

When David Slew Goliath

A Story from the Depths of the Cold War

Raimund Wallner

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Captain Raimund Wallner, German Navy (Ret), completed his career in 2010. His final assignment was submarine project supervisor at the German MoD after having served as his country's Defense Attaché to Japan. Earlier in his career he had command of Submarine Squadron Three, submarines U-20 and U-30. He holds a masters degree in Computer Systems Management from the U.S. Naval Postgraduate School.

USS IOWA, AOB Port 85 Periscope-Photo: Author
U-20 exposing sail Photo: Royal Navy

Ball caps have been adopted as part of the working uniform aboard German ships and submarines, replacing the traditional garrison cap. Although baseball never meant anything to Germans, the ball cap is widely accepted by young and old as their favorite leisure head-wear. Consequently, no one turns and stares when I hike through the vineyards of the Ahr Valley wearing my "USS IOWA – BB 61" cap. That I own a handful of those caps is another story, originating at the peak of the Cold War in 1985, but the yarn reaches back much further – into the 1940s. A holy cow, floating castles, two Iroquois, a dinosaur and a banana play major roles in it. All ended up being scrapped or bobbing up and down in brackish waters. After 27 years there is no treason in sharing my insight into a U206-class submarine's tactics. References to NATO's regulations and procedures addressed in this story are readily available today through the Internet.

EXERCISE OCEAN SAFARI '85

Tremendous effort and resources of ships, submarines, aircraft and personnel went into NATO's major maritime exercises during the Cold War. They tested CONMAROPS¹ and carried names like TEAMWORK, NORTHERN WEDDING or OCEAN SAFARI. The latter's specific purpose was protecting the transportation of allied reinforce-



Crew U-20 in 1985

Photo: Author

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¹ Concept of Maritime Operations; <http://www.usnwc.edu/getattachment/d9d2a3d6-3105-4229-a5b1-3d42796554f5/Alliance-Naval-Strategies-and-Norway-in-the-Final>

ment and resupply across the Atlantic, the "Atlantic Lifelines Campaign." The defense of convoys and carrier battle groups (CVBG) against ORANGE attacks or prevent them from the outset by forward operations was the major task of BLUE forces during the oceanic transit phase. OCEAN SAFARI '85, the biggest of these exercises to date, employed over 160 ships from 10 nations. In this great game, U206-class submarines U-20 and U-24, together with two Dutch and two French SSKs as well as British SSN HMS TURBULENT, stood on the side of the "Evil Empire". Deployed to the Northwest of the Hebrides as ORANGE units, the German boats simulated the Soviet TANGO-class SSK and were tasked with sinking high value targets of opportunity in order to attrite the enemy. As Commanding Officer of U-20 I was eager to prove up to the task. Unfortunately, we could not employ our own German wire guided DM 2 A1 torpedoes and had to simulate attacks with a Soviet wake-homing torpedo. This meant considerably reduced attack ranges and a higher risk of detection. My boat had been in service for eleven years and was not included in those selected for a midlife upgrade to 206A. We affectionately mocked her as the "Banana", since a minor bend remained from the last exchange of the diesel-engines, when the pressure hull had to be cut and rewelded. At certain speeds we suffered from own noise, generated by resonance vibrations in the aft section, which could degrade reception in the

sensitive rear sector sensors. Technically speaking, there were better boats in the "Ubootflottille", but in exchange

for this I had a crew second to none. My predecessor's praise had been no exaggeration a year before at the change of command, when he congratulated me on the receipt of every single one of my 21-man crew.

On the evening of 9 September, U-20 made her submerged passage through the Pentland Firth between Scotland and the Orkneys, a challenge not only in terms of navigation, but also tactically since the Royal Air Force's Nimrod MPA maintained an annoying presence over these history-charged narrows. On our starboard side active sonars were detected, and the bearings indicated that they originated from the roadstead of Scapa Flow. We classified them as type SQS 21 and 1BV sonars and correlated them with the German LÜTJENS and HAMBURG class DDGs respectively. On the following day, shortly before midnight we reached the eastern boundary of the operations area, 58° – 59°N, 9° – 12°W, depths to 1,000 fathoms, periscope range 5 nautical miles, southerly winds Beaufort Force 3, wave height 5 feet, with swells. The speed of sound gradient was slightly negative down to 120 ft, so favorable listening conditions were not expected. But this would also hamper active sonar for surface ships, as a distinct layer between 120 and 140 feet would further reduce hull mounted sonar performance, offering U-20 good evasion prospects.

Soon we would have to take advantage of these conditions. COMSUBORANGE had informed us via broadcast in his enemy report (Form Black) that the "Scapa Convoy", consisting of German oiler FGS RHÖN, representing the main body, escorted by destroyers FGS MÖLDERS, HESSEN and SCHLESWIG-HOLSTEIN would possibly enter our area 11 September. I expected them from the East, from Scapa Flow. This also eliminated concerns about dippers² – the submarine's worst enemy – making an easy prey of the convoy if it did not veer off prematurely. After breakfast, hunting fever spread among the crew. At daybreak the swell had increased, with whitecaps all around, ideal conditions to snorkel. Every additional amphour in the battery would improve our maneuverability during the havoc I intended to wreak among the convoy. The "snipes", as we called our engineering department, responded energetically. Instead of habitually grouching with the Enginee-

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² Sonar carrying ASW helicopters not deployable from German destroyer classes Z103B (modified CHARLES F. ADAMS) and Z101A (HAMBURG)

ring Officer every time our snorkel broke the surface and the rush of air took its toll on their eardrums, they endured it silently. The CIC team determined the maximum detection range of our broadband passive sonar to be 25,000 yards against merchantmen; the sonar transmissions of the escorts, however, would give away the convoy at double that distance.

FIRST ENGAGEMENT

First indications of the task group are intermittent and weak radar emissions picked up by the ESM³-antenna mounted on the snorkel. When active sonar is detected an hour later, I cease snorkeling and go deep. The parameters match the German destroyers, and rough initial range is set at 40,000 yards. The CIC team starts an LOP⁴ on the tracking table, the "spark" as TBP⁵ plotter stands ready with freshly-sharpened grease pencils, bearing rate ruler and curve templates. At 0940 we initiate attack procedures. Our depth is 120 feet, best listening depth just above the stable layer, and we proceed at 4 knots, bow pointed straight at the convoy's acoustic centers. Soon its MLA⁶ is determined to be 270°, headed straight for our trap! 40 minutes later, individual propeller noises are identified and the screen disposition determined passively: The "Holy Cow" (MÖLDERS) is patrolling the northern sector, one HAMBURG-class destroyer the southern sector, and the second "Floating Castle"⁷ covers the rear, RHÖN is steaming in the center. At 1055, I set battle stations. The tactical picture is handed over at the GHA⁸ and various plots, the First Watch Officer (I WO) takes charge of the CIC attack team, the Second Watch Officer (II WO)⁹ and the Torpedomen man their fire control station and torpedo tubes; the Engineering Officer (EO) and his team control our depth, and, finally, the cook abandons

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3 Electronic Support Measures, radarwarning system with bearing device and frequency analysis

4 Local Operational Plot, for semi-automatic tracking, picture compilation and to assist target motion analysis

5 Time Bearing Plot, pane of acrylic glass to plot target bearings relative to time elapsed, then compute ranges using bearing rates

6 Main Line of Advance

7 Navy jargon for classes Z103 and Z101 respectively; the 3 CHARLES F. ADAMS at that time had an almost sacred status, the HAMBURG-class had a towering silhouette

8 Gruppenhorchanlage, the boat's broadband passive sonar

9 16 years later, LTJG G. should become the last C.O. of FGS MOELDERS before her decommissioning



Destroyer HAMBURG-Class Photo: Author

his pots and pans to man "Tube number 9"¹⁰ with green flares at the ready.¹¹

Then the tactical situation develops rapidly, at least for submarine standards. Active sonar transmissions now pound our receivers and at 1110 we fix the northern escort MÖLDERS at a range of 6,000 yards, and the southern, possibly HESSEN, at 4,000 yards, both maneuvering in their screen sectors at maximum sonar speed of about 20 knots. The predicted maximum detection range for hull mounted sonar and their behavior indicate U-20 has not been detected. I remain at 110 feet and close at 8 knots, holding the AOB¹² of the first target, HESSEN, steady. Suddenly the bearing shifts rapidly right and, at 1120, I order periscope depth. Steadied at the target bearing, the scope breaks the rough surface. I confirm HESSEN with a course alteration to AOB 60 starboard, heading south, range 1,500 yards. A quick circular sweep shows MOELDERS, also on a southerly course, still 4,000 yards away. Down scope. At 1121, after double checking the target data, I order "fire 9" and a green flare rises for HESSEN at CPA.¹³ At 1129 I shift targets and again "fire 9" at MOELDERS, also at CPA, range 2,000 yards.

Now top priority is evasion, while maintaining track on the main target, RHÖN. The destroyers certainly spotted the green flares, and, although manning abandon ship stations would now be the appropriate action, a counterattack is likely to be next. Their sonars are chirping like mad, the 1BV of HESSEN in fast pulse repetition mode, but there are no attack signals¹⁴ – they still have not detected us! U-20 descends to 150 feet.

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10 Signal Ejector for decoys and pyrotechnics, located next to the pantry

11 Pyrotechnic signal to be ejected at depth, rises 300 ft in the air, indicates simulated torpedo attack

12 Angle on the bow

13 Closest Point of Approach, i.e. ATB 90°

14 Via underwater telephone, plus possibly hand grenades

The tanker is now so close we can easily track it through the layer. At 1138, a fire control solution is ready for RHÖN, and I order the cook to fire a third flare at the 11,000-ton high value target. We allow SCHLESWIG-HOLSTEIN to escape unharmed. Turning tail and running is the preferred tactic to evade MÖLDERS' powerful SQS 21. U-20 spirals down to 300 feet with full rudder, leaving a swirl, or "knuckle" in ASW jargon, that serves as a false target for some time. Once below the knuckle we accelerate to flank speed of 18 knots, showing only our narrow rear aspect to MÖLDERS. Intermittently drifting and listening confirms that the convoy's noise is fading and MÖLDERS' sonar dominates. When back at periscope depth 30 minutes later I see the destroyer at the far edge of my visual range, abeam to the bearing. The other ships are no longer visible. U-20 rapidly descends below the layer and continues to clear the area. I am absolutely sure now we were not detected. COMSUBORANGE later confirms by message that we have eliminated the Scapa Convoy. It would, however, get a "second life" in the game in order to face HMS TURBULENT's torpedoes the next day farther out in the Atlantic.

FROM HUNTER TO HUNTED

We had created a "flaming datum"¹⁵. But now was not the time to engage in self-congratulations. Furthermore, the exercise artificiality of reporting the attack via HF radio five hours after the encounter offered the enemy an opportunity to locate U-20 by HF/DF¹⁶, which was far more efficient than during World War II. The threat of a "hunter-killer group" – supported by MPA – was anticipated within the next few hours, so we took advantage of the lull to snorkel and restore the spent battery capacity. Then U20 went deep on a northwesterly course, in search of new and greater adventures.

In this direction, 60 miles distant from U-20, two major enemy formations had been reported with a time indicator corresponding to our engagement on the Scapa Convoy: the USS AMERICA CVBG with COMSTRIKFLTANT¹⁷, Vice Admiral Mustin embarked, and the USS IOWA BBG. Since we only learned this in a Form Black around 2000, it was too late to ambush our prey, given

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15 "Datum" signifies a possible submarine contact, turned "flaming" when the sub has made its presence known by a sinking

16 High Frequency Direction Finding

17 Commander Striking Fleet Atlantic

our slow speed of advance. I pursued a different scheme. It goes without saying that the BLUE and ORANGE forces had no knowledge of the content of the other's operations order, but the "White ExOpOrd"¹⁸, valid for both sides, contained among other things, safety instructions. While studying the document, my I WO noted an ASMD¹⁹ window for gunnery exercises, including small caliber CIWS²⁰ systems as well as medium to large caliber guns set for the next day, 12 September, commencing at 0600 in the vicinity of 59°N – 10°W. Who, if not the surface combatants of the CVBG and BBG should gather there – high value targets in every sense of my mission statement! A colossal target was at the top of the list: battleship USS IOWA, one of the last dinosaurs of the sea, screened by a multitude of US Navy surface combatants. To detect this ship would require luck, and to run a successful attack seemed nothing less than presumptuous.

That night our cook²¹ had fried "Flinsen" for mid rats, delicious egg pancakes, at the price of filling our boat with smoke, which only snorkeling could remedy. We thoroughly ventilated the boat and recharged the batteries with precious amp-hours. Around 0100 I had hardly written the presumptuous phrase "This is IOWA Day" into my night order book, when the II WO at the scope screamed "Alarm". Snorkel flaps slammed shut, diesels stopped – in moments I was in CIC, which reported "MPA in the ESM." Seconds later the EO reported „ready to dive“. I ordered a rapid descent to 300 ft. Was this the just desserts for my presumption? With a 40° dive angle we went deep. No sooner had we reached an even keel than 20 KHz pings of active sono-buoys were heard astern. The British Nimrod had dropped them right where it must have detected our snorkel by radar. In his last periscope sweep the II WO thought he had spotted the searchlight of the low-flying MPA. I altered course and went to 15 knots. Speed was the only way to get outside the limited detection range of the sonobuoys and break contact before the next pattern was dropped. The preventive snor-

keling again had paid off. After 15 minutes we ascended to 120 feet beyond the layer, altered course and silently slipped away from possible passive buoys. As the exercise evaluation would prove later, these tactics worked.

But, it was far from over. No sooner had we apparently shaken off the MPA than our sonar reported an 8 KHz transmission in 360°, CW-pulse, probably type SQS 505 VDS²² carried by the Canadian IROQUOIS-class DDH²³. Ten minutes later a second VDS was pinging to the East. Corresponding propeller noise confirmed the classification. The "hunter-killers", vectored by the MPA, were after us. I needed to use every tactic at my disposal to avoid initial detection, which would inevitably call the dangerous dippers into action – in this case Sea King helos. The allies tended to underestimate the mobility and underwater endurance of our small subs and this was, once again, proven in this encounter. I had two hours flank speed in reserve. If needed, I could get more than 30 miles away from the datum in this time span. No other conventional boat of the

22 Variable Depth Sonar

23 Destroyer Helicopter (equipped)

Alliance had a similar capacity. During that night it was enough to use two short sprints, several course alterations and to exploit the sonic layer without completely exhausting ourselves. That the dippers remained on deck was a good sign. Roughly one and a half hours later both DDHs withdrew – probably in the firm belief of having forced us away and deterred us from approaching during the ASMD-window. If so, they were misled. At 0600 I snorkeled again and U-20 slowly worked her way toward the center of the firing area.

GOLIATH

The IOWA-class battleships, keels laid in 1940 with a fully loaded displacement of 58,000 tons, were the American answer to the pride of the Axis powers: BISMARCK, TIRPITZ, YAMATO and MUSASHI. When the first of class joined the fleet in 1943, the war at sea in both theaters had long shown the conceptual obsolescence of these battlewagons. This fact notwithstanding, IOWA fulfilled a number of essential missions during her long life, starting in the fall of her commissioning year when she carried



IOWA's broadside, US BALTOPS 85 Photo: US Navy

18 Common part of an Exercise Operations Order, printed on white paper

19 For exercises in "Anti-Surface Missile Defense"

20 Close-in Weapon System, to defend against missiles that leaked through the outer defense perimeter; Phalanx (US), Goalkeeper (UK)

21 Petty Officer H. was a real artist in his trade, former "junior cooking champion" of the state of Schleswig-Holstein

President Roosevelt to Casablanca and back. In the Pacific Theater she was mainly employed in support of carrier air strikes, and her 16-inch projectiles delivered „heavy contributions” to the island hopping campaign. On this 17 September 1944, my Japanese father-in-law, platoon leader in the Battle of Peleliu, likely sought cover in his cave bunker when shell, after shell, of her main battery pounded the island, each round with more devastating effect than a heavy aerial bomb. When recommissioned for the third time in 1984, after 26 years in mothballs and only sixteen months before her participation in OCEAN SAFARI, modern weapon systems like Tomahawk, Harpoon and Vulcan-Phalanx CIWS had been added to her armament. Whereas it took a crew of more than 2,500 men in World War II to steam and fight the 889-foot long giant, the complement was now reduced to about 1,500. Still, eight boilers could deliver 212,000 HP on four shafts, enough for a top speed of 33 knots.

The 1015 broadcast contains a MARINTREP²⁴ from COMSUBORANGE indicating that IOWA was 40 miles west of U-20 two hours prior and would conduct gunnery exercises in the afternoon. We were dead right! The Chief Sonarman himself now mans the GHA and at best listening depth meticulously analyzes every contact. But, the only vessels to be heard are single screw merchantmen steaming out into the Atlantic, at least 10 miles off. Then at 1040 a weak noise with at least two propellers is detected. I go to periscope depth to have a look. The sight makes me shiver. What is visible with her superstructure just above the wave crests – heading our direction – is the battlewagon. I confirm AOB 20 starboard, range 10,000 yards. Down scope. A typical effect observed also with large and usually noisy merchant vessels has acoustically deceived us: the massive hull with bow pointed straight at us masks the propellers’ noise in the forward direction. No escorts, no sonar transmissions to be heard – David has Goliath as if in a fish-bowl.

I order battle stations. Target speed is quickly determined to be 18 knots. At a depth of 105 ft I close at 9 knots on course that keeps IOWA’s bearing steady. As soon as the fire control solution is available, I go to periscope depth for a final observation and see her alter course 20° to port. “AOB 40 starboard, 18 knots, range 6,000 yards, fire 9!” Our green flare heads skyward at 1106. The-

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24 Maritime Intelligence Report



USS IOWA, AOB Port 85

Periscope-Photo: Author

re is no reaction by IOWA. She remains steady on course. Is this ignorance or unawareness? Ten minutes later, range decreased to 4,000 yards, I order the second green flare fired, and descend to 180 ft. For 30 minutes, at flank speed, I keep the target on a steady bearing. The four grinding propellers are easy to detect acoustically, in spite of my 18 knots. IOWA is now zigzagging around a base course of 075°. The CIC team is working methodically, the snipes willingly sacrifice their amp-hours, so our “Banana” can be counted on. As the range shrinks to 1,000 yards I release the third flare. In response the giant ship turns almost 90° starboard, toward us and straight into the assumed torpedo bearing – a classic torpedo countermeasure. When the CPA is about to be reached, at a calculated 500 yards, I decide to execute a daring maneuver to leave no doubt about the presence of U-20: I turn to the reciprocal course of IOWA’s and rush to periscope depth. In spite of the adrenaline, caution prevails when dealing a ship having a draft of 36 ft! When the periscope pierces the surface I observe

the computed target data to be correct. Relieved, I shoot a number of photos and hoist the integrated snorkel/second periscope, inviting the entire crew to take in this spectacular view for a couple of seconds. Then I expose the sail so our NATO hull number “S 199” is visible above the waterline. Aboard IOWA the port side is crowded in no time. Our magnifier makes the faces under the ball caps distinguishable. The captain is among them; he is the only one wearing a khaki combination cover as he looks from the bridge wing through his binoculars at what is visible of U-20.

AFTERMATH

At 1200 sharp, after 80 minutes at battle stations had passed, we went deep and cleared the area, running under the layer with high speed. After lunch, the sailors coming off watch did not immediately hit their racks, but rather rehashed what they had just experienced. That a new hunter-killer group would soon be after us, resulting in the “sinking” of Canadian DDH ATHABASKAN, that we



U-20’s Delegation aboard IOWA

Photo: Author

attacked IOWA again the next night, that in the follow-on exercise “ROLLING DEEP” we could again spread terror without being eliminated, was all dwarfed by the adventure of these 80 minutes.

The following day an Attack Report Summary broadcast by the exercise staff confirmed that U-20 had sunk IOWA, twice. It was official! Using my narrative notes the “sparks” then punched the exercise documentation into their typewriter – three-fold, using carbon paper for the NATO FORMEX 101. My “Conclusions and Recommendations” read: “...for a conventional submarine – of course favored by stormy seas – it was extremely easy to attack and get away unscathed. NATO should be better able to demonstrate on such a large scale that it can counter the submarine threat. We were only roughly a dozen

in the NWAPPS and SWAPPS²⁵, what would have happened if...” Perhaps a little extra swagger from the current perspective of the armchair strategist, but that’s how we U-boat skippers were at that time.

On 20 September, homeward bound and transiting the “Devil’s Hole” Area of the North Sea we received the final message from COMSUBORANGE: “U-20 has seen much action in the war. *The Orange Motherland is proud of you. Well done comrades*”.

On 26 September I flew to Portsmouth/UK to attend the OCEAN SAFARI 85 PXD as a member of CINCGERFLEET Vice Admiral “Jimmy” Mann’s delegation and seized the opportunity to chat with Captain Gneckow, IOWA’s Commanding Officer. He graciously accepted my

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²⁵ Northwestern Approaches, Southwestern Approaches to the British Isles

gift, the framed periscope shot of his ship, remarking dryly: “*I think I’ll bury it at the bottom of my sea chest*”. But, he did not forget to invite the crew of U-20 to visit IOWA, in four weeks during her port of call in Kiel. On 24 October, with a small delegation, we accepted the invitation and went aboard the battle wagon anchored off “Tirpitzhafen”, Kiel’s naval base. The Executive Officer gave us a warm welcome and presented each of us with an IOWA ball cap as a memento. Since I had brought along my family, I own a handful to this very day.

If there is still anything like human emotion where the soul of Lieutenant Yamaguchi is now lingering, I can only hope I brought him cause for a gentle smile over the „peaceful revenge“ that the Cold War had permitted...