on HX-228 came at twilight on 10 March, when *U-221* torpedoed and sank the merchantmen *Tucurinca una Andrea F. Luckenbach.*™ When the two ships were

torpedoed, HMS *Harvester* sailed toward the scene of the attack. As the British destroyer approached the area, it obtained a sonar contact and attacked with fourteen depth charges, although without success. The sonar contact vanished, and since the merchant ship *Orangeleaf* was rescuing survivors, Tait decided to run out from the convoy for several miles and then turn on a course of 360 degrees back towards HX-228, which he did after about six miles. His vessel then picked up a weak sonar contact and unsuccessfully attacked with a further fourteen depth charges. After this action the British destroyer steamed at a speed of twenty-two knots to rejoin the screen.[20]

As *Harvester* was joining the screen on the starboard side of the convoy, a radar contact was obtained, bearing sixty degrees at a range of about 1000 yards. The destroyer turned towards this and immediately sighted the wake and conning tower of a U-boat as it was submerging. *Harvester* attacked with depth charges and began to hunt it with both sonar and radar. Within minutes radar contact was made. The destroyer then altered course towards the target, but while doing so sighted *U-444* on the surface. The submarine was immediately illuminated by *Harvester's* searchlights and strafed by 4.7-inch and twenty-mm. Oerlikon gunfire. After a series of violent and confused manoeuvres, *Harvester* rammed *U-444* at a speed of "about 27 knots" at a ninety-degree angle aft of the conning tower. The submarine "scraped down *Harvester's* bottom and came to rest entangled under the stern." The U-boat for a while continued "laying on its side, sticking out at an angle of about 90° from *Harvester's* stern." As the destroyer and the sub separated from each other, the British fished a single German seaman out of the water. *U-444* was last seen by the British crew "sticking out of the water at an angle of 40° and well down, right up to the conning tower." Yet this was not to be the end of *U-444.* HMS *Harvester* was heavily damaged, with extensive flooding forward, and shortly after separating from *U-444,* its port engine stopped.[21]

At 0100 on 11 March, while screening one of the torpedoed merchant ships, FFS *Aconit* sighted *Harvester's* searchlights and heard the gunfire. The Free French corvette altered course and steamed toward the scene, obtaining a radar contact with *Harvester* shortly thereafter. Four minutes after making radar contact it received a radio- telephone message from HMS *Harvester:* "Have rammed a submarine, stand by me." At 0135 *Harvester* was spotted and a minute later *Aconit* "sighted a U-boat proceeding at slow speed, bearing red 70, range 300 yards, inclination right." *U-444* was illuminated with a searchlight and fired at with a twenty-mm. Oerlikon. *Aconit's* helm was swung hard to port and it rammed *U-444.* The French vessel then passed over the submarine and dropped five depth charges, set on shallow. This was indeed the end of *U-444. Aconit,* which had been slightly damaged by the ramming, later picked up four members of the German crew.[22]

After sinking *U-444,* FFS *Aconit* closed with HMS *Harvester* and was informed that the British destroyer could make nine knots and did not require any assistance. Tait then ordered *Aconit* to regain its station in the screen of HX-228. After the French ship left the scene, *Harvester's* crew attended to damage control. Water had begun to enter the after magazine and the wardroom flat, in addition to the extensive flooding forward. Nevertheless, using the starboard engine, the destroyer could manoeuvre. At 0300 *Harvester* came upon a number of survivors from the American merchant ship *William S. Gorgas,* which had probably been torpedoed and sunk by *U-444* before the U-boat had been destroyed by *Harvester* and *Aconit.* Fifty-one survivors from the merchantman were eventually picked up. Tait now intended to make for Britain, but this was not to be: at 0800 the starboard propeller shaft of *Harvester* "cracked" and the destroyer stopped dead in the water.[23]

In the meantime, HX-228 was suffering further casualties from enemy attacks. As *Aconit* was steaming to rejoin the screen, the merchant ship *Brant County* was torpedoed by *U-757,* and at 0411 it burned and exploded.[24] At 0830 HMS *Harvester* radioed *Aconit* that it was "completely disabled, require you screen me." On receipt of this message, *Aconit* turned and began to steam once more towards the British destroyer. As the corvette neared *Harvester* at about 1100, *U-432* torpedoed and sank the British warship. Several minutes later *Aconit* sighted the submarine, which immediately submerged. The Free French warship then attacked with depth charges, and the momentum was maintained by mounting a second depth-charge attack followed by a hedgehog barrage.[25] After the third attack *U-432* surfaced, was subjected to gunfire, and was then rammed and sunk. FFS *Aconit* picked up twenty members of the U-boat's crew before proceeding to rescue survivors from *Harvester.* Unfortunately, a number of the crew of HMS *Harvester,* including Commander Tait, died in the water before *Aconifs* arrival.[26]

At daylight on 11 March, HX-228 came within range of Allied anti-U-boat aircraft based in Northern Ireland. The balance of power now shifted dramatically in favour of the Allies with the arrival over the convoy of Very Long Range (VLR) B-24 Liberator aircraft from Ulster. For a total of twelve hours, VLRs from RAF 86 and 120 Squadrons patrolled in the vicinity. Five U-boats were sighted and two others were attacked by RAF aircraft. The arrival of the planes forced the U-boats to submerge and to lose contact with the convoy. At first the BdU did not fully appreciate the suppressive effects of aircraft on the operations of the U-boats and concluded incorrectly that the convoy had eluded the German vessels by radically altering course to the north. With no U-boats reporting contact with HX-228, the BdU ordered operations against the convoy to be concluded at dawn on 13 March.[27]

The Battle for Convoy HX-228 occurred because of the successes and failures of cryptographic intelligence. The Germans obtained the route and schedule of the convoy from radio messages encoded in Allied Naval Cypher Number 3. By contrast, the Allies failed to obtain the information required to route HX-228 away from the *Neuland* U-boats because of an inability to decode German radio messages in a timely fashion. The Allies were only able to discover the presence of the U-boats near HX-228 by obtaining an HF/DF bearing on a radio transmission of a report by *U-336* reporting the sighting of the convoy. *U-336* was then sighted, but not sunk, by an aircraft dispatched down the HF/DF bearing from USS *Bogue.* Perhaps if the Allies had employed *Bogue's* aircraft more aggressively and on a larger scale during the remaining hours of daylight on 10 March, the U-boats might never have been able to establish contact with HX-228. But this did not happen.

Once the U-boats made contact with the convoy, a pitched battle was fought between HX-228's escorts and the U-boats, during the course of which *U-432, U-444,* HMS *Harvester,* and four Allied merchant ships were sunk.[28] It was only the next day, when HX-228 drew within range of land-based anti-U-boat aircraft, that VLR B-24 Liberator aircraft forced the submarines to lose contact with the Allied ships. Although no U-boats were sunk or even damaged on 11 March, the arrival of Allied aircraft to support HX-228 was decisive and brought the battle to an end.

The Germans claimed victory in the Battle for Convoy HX-228. The BdU estimated that its U-boats had sunk at least six merchantmen totalling some 49,000 gross registered tons.[29] As we have seen, this was an overestimate, for only the destroyer HMS *Harvester* and four merchant ships, totalling 24,195 gross registered tons, were actually sunk in exchange for the loss of *U-432* and *U-444.* In fact, the battle was very close to a defeat for the

Germans. The *Neuland* group, numbering some fifteen U-boats, had only sunk four merchant ships with a close escort of eight warships. From the German point of view, this was an unsatisfactory exchange rate of only two merchant ships for every U-boat lost.

Indeed, the Germans might have been fortunate to lose only two U-boats, for the battle foreshadowed a number of critical developments in Allied tactics and weapon systems which would in April and May 1943 result in the defeat of the U-boats.[30] The battle began with the Allies locating *U-336* with shipborne HF/DF, a device whose existence was unknown to the Germans. In an attempt to avoid a battle, *U-336* was immediately attacked with a weapon system - carrier-borne aircraft - never before employed by the Allies in a convoy battle. The ensuing battle, a free-for-all between radar-equipped escorts and U-boats, was terminated abruptly by the arrival of Allied VLR shore-based aircraft, which overwhelmed and dispersed the attacking U-boats. The Battle for Convoy HX-228 stands at the threshold of Allied victory because the anti-submarine warfare techniques and weapon systems - HF/DF, radar, carrier-borne aircraft, and shore-based VLR aircraft - employed in this encounter would be the means, in conjunction with communications intelligence, by which the Allies would defeat the German U-boat offensive against the North Atlantic convoys.

NOTES

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1. Histories of the Battle of the Atlantic, from the perspective of communications intelligence, can be divided into several groups. First there are the American and British official histories, by S.E. Morison and S.W. Roskill, respectively, which were written without a knowledge of Allied code-breaking. This is also the case with the most authoritative German account of the Battle of the Atlantic in English, Gunter Hessler, *The U-Boat War in the Atlantic, 1939-1945* (London, 1989), written forthe Ministry of Defence before the *ultra* disclosures and then published some years later. Another important Ministry of Defence study of the Atlantic campaign, also written without a knowledge of *ultra,* and only recently published, is Eric J. Grove (ed.), *The Defeat ofthe Enemy Attack on Shipping. 1939-1945* (Aldershot, 1997). Another group includes such studies as Dan Van der Vat, *The Atlantic Campaign: World WarII's Great Struggle at Sea* (New York, 1988); John Terraine, *The U-Boat Wars, 1916-1945* (New York, 1989); Correlli Barnett, *Engage the Enemy More Closely: The Royal Navy in the Second World War* (London, 1991); and Clay Blair, *Hitler's U-Boat War* (2 vols., New York, 1996). These are all surveys and deal with communications intelligence only in general terms. A third category includes studies such as F.H. Hinsley, *et al., British Intelligence in the Second World War. Its Influence on Strategy and Operations* (4 vols., London, 1979-1990), which assesses the overall impact of intelligence on Allied strategy and operations, including the Battle of the Atlantic. But there are few scholarly works which show in any depth the actual day-to-day role of communications intelligence, including information drawn from decryption, in the Battle of the Atlantic. Two Canadian studies - W.A.B. Douglas, *The Creation of A National Air Force* (Toronto, 1986); and Roger Sarty, "Ultra, Air Power, and the Second Battle of the St. Lawrence, 1944," in Timothy Runyan and J.M. Cope (eds.), *To Die Gallantly: The Battle of the Atlantic* (Boulder, CO, 1994), 186-209 - are among the few to show effectively how an Allied force in the last years of the war used communications intelligence to hunt U-boats. David Syrett, *The Defeat of the U-boats: The Battle of the Atlantic* (Columbia, SC, 1994), assesses the impact of communications intelligence on the war against the U-boats during 1943, when the German offensive against the Allied convoys was defeated. The most recent, and perhaps the

most effective, assessment of communications intelligence in the Battle of the Atlantic is W.J.R. Gardner, *Decoding History: The Battle of the Atlantic and Ultra* (London, 1999).

2. S.W. Roskill, *The War at Sea* (8 vols., London, 1954-1961), II, 218, 351, 470 and 485.

3. The destroyers were HMS *Harvester,* HMS *Escapade,* ORP *Buza* and ORP *Garland,* while the corvettes were HMS *Narcissus,* FFS *Aconite,* FFS *Roselys* and FFS *Renoncule.*

4. Great Britain, Public Record Office (PRO), Admiralty (ADM) 199/576, f. 384; and William T. Y'Blood, *Hunter-Killer: U.S. Escort Carriers in the Battle of the Atlantic* (Annapolis, 1983), 35.

5. PRO, ADM 1/576, f. 379.

6. Naval Cypher Number 3 was employed by the British, Canadians and Americans to encode messages passing between the naval authorities of the three countries concerning North Atlantic convoys. The Germans first broke this code in February 1942 and read Allied radio messages encoded in tables "M" and "S" of this cypher until the middle of 1943, when the Allies changed the code. See PRO, ADM 223/5, German Naval "Y" Organization, 3. The Germans were able to break Naval Cypher Number 3 because of the great volume of messages, concerning mostly convoy routings, encoded in this system. The Allied failure to detect that the enemy was reading these coded radio messages was due to the fact that the German success with Naval Cypher Number 3 coincided with a period when the Allies could not decrypt radio messages to and from the U-boats. When the Allies in December 1942 again began to read the encoded radio messages of the U-boats, they discovered that the Germans had broken and were reading radio messages encoded in Naval Cypher Number 3. But due to the great volume of traffic and the many users of the cypher, it was not until mid-1943 that the Allies were able to abandon the use of Naval Cypher Number 3. Hinsley, *British Intelligence,* II, 533-556 and 634-638.

7. *U-608, U-757, U-406, U-86, U-373, U-441, U-440, U-221, U-444, U-336* and *U-590.* United States, Naval Historical Center (NHC), *Befehlshaber der Unterseeboote* (BdU), "War Diary of the German U-Boat Command, 1939-1945," 6-7 and 9 March 1945. This is a microfilm edition of the English translation; the original is at the Ministry of Defence in London.

8. David Syrett (ed.), *The Battle of the Atlantic and Signals Intelligence: U-Boat Situations and Trends. 1941-1945* **(Aldershot,** 1998), 147.

9. David Syrett, "The Battle for Convoy SC 122, 6-10 March 1943," *American Neptune,* LVII (Winter 1997), 37-44.

10. The best account of the breaking of the German naval codes is David Kahn, *Seizing the Enigma: The Race to Break the German U-Boat Codes. 1939-1943* (Boston, 1991). See also United States, National Archives, SRMN-032, Memorandum Concerning U-Boat Tracking Room Operations, 2 January 1943-6 June 1945.

11. PRO, Ministry of Defence (DEFE) 3/710, intercepted 1053/7/3/43, decoded 2052/14/3/43. Not only were there long periods during the Battle of the Atlantic when the Allies could not break the German codes, but even when the Allies were reading German encoded radio messages to and from the U-boats there were problems with the decoding process. This often led to substantial delays between the time a message was intercepted and the time a decoded text actually became available for inspection by Allied intelligence officers. PRO, Government Code and Cypher School (HW), 11/38, ff. 7-8. These delays in the decoding process, usually owing to an inability to determine the settings of the German enigma code machine, are of importance to understanding the conduct of the Battle of the Atlantic. For instance, most of the convoy battles during 1943 occurred in part due to an Allied failure to avoid concentrations of U-boats because of a lack of intelligence due to delays in the decoding process. This is discussed in detail in Syrett, *Defeat of the U-boats.*

12. High frequency direction finder. HF/DF, like radar, was a spin-off from research into the nature of the ionosphere by means of equipment using cathode ray tubes. HF/DF, developed independently by the Americans and British, could give a bearing on a radio transmission with greater precision than standard direction-finding equipment. An HF/DF set mounted on a ship displayed on a cathode ray tube a very accurate bearing on a radio transmission made by a U-boat in the vicinity of a convoy. Kathleen Broome Williams, *Secret Weapon: U.S. High-Frequency Direction Finding in the Battle of the Atlantic* (Annapolis, 1996). The report is in PRO, ADM 199/575, f. 149.

13. "BdU War Diary," 10 March 1943.

14. PRO, ADM 199/575, f. 149.

15. PRO, DEFE 3/712, intercepted 1335/10/3/43, decoded 0911/12/3/43.

16. *U-432, U-405, U-566* and *U-359.*

17. "BdU War Diary," 10 March 1943; PRO, DEFE 3/713, intercepted 2355/10/3/43, decoded 0328/19/3/43; and DEFE 3/713, intercepted 2355/10/3/43, decoded 0328/19/3/43.

18. PRO, ADM 199/478, f. 384; and Y'Blood, *Hunter-Killer,* 36.

19. Jiirgen Rohwer, *Axis Submarine Successes* (Annapolis, 1983), 155.

20. PRO, ADM 199/575, f. 149.

21. ***Ibid.,*** ff. 149-150.

22. PRO, ADM 199/575, ff. 133, 135, 137; and Naval Historical Branch, Ministry of Defence, Extract from the "Proceedings of the U-boat Assessment Committee," April-June 1943, Precis of Attacks by HMS *Harvester* and FFS *Aconit,* 11 March 1943.

23. PRO, ADM 199/575, ff. 134 and 150; and Rohwer, *Axis Submarine Successes,* 155.

24. Rohwer, *Axis Submarine Successes,* 156; and PRO, ADM 199/575, f. 128.

25. A hedgehog is a mortar-like weapon which throws bombs forward of the attacking vessel which explode on contact.

26. PRO, ADM 199/575, ff. 134, 138, 151.

27. PRO, Air Ministry (AIR) 27/708, f. 107; and AIR 27/911, ff. 121-122; and "BdU War Diary," 12 March 1943.

28. These were the American *Andrea F. Luckenbach* and *William C. Gorgas;* the British *Tucurinca;* and the Norwegian *Brant County.*

29. "BdU War Diary," 12 March 1943.

30. This is discussed in detail in Syrett, *Defeat of the U-Boats.*