

Western Approaches Tactical Unit



**Wrens of the Western Approaches Tactical Unit
wargaming a wolfpack attack on a convoy
(Admiralty Official Collection IWM)**

Paul Strong outlines the crucial role of a team of dedicated young WRNS girls in the Battle of the Atlantic

"The only thing that ever really frightened me during the war was the U-boat peril."

Churchill had good reasons to be apprehensive. In January 1942, the U-Boats appeared to have the advantage in the Atlantic. Food, sailors and war supplies were being lost at a terrifying rate. The Prime Minister asked the Second Sea Lord, Sir Charles Little, if the existing tactics and technology being used by the convoy escorts were up to the challenge.

Sir Charles summoned Captain Gilbert Roberts, an experienced officer who has been invalidated out of the service due to tuberculosis, to the Admiralty to discuss options for resolving Churchill's concerns with Admiral Sir Cecil Usborne, the First Sea Lord's adviser on Anti Submarine Warfare (ASW).

Usborne believed that there was a chronic lack of escorts but that the tactics they used were probably sub-optimal. Roberts was to form a new operational analysis team, to be called the Western Approaches Tactical Unit (WATU) to explore and evaluate new tactics and then to pass them on to escort captains in a dedicated ASW course.

The Prime Minister's orders were clear - "Find out what is happening in the Atlantic, find ways of getting the convoys through and sink the U-Boats!"

Admiral Sir Percy Noble, then commanding Western Approaches HQ in Liverpool, was initially unimpressed by the idea of the WATU but allowed Roberts to set up the unit in Derby House.

Roberts first concern was to find out what was actually happening to the convoys so he poured over the after action reports looking for clues to the U-Boat's tactics. It became clear that Commander Frederic 'Johnny' Walker was one of the few who had developed tactics to counter the U-Boats at night - on the signal "Buttercup" all of the escorts under his command would turn outwards and fire starshells to locate the surfaced U-Boats around the convoy.



**Captain Gilbert Roberts
(Admiralty Official Collection IWM)**

The WATU facility was primitive, with tactical tables, a tactical floor divided into squares, basic ship models and a lecture theatre, but Roberts quickly got to work. A basic set of wargame rules was developed with processes to represent real-time decision cycles, tactical doctrine, and communications issues. Then the room was re-designed so that players representing escort commanders could only see the gameplay through a restrictive screen to represent the limited information that they would have in a real battle. The U-Boat track was invisible to players and shown as a brown chalk line so the umpires could follow its progress.

Roberts was assigned a small staff, Chief Petty Officer Raynor was the first then the Wrens appeared. Four Wren officers, Elizabeth Drake, Jane Howes, Jean Laidlaw and Nan Wailes, described as 'real gems' by Roberts, all brimming with enthusiasm and delighted to be doing serious work. In addition, four Wren ratings appeared, two were only seventeen. One of the new ratings, Janet O'Kell got lost in the building trying to find WATU during a blackout and was in tears by the time she was introduced to Roberts by her burly Royal Marine rescuer.



The staff at the Western Approaches Tactical Unit - 22 January 1945
Note the chalk marks, indicating key moves in the wargame, on the tactical floor
(Admiralty Official Collection IWM)

The Wrens had to be trained in ASW techniques and technology before they could be useful but the team proved quick learners and soon mastered the skills they needed to run the analytical and training wargames that were to become the WATU's contribution to the war effort.

Roberts' first concern was to address the issue of how the U-Boats were making their attacks and evading the escorts. The key issue was clearly the tactics the U-Boats used so Roberts ran a series of games to evaluate how best to approach a convoy during a night attack. It soon became obvious that the U-Boats were not attacking from outside the perimeter but were instead moving stealthily amongst the supply ships, using their intended victims as cover!

Roberts called RN submarine command and the phone was answered by Sir Max Horton, a WWI veteran and the CinC RN Submarine command. Horton listened to Roberts theory and confirmed that it was the approach that he himself would use. Delighted by Sir Max's confirmation, Roberts set up a wargame to explore options for countering the German tactic.

Raynor, Laidlaw and O'Kell stayed behind to test the concept and they wargamed options through the night. A range of U-Boat approaches were tested and it was clear that the best approach for a U-Boat was astern. Walker had clearly intuitively come upon a tactic that worked against a additional U-Boats coming to join the battle. Roberts pondered Laidlaw's detailed plots from each game and realised that a U-Boat that evaded an escort would probably dive and come up again astern of the convoy. The team soon realised that he was onto something and volunteered to continue wargaming.

The new tactic involved the escorts falling back after the initial attack in line astern then trawling up to the convoy with an ASDIC sweep. Any U-Boat that tried to evade the escorts, assumed to be converging on its last known position, would instead be caught by the sweep following the convoy. As dawn rose, the team were sent home and Roberts arranged a demonstration.

A sceptical Sir Percy Noble arrived with his staff the next day and watched as the team worked through a series of attacks on convoy HG.76. As Roberts described the logic behind their assumptions about the tactics being used by the U-Boats and demonstrated the counter move, one that Wren Officer Laidlaw had mischievously named Raspberry, Sir Percy changed his view of the unit. From now on the WATU would be regular visitors to the Operations Room and all escort officers were expected to attend the course.

Interestingly, out of the 5,000 officers who attended the school, none had the slightest problem with being instructed by young Wrens - particularly as they proved extremely skilled at guiding their students through the more complex manoeuvres without hurting their feelings (there is an amusing but highly technical example in Mark William's excellent biography *Captain Gilbert Roberts RN and the Anti-U-Boat School*).

Each of the courses looked at ASW and surface attacks on a convoy and the students were encouraged to take part in the wargames that evaluated potential new tactics. Raspberry was soon followed by Strawberry, Gooseberry and Pineapple and as the RN went over to the offensive, the tactical priority shifted to hunting and killing U Boats. Roberts continued as Director of WATU but was also appointed as Assistant Chief of Staff Intelligence at Western Approaches Command.

One of the tactics WATU developed was to allow a 'sighting' submarine to dive unmolested so that the convoy's change of course wouldn't be communicated - the diving submarine would then be hunted while it was unable to update the rest of the wolfpack.

Roberts' assumption was the U-Boat would send a detailed signal then conduct a low speed turn to the rear of the convoy to avoid any escorts and then calmly await developments. The WATU counter was to not let the U Boat know it had been sighted, wait until it headed to rear of the convoy then use the combined propeller noise of the convoy to disguise a dash by a single escort to the U-Boat's most likely position - a process called the Beta Search. Sir Max Horton volunteered to be the U-Boat during a visit to the school and Janet O'Kell (now 18) played the escort group commander.

Sir Max made five attempts to evade the escorts and each time O'Kell ruthlessly closed in and sank his U-Boat. When he discovered that his opponent had been a young Wren rating, Horton was horrified but, unlike many senior officers (then and today), he was far more interested in results than in his ego and Beta Search was included in the next set of Fleet Orders.

HMS Vidette was the first ship to try out the tactic and bagged a U-Boat with its first pattern of depth charges. Once again the advantage lay with the Royal Navy. As the U-Boat commanders developed new tactics, WATU's enthusiastic and dedicated operational research team identified each new approach and developed effective counters; the Germans often losing numerous U-Boats before any weaknesses of the new tactic became apparent to Dönitz and his rapidly decreasing cadre of veteran commanders.

**Depth Charge exploding behind a
convoy escort
(Wikimedia Commons)**



Roberts was fully aware of the proven skills of his adversary and WATU did not wait for German tactics to evolve before adapting. In addition, each course was attended by at least one Coastal Command officer to ensure that air/sea co-operation was properly represented. For example, Pineapple was developed from a suggestion from a Canadian officer on how the Germans might shift their tactics if Raspberry was observed by a second U-Boat beyond the range of the initial sweep. To ensure success, Pineapple included variants based upon the experience and aggression of the U-Boat commander.

The wolfpack made every ASW tactic more difficult to operate as the U-Boats would observe their target and take advantage of any changes in the disposition of escorts. The first U-Boat would signal the location of a convoy and await reinforcements. Once enough were in position, the whole group would move into position. As the escorts homed in on the first U-Boat detected by ASDIC, radar or by observers, the rest would move in for the kill. Quickly the escorts would be reduced to dashing from one crisis to another while the experienced German captains picked their targets and then left the less skilled U-Boats to suffer the consequences. Unsurprisingly, WATU had predicted the wolfpack approach and proposed that air power (B-24s with extra fuel tanks or convoy escort carriers) could be used to hunt the surfaced U-Boats, awaiting updates on the convoy and gathering in her wake, then an outer and inner ring of escorts to deal with the actual attack.

King George VI visited WATU in November 1942 when Sir Max Horton took over Western Approaches Command. Sir Max was so delighted with the display Roberts and his team put on he volunteered to take the course himself.

By 1943, the tactics and technology (including 10cm radar and Hedgehog) being used by the RN meant that the U-Boats had to develop more cautious tactics in the hoping of evading the wide array of ASW assets (air and sea) that were being deployed against them with ever increasing efficiency. Hunter Killer (Support) Groups now actively sought out U-Boats before they even sighted a convoy - the most famous being 'Johnny' Walkers' Escort group 2. Dönitz and his captains tried a number of desperate tactics but casualties continued to mount. Even when wolfpacks succeeded in making an attack, they tended to suffer heavy casualties.

WATU took advantage of this lull in activity on the Western Approaches to develop tactics for other operational areas. While reviewing U-Boat tactics in a recent battle off the Azores, Roberts realised that the U-Boat had used an entirely new weapon - one that homed onto its target. Roberts discussed his theory with Horton and they decided it was some kind of acoustic guidance system.

In September 1943, the acoustic torpedo had its first major test against a convoy - in this case versus ONS.18 and ON.202 combining their escorts against a full-scale assault identified by Bletchley Park.



Admiral Sir Max Horton
Western Approaches Command
(Wikimedia Commons)

The U-Boats, using acoustic torpedoes, focused on the escorts - each firing a spread at its pursuer as soon as the escort closed in for the kill. Chaos ensued as several escorts were damaged or sunk but the pack of 21 U-Boats were far less successful in the evolving battle than Dönitz had hoped.

Some of the men killed were graduates of WATU and, armed with detailed reports from the battle, the entire staff threw themselves into the task of designing an answer. The solution was based upon an assumption about the effective detection angle available to the U Boat's hydrophones (about 60 degrees). If the escort 'stepped aside' by turning away (150 degrees) once it was detected by the U-Boat, and then turned back after roughly a nautical mile, the torpedo would fail to detect its target and miss. The updated tactic was sent to the beleaguered escort group defending the convoy and the plucky little ships turned the tables and started ruthlessly hunting the hunters - the wolfpack scattered.

By the end of the war the WATU had eight male officers (including a Norwegian and an Indian) and thirty six Wren officers and ratings. Amongst the many officers who passed the course were HRH Prince Philip of Greece and the author of *The Cruel Sea*, Nicholas Monsarrat. The novel includes a description of Roberts and it is thought that Robert's summing up of the campaign, given at the end of each course is the source for the title.

"It is the war of the little ships and the lonely aircraft, long patient and unpublicised, our two great enemies - the U-Boats and the Cruel Sea".

The novel also includes a lovely scene where Ericson is caught out during a wargame and is rescued by a "young, thoughtful and intelligent" Wren officer "not more than "twenty years old".

When Roberts accepted his award as Commander of the British Empire at the end of 1943, he took a Wren Officer and Rating with him to Buckingham Palace, intentionally sharing the honour with the team of remarkable young women that helped the Western Approaches Tactical Unit win the Battle of the Atlantic.

(Author: Paul Strong)