

# BOWER JOHN GRAHAM

THE STORY OF OUR  
SUBMARINES

John Bower

# **The Story of Our Submarines**

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# The Story of Our Submarines

## I

## I

There has naturally been a great deal of ink spilled during the War on the subject of the U-boat. The British Submarines have worked unseen and unheard of. Occasionally a few official lines have appeared in the newspapers about them, but the very nature of the work they have been doing has precluded any divulging of their activity. With the permission of the Admiralty I am about to speak now of some of the work they have done, and to give their own reports describing some of the many occasions on which they have been in contact with the enemy.

On August 4, 1914, we had in our Submarine Service the following boats: 9 E class, 8 D class, 37 C class, 10 B class.

Of these, the B and C classes were 320 tons submerged displacement, and were not suitable for the patrol round the mouth of the Bight. The D and E boats were designed for that purpose, being of 600 and 800 tons submerged displacement respectively. The B and C classes were used in the War for local patrols, defence of the coasts and ports, and (as the War progressed and they became obsolete), for instruction of new entries of personnel.

Before I get on to the War itself I want to give a short description of the entry and training of our personnel both before and after the War began.

In peace time an officer who wished to join the Submarine Service had first to receive a recommendation from his own Captain. He then had to produce either a first-class certificate for his Torpedo examination for Lieutenant, or, if he had not that qualification, a certificate from the Torpedo-Lieutenant of his ship to the effect that he showed special zeal in that branch of his duties. If his name was accepted it was placed at the bottom of the candidates' list, and in due time, after an interval which varied from year to year, he was appointed to Fort Blockhouse, the Submarine Depot at Gosport. There the batch of new officers were medically examined, and (the standard being high) the unfit were weeded out and returned to their ships.

For the next three months he went through a course of practical submarine instruction, his training period terminating in examinations which provided another obstacle, the meshes of which prevented certain candidates from proceeding further.

The officers of the class were then sent as "third hands" to different boats to await vacancies as First Lieutenants. After two to four years as First Lieutenant (the time varied with the number of new boats built), an officer obtained command of an A boat (of 204 tons), from which he rose by seniority to larger and more powerful commands.

The men entered in much the same way, being recommended, of first-class character and of excellent physical standard. They went through a less comprehensive training course, but had the same weeding-out to undergo, so that as far as possible the "duds" were got rid of before they had cost the country much in useless teaching.

In war-time it has not been possible to spare the time for the full instructional courses, but the courses continued, although much shortened. The shortage of personnel in the Navy generally cut down the field from which volunteers were drawn, but in spite of this the Submarine Service was able to keep up its voluntary entry, and to continue to retain its standard by drafting back those who were by nature or capabilities unfit for such work. The submarine sailor is a picked man, and is the

admiration of his officers. There is a Democracy of Things Real in the boats which is a very fine kind of Democracy. Both men and officers in a submarine know that each man's life is held in the hand of any one of them, who by carelessness or ignorance may make their ship into a common coffin; all ranks live close together, and when the occasion arises go to their deaths in the same way. The Fear of Death is a great leveller, and in submarines an officer or a man's competency for his job is the only real standard by which he is judged.

In the German Navy, before the War, the Submarine Service had not received the attention it might have done. There, the submarine officer did not hold the status in the eyes of his Navy that was held by his destroyer or battleship brother. Since the accident to U-3 at exercise practice, also, certain rules for exercise had been introduced, which precluded practice attacks on target-ships going at high speed, and had circumscribed the areas (by defining "safe" depths of water) in which exercises might be carried out. In our Navy it had always been recognised that risks must be incurred in peace, so as to ensure greater safety in war. As far back as 1912 our submarines were practising attacks on destroyers zigzagging at high speed, and were diving in any waters, and generally reproducing war conditions as far as possible. While even in 1904 the early boats on manœuvres were allowed to dive under surface ships, and destroyers were allowed to use wire-sweeps against them.

For years before the War a Submarine Defence Committee of officers was working to find the best antidote to the submarine menace, and experiments were carried out by the Committee with our own boats. The result of this was that, on the War coming, both the submarine officers and those of our Navy whose task it was to deal with the U-boat had considerable experience to begin on.

The British Submarine Flotillas, as shown in the preceding list, comprised in 1914 far more small boats than sea-going ones. This was altered later as the strategy of the War crystallised, but when the War began it had never been expected that the enemy Fleet would remain so inactive. The Navy's view had naturally been that the German had not built such a fine Fleet if he wasn't going to use it, and so the majority of our boats, instead of being designed for "Over There" work, were designed for "half-way over." And very good boats the C boats were, too. If the expected War of Movement had taken place, with a North Sea dotted with racing cruisers, and ships of both sides looking for a fight, every boat in our service would have been in the thick of the trouble. As it was, the course of events very soon showed that the ring round the Heligoland Bight – the blockading patrol – was to be the chief station of our submarines in Home waters.

Both belligerents began to design and build at once. The German went straight ahead on the one type, which, with variations, has served him throughout the War – viz., the commerce-destroying medium-sized patrol boat. To this type he later added the mine-laying submarine, and towards the end of the War he evolved the large, commerce-destroying cruiser boat.

Now, both before and during the War, we held a lead over our enemy in the matter of submarine design. That statement is confirmed by the data given by the U-boats arriving at Harwich as I write. Some time ago the British Navy prepared an antidote to a design of submarine which it was thought the enemy must, by logical reasoning, soon produce as being the obvious thing for him to think of. Our antidote has not yet had a chance to be used, as it was only recently that the German designers got to that stage in their reasoning.

But what did we build? Well, we did not want commerce destroyers at least; such work as the cutting of the Turkish communications in the Sea of Marmora and the sinking of transports in the Baltic could be done by our ordinary E boats. But we did want mine-layers, and we built those. What else? Well, I must branch off into a dissertation on submarines generally.

A submarine may be any kind of surface vessel, with the advantage added to her of being able to dive. She need not necessarily be a diving boat with a few torpedo tubes and a couple of guns. She may be anything. A surface ship can only be one thing; you cannot have a cruiser-monitor or a destroyer-battleship. But a submarine may be two things at once; and a submarine can, as a result, act unsupported. Take the case of a scouting submarine. What is the alternative? If we had no scouting

submarines we would have had to keep a ring of destroyers out to watch the Bight. Those destroyers might, being out near the enemy's coast, be attacked by enemy cruisers, so that it would be essential to keep our cruisers out in support. Then if the enemy brought out – and so on – up to the final result of our battle fleet being continuously at sea, which would have been not only unnecessary wear and tear on the big ships, but a good opportunity for the U-boats if they had cared to take a chance. Take the case of the submarine mine-layer. She has the great advantage, to begin with, of not only getting to her position unseen, but of being able to lay her unpleasant cargo down unsuspected and unobserved. Then, again, she does not need a supporting force to follow her in case she meets with trouble. She does not look on a big enemy ship as a trouble, should one interfere with her; she would rather describe the big ship as a "gift." She is open to the usual anti-submarine methods, and can be dealt with by destroyers, seaplanes, and so on; but if she succumbs to their attacks – well, that is another submarine gone, but it might have been a big surface ship.

By the nature of the German strategy our lines of design were indicated. The chief type we needed were scouts – in other words, patrol boats. We built these in considerable numbers, for the several types of patrol boats we diverged into were capable of doing any of several things. They could do the Heligoland Bight patrol, attacking the enemy if met with, and reporting to the C. – in-C. what they saw on their patrols; they could go out into the Atlantic to hunt U-boats on the traffic lanes, or they could go to the Mediterranean to work in the Adriatic. They were the general-utility craft of the Submarine Navy.

The mine-layers were of the patrol boat type, getting larger as the War went on, but always with the torpedo-tubes (reduced in number) built into them to allow them to become normal submarines when a chance arose.

In the early part of the War there were some additions to the Submarine Flotillas in the shape of V-W and F boats of 500 submerged tonnage. These were experiments by the Admiralty in building boats of foreign design, drawings being used of the Laurenti and Fiat firms. After these boats had been tried and their best points copied into our own designs, the standard British ideas were reverted to for war construction. The building of these boats served its purpose in giving us an insight into the lines upon which other nations were working, but foreign designs were not continued owing to the better performances of our own boats.

The G and J class were patrol boats – the G's being of 975 ton submerged displacement, and so larger and with more beam than the E boats; the J's were 19-knot boats of 1820 tons submerged, and marked a great advance in the big-submarine type. The year 1915 gave us the addition of a number of E class, while the G's began to join up with the Flotillas in November of that year. The first J boat commissioned in the spring of 1916.

The H class were small patrol boats of American design – a design later enlarged and improved in England. The L boats were enlarged and improved E's, and are probably the finest patrol submarines in existence.

The 4th August 1916 saw the commissioning of a boat which was a revolution in submarine design. This was the first K boat. This class was designed for the expected Fleet action; their qualities were to be – that they should have several knots in hand over the speed of the Battle Fleet, that they should be seaworthy and able to cruise with the Fleet, and that they should have the necessary submarine qualities to enable them to deal with the High Sea Fleet when it should be met. These qualities they have; but it is regretted that the enemy gave them no chance of trying their luck in action. They were used on patrol to keep them from getting stale during the long wait for their "Day," and their experiences on patrol, and when at sea on the periodic occasions when the Fleet went hurrying out in reply to reported enemy activity, have given invaluable data for future construction of large and fast submarines. These boats are of 1880 tons (surface) and 2550 tons (submerged) displacement. They have a speed of slightly over 24 knots on the surface, can carry a good gun battery if required,

and their hulls being low and well stream-lined, and their torpedo armament powerful, they can act both as destroyers by night or as submarines by day.

These boats have a battery capacity sufficient for a day's Fleet battle, but no more. They may be described as having great *strategic* speed and capacity, but small tactical radius: that is, they can get to the place where they are wanted quickly, but are circumscribed in their capabilities of remaining submerged in that spot for long, or of moving fast submerged for more than one attack without rising to recharge their batteries. In submarine design as well as in that of surface ships, you can't have everything; each type is a compromise.

At the other end of the scale we built the R boat. These were also "specialists," but of opposite qualities. Of 500 tons (submerged) they have a surface speed of about 8 knots, but a submerged speed of 14½ – a speed which will probably be slightly increased by alterations. These boats only joined up in the summer of 1918, and the enemy surrendered before they had really shown what they could do. A boat of this type (they are perfectly stream-lined, and, inside, they are all battery and torpedo tubes) can jog out to her assigned area at her leisure – it is no use sending her to cut off or meet a definitely reported enemy, as she wouldn't get there in time – and once in that area she can use her diving batteries for days without having to recharge them, should she be kept down by enemy hunters, and her high submerged speed and radius make her very dangerous to any target (U-boat or otherwise) which passes within periscope range of her.

There remains the submarine monitor, which will be described in due course. I will interpolate here an account of a typical trial of a new boat, using an E boat of the early 1916 vintage as an illustration.



## II

The boat I would use as an illustration was in 1915 very new indeed. She was just a standard E boat, with war-taught improvements and additions, and with a war-taught complement of officers and a half-taught complement of men. For a month the men had been given a queer but useful course of instruction by being taken by their First Lieutenant at "Diving Stations," in a disused shed in the building firm's premises. On the walls and floor names and rough sketches of most of the important valves and wheels of the boat herself had been chalked, and though the men laughed and swore at the make-believe, they had learnt a good deal of their drill and the probable sequence of diving orders, without the work of the builders of the E boat being interfered with. Except in the dinner hour, or during the infrequent holidays, no drill could be carried out aboard owing to the crowds of men working there. Overtime had been continuously worked, and nothing could be allowed to interfere with the firm's sacred "date" – the day on which the Admiralty had been promised delivery.

The day dawned clear and fine, with no wind and every promise of calm spring weather. At six o'clock the submarine's whistle blew shrilly, and a few tardy passengers approaching from the direction of the yard gates broke into a run. As they climbed the iron rungs up to the low grey-painted bridge, the gangway by which they had boarded was lifted clear into the air and swung away to the basin-side by a hissing, clattering, 10-ton crane, and at an order from the boat's Captain the securing wires and hemp hawsers splashed into the oily still water. The telegraph clanged decisively, and to an answering whirr and boil under her stern the boat moved slowly ahead towards the open basin entrance. She increased speed as she neared the narrow passage, and the whirling eddies of a flooding tide outside came in view. As her stem came out into the river she took a sharp sheer up-stream, then came quickly round towards the open sea as the twenty degrees of helm that she was carrying took effect on her. Little puffs of white and brown smoke began to show round her stern as the engines were clutched in and started, and in five minutes she was heading down-river at a fair twelve knots, with the low sun glancing from her round hull and lighting the queer mixture of Futurist painting that covered her.

She carried a matter of eleven people on her bridge – a bridge designed to accommodate, perhaps, four or five. Her fighting complement was thirty-one all told, but at this moment she held over fifty. Needless to say, it was the passengers who seemed to take up most room. They comprised overseers, foremen, chargemen, a manager or two, about a dozen caulkers and engineers, and a pilot. In addition she carried an overseer of overseers – a Commander from the submarine Commodore's staff. He was present as schoolmaster, judge, and as friend to the Captain of the boat, and his job was one the Captain of the boat was not in the least envious of. The Captain knew that his crew were only partially trained, that he himself was new to E boats, and that the boat might not be all he hoped to find her in the way of reliability and hull-strength, but he felt that at any rate he knew more or less what the personnel, including himself, were like, while the Inspecting Commander must be, or ought to be, the most nervous man in submarines, with his job of travelling from trial to trial, unbroken by a chance of a trip in a fully-tested boat with a fully-trained crew.

As they swung round the last river-buoy and saw the outer lightship draw clear of the land, a destroyer overtook them, and passed on ahead to lead them to sea. The boat was going thirty miles out to get deep water for her hull-test, and it was not safe for a British boat to be that distance, or even a third of that distance, from the mouth of a British harbour unescorted, unless she was there on her war business. This was not because of the enemy – far from it; it was to save her from the enthusiastic but misguided attentions of the multitudes of "Fritz-hunters" who drew no distinction between submarines of their own or the enemy's flag. As she neared the light-vessel, the submarine increased speed and some of the "yarning-party" on the bridge departed below down the conning-tower. The programme included a full-speed surface-trial which was to start from the lightship and

finish at the diving-ground, and for the next two hours the engineers and engine-overseers were to be the only busy passengers. From the engine-room bulkhead to the bows, the crew and officers moved to and fro – testing, instructing, and, it should be added, grumbling continuously, for the multitude of passengers were a considerable handicap in the way of an efficient and (the great ideal) an unexciting and placid diving-trial.

The inside of the boat was incredibly dirty from a naval point of view. She had not been built at one of these yards where no workman can live without a quid of tobacco in his cheek (in fact by the trials standard of some yards she was clean), but it was obvious that she would take a good month's scrubbing and polishing before she was, in her officers' estimation, even sanitary.

At ten o'clock an order came from on deck, and a couple of sailors ascended the conning-tower carrying a few rounds of 12-pounder ammunition. The trials she was to do were to be complete and to everybody's satisfaction, and the building firm, being a firm which would sooner see their work over- than under-tested, had suggested a few rounds from the bow-gun before the dive, with the idea that if the gun-mounting was going to cause leaks through to the hull as a result of recoil, it should be given the chance to do it now instead of later when the boat was in enemy waters. A biscuit-tin was dropped, the boat circled round, and at a range of a hundred yards the gunlayer proceeded to miss the box completely. However, the shooting did not matter – the gun had recoiled a few times and that was all that was required. The fact of the gunlayer finding later that he had shipped the sights of the H.A. gun on to his bow-gun before practice, was a merely trifling incident among the errors that one might expect to occur on trials.

At eleven o'clock the destroyer, which had been jogging along a few cables ahead, circled round and slowed up. The Submarine Captain rang "Slow" on his telegraph, smiled encouragingly at the civilians who still remained on the bridge, and made a pointing gesture with his thumb at the open conning-tower lid. The civilians, with a nervous straightening of bowler hats and several lingering looks at the sunlit sea and sky, clambered slowly below, and the Captain remained watching the whirling arms of the semaphore on the destroyer's bridge. He dictated a reply to his signalman, then rang down "Stop," and, leaving the lid open, descended to see what order his First Lieutenant was producing out of the crowded chaos below.

From the foot of the conning-tower ladder he could see nothing but a mass of humanity, mostly civilian, through which his uniformed crew moved apologetically and bent double. He moved forward into the crowd and assisted his officers in their efforts to station the passengers in positions where they would be as much out of the way as possible, and would at the same time be comfortable enough to lose their desire to move about. At the end of five minutes comparative peace reigned, and the crew were standing at their stations looking at their officers for orders across a new deck of caps and tilted bowler hats.

The Captain took a sweeping glance fore and aft, then ascended the conning-tower. He ordered the signalman below, looked across at the destroyer through his glasses, and then descended, closing and locking the lid above his head. As he re-entered the boat, he caught the eye of the First Lieutenant. "Flood one, two, five, six, seven, and eight," he ordered. "Slow ahead both – keep her level." The vent valves indicated their opening with a snort and a roar of air, and the rush and gurgle of flooding tanks cut off the chatter of the passengers, as the clang of a closing breech-block brings silence to a gun's crew. A few seconds later the Captain spoke again. "Flood three and four – take her down." Each order was repeated by the First Lieutenant – an officer whose eyes seemed to note the doings of every man in the boat at once. As the Captain moved to the diving-gauge by the periscope to watch for the first slow movement of the long black needle, the First Lieutenant's hand shot out and gripped the neck of a seaman by the starboard pump, and he spoke in a voice of concentrated, hissing rage. "*That's* the main line, you fool! Close it, quick, and don't you dare touch it till I tell you!"

The gauge-needle quivered and began to rise. At eight feet the Captain stepped back, and, taking the periscope training-handles, began to look into the rubber-padded eye-piece, "Check at twenty

feet," he said. "Take the angle off now, coxswain." "Twenty feet, sir, horizontal." The coxswain sat on a low heavy music-stool facing another white-faced diving-gauge, his big brass hydroplane wheel moving a turn or two each way under his hand. "Pump on Z internal —*don't* start till I tell you." The Captain was watching the hydroplane helm indicators beside him, which showed, by the amount of "rise" helm they were carrying, that the boat had a touch of negative buoyancy.

"All ready the pump, sir!"

"Start the pump – keep her *up*, coxswain."

"Coming up, sir – horizontal, sir."

"Stop the pump – close main line – close Z internal."

On an even keel the E boat ploughed along – her periscope top four feet above the surface, and the periscope-wake bubbling and foaming on the perfectly smooth sea. The watcher in the following destroyer saw the wake die down till it was a barely visible ripple, as – her trim correct – the Captain eased the boat's speed down to less than two knots. Then the shining periscope began to disappear, slowly reducing in height as the planes took the boat down for her deep hull test.

Inside her hull there was silence except for an occasional whisper from one seated civilian to his neighbour. The gauge-needles crept slowly round, and as the depth increased the little spot of daylight thrown by the periscope eye-piece on to the pump-starter abreast of it changed from yellow to green of ever-darkening shades till the last link with the sun above them died away.

At ninety feet the Captain spoke again, and the hydroplane-wheels spun as her downward way was checked. "Keep her at that," he said. "Mr Ramage, will you send your men round now? We'll mark leaks before we go further."

The foreman addressed rose from his seat and called to his half-dozen caulkers sitting at hand. The boat dived easily on while the men passed fore and aft painting red dabs on rivets and seams overhead where trickles of water spoke of red-lead or packing which was not yet "set" or in condition to face the pressures of active service. Their tour over, the party settled back to their stations, and at a nod and gesture from the Captain the hydroplane men tilted the bow slightly down again for further descent. At a hundred and twenty feet the order came for the motors to stop, and with failing headway the boat sank gently down. One or two men (naval as well as civilian) reached out a hand to grasp for support as they stood, for the moment before touching bottom is always one of slight uncertainty; for, however reliable the chart, it is yet possible to bounce roughly on these occasions on such unexpected obstacles as isolated rocks or even wrecks. But there was no need for bracing against the unexpected to-day. The boat touched and slid on to a standstill so gently and imperceptibly that her Captain watched the gauge for at least thirty seconds after she had landed, with the suspicion that she might be only "statically trimmed" and that she had a fathom or two farther yet to fall. Then he spoke – "Flood A – hydroplanes amidships."

There came a bubbling roar from the vent of A, well forward, and then the clang of a heavy "water-hammer" in the pipe as the tank filled. The boat lay now as he intended her to do, bedded with negative buoyancy and with her bows well down, so that her screws and rudder were clear of the oozy mud in which she lay. "Carry on – all hands – and look for leaks."

The caulkers did not linger over the task. They did not (and small blame to them, for they were not case-hardened to the situation) relish the idea of staying longer than was necessary at a hundred and thirty-six feet by gauge and with a pressure of sixty pounds to the square inch trying to force the round steel hull inwards on itself. In a quarter of an hour they reported "All leaks located and marked."

But their ordeal was not yet over. The gloomy-eyed First Lieutenant (a pessimist, as all First Lieutenants should be) had found a new leak right aft, and the Captain was called into consultation over it. For ten minutes more the two officers conversed and searched, then came leisurely forward again. "That's all right, I think," said the Captain cheerfully. "Anybody want to look round any more? I can stay down here while they do – there's no hurry, you know."

There was an enthusiastic chorus from a group of overseers and officials – "Not at all, not at *all*, we're *quite* satisfied – quite..." The Commander, who throughout the dive had sat unmoving by the periscope, notebook in hand and his eyes half closed, allowed himself a faint smile and a lazy yawn.

"Blow on A – fifty pounds – Blow one and two externals."

The air hissed and whined along the pipes, and the eardrums of those aboard tingled to the rising pressure from overloaded relief valves. For five minutes the hissing and roaring continued, then at a shouted order the noise stopped. The First Lieutenant looked back from the motionless gauge to the Captain. "Shall we put more on A, sir? Fifty pounds won't have moved any out at this depth..."

"No – don't put any more on, I've got One and Two pretty near out and the fifty will blow A as she rises. Then I'm going to fill One and Two again and catch the trim before we break surface. She's stuck in the mud, that's all, and we'll have to pull her out. Stand by the motors, aft there!"

The passengers were fidgeting slightly, and the Commander, noting the fidgeting, looked up and spoke, laughing, to the youthful Captain —*apropos* of absolutely nothing at all. The Captain laughed back (for publication and as a guarantee of good faith) and turned to the motor-room voice-pipe: "Slow ahead Port – half ahead Starboard" – a pause filled by a dry humming from right aft where the big motors purred. "Stop both – slow ahead Starboard – half astern Port" – another droning pause, and then – "Stop Starboard – half astern Starboard." The boat quivered, then with a lurch she pulled free and her bows rose sharply. "Stop both – half ahead both – flood One and Two – flood A —*Dammit*– hard-a-dive, coxswain."

The angle increased fast, faster than the forward tanks could fill, and the boat rushed upwards with chests, men, and other loose impediments sliding and slipping aft. At eighty feet she began to level slightly, but the angle could not be taken off her in time, – the destroyer men had a vision of a grey conning-tower foaming ahead for a few seconds, surmounted by fifteen feet of silver periscope, before, to the drive of her powerful screws, the boat dipped again till only the tops of the hooded lenses showed as she settled at her diving depth.

"*Rotten*," observed the Captain gloomily to the First Lieutenant. "I mustn't break surface like that when we get to the Bight, or we all go West one-time, – I think that'll do for the dive, though. She'll be tight as a drum when the firm's had another day or two at her. We'll do the helm and speed trials now and then go in. Hands by the blows! *Surface!*"

### III

The Submarine Flotillas began to move to their war bases on the 29th July. By the 4th August they were ready to begin their work. The VIII Flotilla ("D" and "E" boats) were at Harwich, a port which throughout the War has remained the chief Heligoland Bight Patrol base. The "C" boats were spread all up the East Coast, with a Channel guard at Dover and a large number of them at Leith.

The Heligoland Patrol started on the 5th. The boats of the VIII Flotilla not patrolling in the Bight guarded, till the 13th August, a line drawn across the northern entrance of the Channel (between the Belgian and English shoals) till the Expeditionary Force was safely over. During the passage of this force it was fully expected that the enemy would show naval activity and make an attempt to hinder or prevent the passage of troops. Precautionary measures were therefore taken. That the enemy made no attempt to interfere or to dispute the command of the Channel was a surprise to our War Staff, who based their calculations on what an enterprising Naval Power would do in similar circumstances. A possible reason for the enemy's sluggishness at this time is that he does not appear to have at all expected to be at war with England.

"From Commodore (S),  
To Chief of War Staff, Admiralty.  
*7th August 1914 (Midnight).*

"Propose to postpone oversea operations from Yarmouth, and to concentrate all submarines in area arranged until after transit of Expeditionary Force. How many days will passage occupy?"

On the 14th the patrol in the Bight continued.

The following despatch is a typical report of an E boat's trip into the Bight during these early days of war: —

*H.M. Submarine "E 6,"  
15th August 1914.*

Sir, — I have the honour to submit a report of the proceedings of Submarine "E 6" on August 6th and 7th, when working in the Heligoland Bight.

*August 6th—*

1 A.M. Slipped by *Amethyst*, 30' N.N.E. from Terschelling Light vessel, proceeded N. 69 E., 12 knots, making for allotted area, and avoiding T.B.D. patrol.

3 A.M. Dived to check trim; day breaking on rising; sighted two steam trawlers 4 to 5 miles to southward; dived away from them; 3 miles.

4.25 A.M. Proceeded E. × S., 12 knots.

6.30 A.M. Altered course S.E.

7.25 A.M. Sighted German cruiser, *Stettin* class, hull down, E.N.E., beam on, steering N. (approx.). Dived E. by N. 1 mile to avoid being seen; cruiser too far off to attack.

8.5 A.M. Rose. Sighted trail of smoke and yellow funnel, E.N.E.

Dived to attack, course N. 30 W., full speed.

8.55 A.M. Abandoned chase, enemy steaming very fast west (approx.).

Dived to avoid steam trawler, which had passed over boat during attack.

9.45 A.M. Rose. Proceeded to westward charging batteries.

11.30 A.M. Stopped. Charged on surface.

1.15 P.M. Proceeded S. 72 E., 12 knots.

2.45 P.M. Dived to avoid steam trawler, remaining on course S. 72 E.

3.40 P.M. Rose.

3.50 P.M. Sighted German large T.B.D., or flotilla cruiser, 10 miles to northward, steaming very fast E. Too far off to attack.

4.15 P.M. Proceeded S. 51 E., 12 knots.

5.45 P.M. Position W.  $\frac{3}{4}$ ' N. 23' from Heligoland. Nothing in sight except numerous trawlers, chiefly sailing. Turned to N. 60 W., 9 knots. Sea rough.

8.10 P.M. Increased to 10½ knots. Many trawlers in sight at nightfall.

9.30 P.M. Stopped. Dived 50 feet on "grouper down" till —

*August 7th—*

2 A.M. Rose. Very dark; dived 50 feet.

3.15 A.M. Rose.

3.30 A.M. Proceeded under one engine, 8 knots, working round a large fleet of sailing trawlers making to southward; making for route of warships seen yesterday.

6 A.M. Altered course 12 knots.

7.45 A.M. Altered course S.E.

8.15 A.M. Sighted German submarine on surface, S.E. 4 to 5 miles distant, beam to beam. Dived to attack. At first thought she was stopped and had then dived, not sighting her through periscope till 8.45.

8.45. A.M. Sighted her steaming west, 4 or 5 miles off. Followed, diving.

9.30 A.M. Rose. Submarine not in sight. Followed, diving, for  $\frac{3}{4}$  hour, in hopes of finding her stopped.

10.30 A.M. Proceeded S. 56 E., 12 knots.

12 noon. Stopped to let steam trawler pass across horizon, ahead.

*Note.*— Since about 7 A.M. I had given up the idea of trying to keep out of sight of trawlers, merely avoiding going within a mile of them.

12.10 P.M. Proceeded.

12.54 P.M. Altered course south, observed position being further north than intended. The steam trawler sighted at noon seemed suspicious of E 6, altering course so as to keep me in sight without getting close.

3.30 P.M. Turned and steered for trawler, signalling her to show colours (German), and to stop. Trawler fitted with W/T. Crossed her bows and shaped course N. 87 W., 14 knots. Position then N. 43 W. 37' from Heligoland. Trawler proceeded, apparently shaping course for Emden. Steered to avoid our T.B.D. patrol.

*August 8th—*

6.30 A.M. Made Swarte Bank Light-vessel. Proceeded to Lowestoft to report.

*Note.*— The Heligoland Bight contained a very large number of trawlers, chiefly sailing, including a few which were apparently Dutch; they became more numerous closer in to Heligoland. I did not notice W/T in any except the one I spoke.

I have the honour to be, sir, your obedient servant,

(*Sd.*) *G. P. Talbot,*

*Lieutenant-Commander.*

The Commodore (S),

H.M.S. *Maidstone.*

That is the sort of way the submarine officers describe their experiences. The method is curt and unsatisfying somehow. I will try and give an idea of a submarine captain describing a trip during, say, the winter of 1915-1916, to an army brother: —

Yes, we got in yesterday. No – we had no luck. It's getting dull inside there now; it's not so much fun if there are no big ships about and only small craft chasing you. Well, you see, we left about 4 P.M. on Monday and had a poor sort of trip across – blowing from the north-east, so that we were head to sea, and even at eight knots we took nearly every wave over the bridge. They're a fine sight though, the E boats, when they're butting into it like that; they get out of step so, and you can feel just about when they are going to take a good one; you see more and more of her bow going dry as she goes wrong, and then she puts a great length of herself over a hollow, and that's the time to duck your head and hold tight to a rail, because she comes down wallop just in time for the next one to roll right over you. It was fairly clear, but devilish cold, and there were snow-squalls about one to the half-hour. We gave Terschelling (the corner, you know, round Holland into the Bight) a seventeen-mile berth, as the tide sets in pretty strong there, and turned in for our billet. My orders were to work between Heligoland and the mouth of the Elbe. There are two ways of getting in, you see – close along the shore in seven-ten fathom water, and over and under the minefields farther out. We took the deep channel, as we don't do the other at night if we can help it – over and under? Oh! you see, there's a minefield set for submarines in one place – fairly deep laid, and farther on another set for surface ships, so we go over one and dive under the other – anyhow, they're both only reported fields, and their position isn't accurately known, and also one doesn't quite know one's position if one doesn't get sights or see Terschelling Light, so it's a matter of luck, really. Well, we didn't get any excitements going in, except that my R.N.R. officer pressed the button with his shoulder when he was coming up to relieve me, and he and I only got down just in time to shut the lid. You see, we run with mighty little buoyancy on patrol when we are on the surface, and if you press the button you go down in a few seconds at twelve knots or so. The button? why, that's what dives the boat; if you press that (it's just under the conning-tower lid) it rings the Klaxon horns fore and aft the boat, and then it's up to you to come down quick because the crew know it means business, and they don't waste any time. They open all vents and put her nose down, and in a few seconds there's just a 'plop' on the surface and you're looking at a gauge-needle going round down below. But if you come on watch with too many lammies and clothes on, you may give the alarm by mistake like my feller did.

"Well, we got better weather after we rounded Terschelling, and after Borkum Riff it was nearly calm. We got to the billet and dived at 4 A.M. – thirty-six hours out from Harwich. The soundings were right when we touched bottom – about 95 feet – so that checked our latitude a bit. Then we all went to bed. It was pretty cold and jolly wet too, as she leaks a bit overhead besides the usual sweating. What's sweating? Why, when the hull's cold it sweats, you know – water runs down the inside – condensation really, I suppose. Well, then we all turned in, as I say, and I put a lot of blankets over me to dry my wet clothes... I was too tired to change, and as a result I was all aches in the morning (that is, at daylight about three hours later). I reckoned it would be getting grey about seven, so we rose then, and after a few minutes at fifty feet, just to listen for propellers, we broke surface. It was all clear and still fairly dark, so we charged batteries for twenty minutes and ventilated.

"Then we went under and started diving patrol. I took first periscope watch, as I wanted to fix position by steering north-west for Heligoland. At eight o'clock the patrol trawlers came by. You see, they have eighteen trawlers out between Schillig Road and the Island. They work in pairs, each pair doing a sort of sword-dance, and making Saint Andrew's Crosses along the line. They come out in the morning, and we just sheer out of their way to let them by. Then at sunset they all begin edging towards home (that's Wilhelmshaven), until the senior one hoists a signal, and they speed up and hustle into bed. No, we don't worry them – we haven't enough torpedoes to chuck them away on trawlers; and anyhow, you may miss a chance at something big if you get seen on your patrol. Those small craft don't see you unless you worry them. One dives around all day with several of them in sight, but so long as one doesn't show the periscope much, and doesn't get too close, they don't see. If we once started strafing them, they'd keep a better look-out, but nobody keeps a good look-out unless he's scared – so we don't scare them.

"Well, that's about all we saw that trip. A destroyer passed – out of range – on the third day, going about twenty-five knots, and we had some trouble on the fourth. No, not dangerous, just aggravating. You see, we got seen by some idiot, and they sent out the usual four torpedo-boats in line abreast against us. They're just small high-bowed old boats, and aren't worth a torpedo. They came fussing along and saw my periscope at fairly long range, as it was flat calm. I went down to ninety feet, and they let off squibs over us – just little depth charges that didn't even break a light globe. Still, they kept me under till dark, and when we came up then I knew I was going to have trouble and worry getting my charge in, as they'd have all sorts of packets barging round my patrol at night looking for me; so we thought it over, and decided the best place to sit and charge would be on the shoals off the Schillig Road boom defences, because they'd never look for us there. Well, they didn't; we sat there and had an absolutely undisturbed charge for the first time that trip. We saw a lot of small craft go by, all heading out to sea to put in a hate against us; and the joke was that we were only in six fathoms there, and couldn't have got the whole boat wet if we *had* been strafed into diving there. And what's better, I was told to-day that some of their destroyers looking for us that night had a scrap among themselves – he's such a jumpy feller the Hun: they seemed to have damaged one packet pretty thoroughly, according to the Intelligence people.

"Why do we have to sit up at night? But we don't. We only have to stay up long enough to charge the batteries for next day, and then we pack up and go to the bottom till morning. That's why winter's the best time to patrol – for comfort, anyway. In December you can only see decently through a periscope for about nine hours – then you come up and charge and get to the bottom for dinner. In July it's more like work: you dive twenty-one hours, come up and charge, and dive again about 2.30 A.M. There's no time for a rest on the bottom, but if you're inside the Bight it's quite exciting getting your charge in. You get put down in the middle of the performance by black shapes coming right on top of you. They're usually trawlers on patrol; but sometimes you see a big bow wave, and that means a destroyer, and you crash-dive in a few seconds. You see, a boat charging like that is like a crab with its shell off; you never feel safe in a boat until you are submerged. On a clear night you can deal with destroyers or any other craft, but these pitch-black nights, or nights when it is foggy or snowing, are the deuce. I never feel happy on those nights till we get to the bottom. It gives me cold feet all the time when I'm on the surface inside there. This trip we got put down at least once during each charge, except the night I went into their front garden to hide. One night, however, I thought we'd never get charged up; we kept getting put under, so that it was a case of twenty minutes' charge and ten minutes' dip for half the night. What's 'putting down' like? Well, you see, when you decide it's dark enough to come up, and you've seen the trawlers go home, you pass the word to 'Stand by for surface' and to get the engines ready. All the hands wake up and get busy (they read and sleep most of the day), and then when they report 'Ready' you blow about five to ten tons out of the tanks, and you come up. There's a routine for the business, you see, and they don't want telling much. I open the lid as soon as it's clear of the surface, and a hand follows me up on to the roof.

"I have a look round, and if it's all clear I sing out below to start the charge. They get on with it then, and the engines start bumping the batteries up full bore, and at the same time we move slow ahead. I only keep just the conning-tower out, and no more buoyancy, so we have men on the hydroplane wheels to keep her from doing a dive accidentally, and as we're moving ahead a little 'up helm' keeps her fairly dry. The hand on deck does 'look-out' astern and I look out ahead; meanwhile the people below carry on smoking (that's the chance they've been waiting for all day). If the look-out sees anything at all he gives a yell and points at it, and then jumps down inside the conning-tower. If I don't like it when I turn round and see it, I press the button and follow him down. If I see something first I hit the look-out, and he jumps down and I follow. They're all on the top line below, so as soon as I press the button and the horns sound (they make a din all over the boat) they open the vents and put her bow down with the planes, and then by the time I've closed the lid over my head the gauge is showing fifteen feet, and she's going down at a big slant. If I'm slack on the lid I get wet. If I'm too



slack and the First Lieutenant thinks I'm not going to get the top lid shut before she's under, he slams the lower doors and either leaves me isolated in the tower or else swimming around on the surface till he comes up later to look for me. (No – I've never got left like that yet, but some people have been pretty near it. It's not safe for the First Lieutenant to hang on too long for you – he might fill the boat.) It's quite simple. With a well-trained crew anything's safe, and you can cut it as fine as you like. When you've heard the propellers from overhead<sup>1</sup> you just keep along at sixty feet for ten minutes or so, and then you come up and get on with the work again. Oh! I'm bored with all this talking. You ought to be able to run a trip inside by yourself by now. But there's one thing always makes me mad, that's the Heligoland leave-boat. She leaves the island on Friday afternoons and she comes back on Monday morning. She's a big flat-bottomed coal barge – too shallow draught to torpedo – and crammed with men. You can't use a gun, because she's towed by a small tug with a big gun forward and a little one aft; and besides, we're not allowed to give away the fact that we're there by having a joke with small craft. But it's devilish aggravating, all the same, to see the bloated Hun going off for the week-end while we dive up and down for a week waiting for something to turn up. We get our leave all right though. We get three days to the half crew each trip, so that each of us gets leave every other trip. The business is too exciting for me to take leave seriously. I just go to all the revues and amusements I can if I go up to town, and if it's winter-time like now, I get in three days' shooting here. The local people are jolly nice to us, and even if they haven't got a regular shoot going, one can get out to the marshes and shoot duck. After the leave we come back and do a couple of days' exercise-diving and torpedo practice, and then we go out again for another trip. It's awfully interesting, because we work in the Huns' front-yard in a way, and it seems so cheeky somehow. Makes us want a drink? Well, I guess not. If you've got cold feet you don't want a drink, because you daren't have it. That's why we don't carry any in the boats. You see, the Owner here looks on us as so many race-horses he's got in training, and if one of us shows symptoms of breathing a bit short, he gets classed as a roarer, and leaves the job altogether to repent in a big ship; there's lots more waiting to take our place, and the Owner's got no what you'd call 'motherliness,' if he thinks you're not all out for business. Hearing propellers? Oh yes, you can hear them quite clearly from any quiet part of the boat; the fore torpedo compartment is a good place for listening, and so is the space abaft the main motors. You can hear what speed he's going, and when you're used to them you can make out what kind of craft he is – trawler or destroyer. The best time, though, is when you've finished a day's patrol and charging and all, and gone on down to the bottom. I allow the whole crew one cigarette apiece, and they have a concert. They gather round the periscope and sing for an hour before turning in, and the orchestra plays – (that's a concertina and a couple of mandolines), – we've got quite a lot of talent in the boats. Smoking like that overnight doesn't matter. If you keep the circulating fans running the smoke all goes away while you're asleep. I don't know where it goes to, 'cos it can't get out; but it goes somewhere. I allow the officers a couple of cigarettes apiece during the day-time, and I smoke whenever I feel scared – that gives me about nine cigarettes a day. Of course you can't smoke at the end of a long summer's day; after about fourteen hours' diving you can't get a cigarette to burn, and a match goes out as soon as it's struck. But you can smoke a bit in the forenoon without spoiling the air in the boat – and besides, on occasions like when somebody is chasing you and dropping those little depth bombs they use, and you've gone to ninety feet or so to keep clear of them, it's a sort of guarantee of good faith if the skipper walks away from the periscope and lights a fag. It looks contemptuous somehow, and the sailors approve. You see, they never know the facts of what's going on. Only the skipper knows the situation, and so they watch you all the time. They spend a trip sitting or lying by their stations, and obeying orders and trusting to their boss not to kill them unnecessarily if he can help it. I tell you, the submarine sailor, once he's past his probation time and been tested on patrol,

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<sup>1</sup> The date the speaker deals with is before the general use of the hydrophones in submarines. – Klaxon.

is a hand worth writing home about! Now, if you'll stop listening a minute and struggle out of that chair, I'll take you round the boat. She's pretty filthy still, but we'll get her clean again by to-morrow."

## **II**

### **ANTI-SUBMARINE WORK**

## I

Before speaking of anti-submarine work, a very short description of the German submarine and its variations in type is advisable.

A U-boat is not unlike our ordinary patrol-type submarine. She varies in size and capabilities, but is generally a 16-knot (surface speed) boat, with two guns – a 4.1-inch and a 22-pdr., two bow and two stern torpedo-tubes, and about 800 tons surface displacement.

A U-B boat is a small patrol boat of about 500 tons surface displacement; one 4.1-inch or 22-pdr. gun, one stern and four bow torpedo-tubes, 13 knots surface speed. There is also a "Flanders," type U-B class, of 250 tons and 8½ knots speed. The latter class worked from Ostend and Zeebrugge.

A U-C boat is about 400 tons; one 22-pdr. gun, 12 knots speed, one stern and two bow torpedo-tubes. The Flanders type U-C's are of 180 tons and 7½ knots speed. All U-C's are primarily fitted for mine-laying.

The U cruisers are from 2000 to 3000 tons displacement, carry two 5.9-inch guns, have a speed of 16 knots, and in some cases are fitted as mine-layers in addition to their torpedo equipment.

The number of slight divergencies from the main types is considerable. Boats were built in standardised groups, and, during the second half of the war, in great quantities. On November 11th, 1918, the position was, roughly, as follows: 200 submarines in German hands, commissioned or completing – 135 (roughly) on the building slips. About 200 had been destroyed up to that date.

In 1918 the average number of German submarines at sea – in the Adriatic, Irish Sea, Channel, and North Sea – was (in the spring) 20, in October, 24. The number available for service – excluding Mediterranean boats, school boats, and boats out of date – was about 72; so that, roughly, one-third were kept at sea, and the remainder resting or repairing.

The medium-size German submarines are quite good-looking boats, but the German mind showed itself clearly in the U cruisers. It has been an axiom at sea since the days of the Vikings, that a thing that looks ugly isn't good seamanship. British submarines are better stream-lined than German boats, and have generally a more "varminty" and clean-run look. The sight of a U cruiser in dry dock recalls to one's mind a pair of pictures once published in 'La Vie Parisienne' – a Paris weekly which has done as much to win the war as any other periodical. The first picture showed a "seventy-five" gun, and standing beside it a girl built on clearly thoroughbred lines, balancing a cartridge on her hand. The second was of a squat 11-inch howitzer, accompanied by 'La Vie's' interpretation of a homely German Frau clutching the great shell to her portly figure. The two pictures illustrate rather well the ideas of our own K-boat designers as compared with the mental state of the authors of the German submarine cruisers.

## II

It used to be a catchword of naval correspondents that "submarine cannot fight submarine." Well, it is true, and it isn't. What can be done is that one submarine submerged can torpedo another submarine on the surface: in which case submarine No. 2 is not really a submarine at the moment. Two submarines may meet and have a gun-action, with possible damage to one or both of them, and much entertainment to their crews; but in such a case neither boat would be acting as a submarine.

Throughout the war our boats have been on the look-out for, and ready to engage, any enemy submarines met with. We have had boats, in varying numbers, since the middle of 1915 engaged definitely in submarine-hunting – that is, those boats that could be spared from the all-important task of watching the Bight and its approaches. The anti-submarine boats we sent out simply proceeded to areas where, by inference or by "information received," U-boats might be expected to be working. The ordinary patrol boats on passage to and from their stations, or while watching at their stations for the coming of big ships, often met with U-boats, and naturally took the chances the gods gave them with gun, torpedo, stem, or whatever means seemed best at the moment.

Of course, the torpedo was the usual weapon used. A hit on a big ship, once the destroyer screen has been avoided, is comparatively easy; a hit on a U-boat is mighty difficult. The attacker is looking at his target with his eye (the top prism of the periscope) only a few inches above water-level. His view of the enemy, therefore, is confined to a square-looking conning-tower, with heavy "jumping wires" (sweep deflectors) running down from it to a low grey line of hull. It is therefore difficult to exactly estimate the enemy's speed or course, and the short time at the attacker's disposal for deciding on his deflection and turning to bring his tubes to bear does not allow of an accurate calculation based on bearings of the passing target. In fact, it is usually a case of "make up your mind and shoot quick." In addition to the handicap of the target being small, there is the knowledge that one must be far more careful to show only a little of the periscope during the attack, as submarines are far more on the *qui vive* for periscopes than big ships are. For one thing, they know what a periscope looks like; and for another, they have more knowledge of what a torpedo can do against craft of small buoyancy.

The moral effect of the use of submarine against submarine was probably greater than the direct effect. It discouraged U-boats from coming to the surface to use their guns against merchant ships, and restricted them to their torpedo armament, which was of course limited. A U-boat on the surface had the same sensations as a man would have who fell overboard crossing the Indian Ocean, where the sharks are always keeping station astern of a ship: a feeling of impatience, and anxiety to get back to where he came from. As an instance, I will mention the case of U 81, who, while engaged in the congenial work of pumping shells into an English merchant ship, received two torpedoes amidships from "E 54," who had been following operations through her periscope since U 81 first rose to the surface. "E 54" picked up seven survivors, one of whom was the Captain. The latter officer was somewhat damaged by the explosions, and was in danger of drowning until "E 54's" First Lieutenant dived for him and brought him aboard. Another survivor was the Warrant Officer, who, on being taken below, sent a message by "E 54's" coxswain to Commander Raikes, to the effect that it was advisable to keep a good look-out and to submerge again soon, *as there was another U-boat diving near at hand*. Commander Raikes would no doubt have acted on the second part of this excellent advice had it not been necessary for him to assist the damaged steamer into harbour. If one once begins to quote cases, it is difficult to keep from irrelevance, but I must note here that at the moment of the sinking of U 81, the crew of the steamer had very wisely abandoned ship, and the change from a U-boat in full view to a ditto E boat took place so suddenly that there was a natural misunderstanding when "E 54" stood over to tow the boats back to their ship. The steamer's crew were living too fast in twenty minutes for the situation to be quite clear, and in view of their knowledge of the way in

which certain U-boats had dealt with survivors, the fact that "E 54" had to actually chase the lifeboats is comprehensible.

The following is from reports of captured U-boat's men: —

"Several prisoners give clear evidence of the fear inspired by the possible presence of Allied submarines submerged when they themselves were on the surface. Besides the probable results of this method of attack, the apprehension of it constitutes a seriously demoralising influence."

From an officer: —

"We knew that for every boat we had working in an area, you had two looking for us."

The latter statement shows an error in the officer's calculations. The odds were very much the other way; but his error shows that moral effect goes for a good deal in war.

In actions between submarines, guns have also been used, as have rifles, pistols, and – at short range in the dark – verbal abuse; but no definite sinkings on either side can be traced to these causes. In our boats it was the rule to attack submerged, if possible – in the U-boats it was rare to find an inclination to pursue a gun-action to its logical end. A submarine, when nearly hit, can refuse action at any time by diving. This, of course, forces the opponent left on the surface to dive also, as it would be unhealthy then to remain on the surface in that locality. Our submarines were always more lightly gunned than the U-boats. Few of them carried more than one small gun – and that one usually an anti-aircraft weapon. This was for two reasons. Firstly, our boats are meant for warship-destroying as opposed to commerce-destroying. The attacking of warships implies speed under water (one should have, roughly, at least half the speed of the class of ship one is after). Big guns are bad for stream-line, and therefore militate against high submerged speed. Secondly, we were supplying guns to Allies, our own Army, and to all our merchant ships and "mystery ships," and the submarines had to take their turn at the supply with the rest.

The British officer always had an inclination to use the ram if he got a chance. A submarine can ram almost anything, and still, as the U.S. Navy puts it, "Get away with it." Our boats have a ten-inch razor-edged cast-steel stem fitted to them for net-cutting and other purposes. They can also, by their system of compartments, stand damage forward to the extent of a crushed bow, as far back as the bow hydroplanes, with no great risk to themselves. Add to these things the delightful idea of being able to thoroughly damage your ship and to be praised instead of court-martialed for the action, and it is obvious that a number of attempts along this line have been made. There is no record of one having been successful to the extent of sinking an enemy, but in some cases U-boats were damaged in this way. A curious case of accidental ramming was that in which "E 50" (Lieutenant-Commander Michell), when diving near the N. Hinder Light-vessel, sighted a periscope close aboard on the bow. A moment later the two boats collided heavily at 25 feet by gauge. "E 50's" Captain, deciding that the other boat was underneath him, put his hydroplanes "hard-to-dive," and flooded tanks with the idea of carrying the enemy to the bottom (at that point 180 feet away) and crushing him. The U-boat, however, broke away, and after showing her stern and conning-tower a moment on the surface, sank again. It was later discovered that the enemy got home damaged. "E 50" came out of the affair with the loss of her port-bow hydroplane and a few dents. On such an occasion, there is no time to inspect your own boat for damage before making up your mind if you should or should not instantly rise to the surface. It is a natural action to bring your own boat up as soon as possible, in case the chance of ever getting her up at all goes by. The Captain of "E 50" acted on the rule that a dead U-boat is a primary consideration, whatever one's natural inclinations may be; his crew, though not consulted, were in full agreement with him.

Again, I must quote an irrelevant incident. There were two of our submarines in the Heligoland Bight patrol, diving in adjacent areas. They both returned to harbour slightly damaged – one under the

impression that, while diving at 55 feet, he had been run over by a surface vessel; the other reporting that, while diving at 25 feet, he had bumped over a submarine. On meeting in harbour they found the times of the mysterious collisions tallied to the minute.

In April 1915, the idea of using a fishing trawler as a decoy originated in the *Vulcan's* flotilla (C-class submarines) – based on Leith. The U-boats had been sinking our fishing-boats at their leisure, and it was clear that if a few U-boats were mysteriously lost on this duty, it would be a discouraging thought for the remainder. It must be remembered that a "missing" boat has a certain moral effect – a boat openly sunk by gun fire, etc., serves only as an example for others to be more careful. If a certain duty or a certain area becomes unhealthy for U-boats without any explanation, it tends to make the enemy chary of sending boats out on similar work, until the matter is cleared up. Hence the secretiveness of the Admiralty during the war on the losses of enemy submarines. Prisoners taken from U-boats were prevented from explaining to anybody how their boats were sunk. It may have been from humanity, or it may have been from the consideration that U-boat prisoners were usually communicative in a useful way, but orders were strict that as many prisoners as possible were to be saved from the water when U-boats were sunk.

The *Vulcan's* idea was of masterly simplicity. The U-boats found a fishing fleet easy prey; therefore a fishing fleet with a "catch" on it would get results. One trawler of each fleet was to tow, instead of a trawl, a C-class submarine. The submarine would keep well submerged at the end of the hawser, and need not necessarily keep a periscope look-out, in view of the fact that the critical moment for her to slip tow (a tow can be slipped while submerged) would be notified to her by telephone from the trawler's bridge. Submarine "C 24" was the first to show that the theory worked out in practice.

It will be seen, however, that she did the work under a considerable handicap, and had the most aggravating experience a submarine can have – that of doing an attack with "something wrong with the works."

Lieutenant Taylor, in command, reported: —

"At 9.30 A.M., June 23rd, I heard a report which I took to be an explosive signal from trawler *Taranaki* to show my periscope, I being at 30 feet. I telephoned her for confirmation and got the answer, 'Submarine 1500 yards on port bow'; and then again, as trawler altered course, 'Submarine 1000 yards astern.'

"I gave the order to slip, but the slipping gear jammed in 'C 24.' I then told *Taranaki* to slip her end, which she did. I went ahead, helm hard a-starboard, to attack submarine astern. The boat immediately sank to 38 feet with 5° inclination, bow down. The trim then took some time to adjust, as I had at that time 100 fathoms of 3½-inch wire hawser, 100 fathom 8-inch coir hawser, and 100 fathom telephone cable hanging from the bows. Eventually sighted enemy's conning-tower 1000 yards off. Closed to 500 yards, manœuvred for beam shot, and fired 9.55 A.M. Torpedo hit enemy amidships. I then came to the surface and picked up 'U 40's' Captain. My propeller then refused to move, and it was found that there were 20 turns of telephone cable round the shaft..."

Lieut. – Commander Edwards (in trawler *Taranaki*) was, of course, ignorant of the fact that "C 24" was somewhat hampered by these cables hanging at the bow: —

"... 9.30 A.M., June 23rd: Enemy submarine rose and fired a shot across my bows from 2000 yards range – shell burst 20 yards ahead – informed 'C 24' by telephone. 9.45: Slipped *Taranaki's* end of tow, as 'C 24's' slip had jammed. Got boat out to simulate abandoning ship and panic. Saw 'C 24's' periscope pass, attacking. 9.55: Observed torpedo run and explode under conning-tower of enemy. An officer and a petty officer the only survivors..."

Lieut. – Commander Dobson, in command of "C 27," has an abrupt and almost *blasé* report to make of his sinking of "U 23": —

"7.55 A.M., July 20th: Lieut. Cantlie in trawler *Princess Louise* telephoned to me that a hostile submarine was in sight 2000 yards on the port bow – telling me not to slip for a little while. Telephone then broke down [*It would – of course*].

"At 8 A.M. I heard the sound of shots falling on the water and decided to slip, which I did. Turned to starboard to get clear of trawler and came to 18 feet for a look. Closed enemy to 500 yards, and fired port tube at 8.12. As I fired I observed enemy start her engines, and torpedo missed astern. I shifted my deflection and fired the starboard tube. Torpedo hit the submarine just abaft the conning-tower. I blew main ballast tanks and picked up seven survivors (Captain, two officers, and four men). The weather being too bad to get in tow again, I returned to harbour."

Lieutenant Cantlie, in the trawler, reports: —

"7.55 A.M., July 20: Sighted hostile submarine three points on port bow, distant 2500 yards – informed 'C 27,' and told her not to slip yet. Hostile submarine steering across my bows. 7.56: Enemy opened fire, apparently trying to hit trawler. Telephone to 'C 27' broke down. 8.03 A.M.: Tow slipped. Enemy fired about seven shots altogether. Employed trawler's crew in hoisting out boat, rushing about the deck, and appearing to be in a panic. 8.10 A.M.: Observed 'C 27's' periscope on starboard quarter attacking enemy. 8.12 A.M.: Observed 'C 27' fire a torpedo, which missed astern. Cleared away starboard gun for action. Enemy opened fire again on trawler, and commenced turning to port. I opened fire with my starboard gun, hoisting white ensign at the main. At the same moment second torpedo hit just abaft enemy's conning-tower. Column of water and smoke rose about 80 feet high. As it cleared away 30 feet of bow of submarine at a large angle could be seen..."

The success of this scheme of U-boat hunting depended, of course, entirely on the secrecy maintained as to its existence; it was therefore unfortunate that the prisoners from U 23 were allowed to mix with interned German civilians who were about to be repatriated – a mistake which was excusable in the midst of the general confusion caused in the authorities' minds by the change from peace to war. At that date the disposal of prisoners was out of the Admiralty's hands, and on this mistake being discovered, steps were taken that prisoners having secrets to tell should be prevented from telling them to Germany. The trawler scheme of hunting, however, had to be given up for some time.

In 1916 U-boats again became active against the fishing fleets on the Dogger, and C boats were again sent out to work with the trawlers. On August 28, "C 29" (Lieut. Schofield), while being towed submerged, struck a mine off the Humber and was lost with all hands. The method was continued for a few more trips, but the U-boats being by then too careful, it was abandoned before the end of the year.

There were eighteen German boats in all sunk by torpedoes from our submarines, while others were hit but were able to get home. I will try to imagine a typical case of submarine v. submarine, in order to give an idea of what lies behind the bare despatches of the victors.



### III

The E boat was working a "beat" ten miles to the north of the North Dogger Bank Lightship – a dull beat, too, as in 1918 the U-boat captains had long ago given up the idea of passing near lightships in surface trim. The patrol was not there for enemy submarine strafing, however. The E boat was a unit of the watching semicircle that dived eternally, from the Haaks light off the Dutch coast to Hiorn's Reef off Jutland, watching for a cloud of smoke to the east that would tell of the coming of the High Sea Fleet. The boat had been on the billet two days, and had five more to wait before she started her run home to Harwich. She had spent the short spring night jogging about on the surface at six knots, charging her batteries, and at 4 A.M. she slowed up and slipped under. It was her thirtieth patrol trip, and she expected it to be as dull as most of the others had been; there was a kind of yawning, done-it-all-before air in the way the crew took her under that morning, that showed, besides good training, a familiarity with intricate mechanism that had developed into something approaching contempt. The boat settled to her day's dive at twenty feet, her periscope moving slowly along at a speed of about two knots, leaving a very faint rippling line on the smooth North Sea surface. The Captain swung the periscope round, wiped the eyepiece with a nominally clean chamois-leather pad, and then leaned back against the diving gauge, finishing the fag-end of a cigarette. It was still twilight in the world above him, and the bad light, combined with the fact that periscopes are very apt to "fog" for some minutes after diving, when the engines are still hot enough to make the air in the boat steamy, would prevent him seeing anything clearly for twenty minutes. It was a rule of his to keep the early morning periscope watch himself, as he believed that if anything exciting was going to happen it would always occur at dawn. Certainly, as far as U-boats go, his ideas were right, as a boat on passage is humanly liable to hold on to her surface speed and trim as long as there is a hint of darkness left to protect her, and in submarine war it is the one that gets under earliest that lives longest.

The Captain took another look through the periscope, and saw the familiar level floor of the sea blending with the pink and grey of the dawn just as he had seen it on so many previous mornings. He looked forward along his boat and saw the sleeping forms of sailors all the way along the battery deck cloths till his eye was attracted by a pair of sea-boots that projected through the gap in the wardroom curtain. Those were his First Lieutenant's boots, and his First Lieutenant, he knew well, was snoring loudly beyond them. He threw his cigarette end impatiently down the periscope well and began slowly moving the heavy periscope round, shuffling around with it as he swept the clearing horizon. It seemed a silly thing to be keeping the morning watch, of all watches, when he had two young and lazy officers to work for him. Their eyes were younger than his, and his were more valuable to the country anyway. It seemed absurd that only he and four "diving hands" should be awake, while all the rest snored. Why should he, an experienced and skilled officer, be at work at half-past four on a dull morning? Why, when he was a junior Lieutenant ... he straightened up from the eyepiece...

"Call the First Lieutenant!"

An hour later the situation in the E boat was the same, except for the fact that a gloomy officer in a soiled sweater and a pair of still more soiled grey flannel trousers plodded round the periscope pedestal, while a pair of stockinged feet showing through the curtain showed whither the Captain's train of thought had led him. The crew still dozed fore and aft the boat. At regular intervals the hydroplane motors buzzed noisily as a turn of the wheels corrected her depth; from right aft came the monotonous ticking of a main motor that slowly turned the port propeller and urged the boat lazily along. In the wardroom the Captain, supremely oblivious to a monotonous drip of leaking water from a seam directly over his outthrown left hand, was back in the days before the war, when the Berkeley Hounds had had three forty-five minute bursts in a day, and he had ridden all three on the same horse. In his dreams he seemed to hear the drumming of many horses' hoofs on the sloping pastures, and the clash and tinkle of stirrups touching as the crowded field fought for room at the first fence.

Then he woke and lay propped on one elbow, with a leg thrown over the side of his bunk, while his heart missed two complete beats. He had not heard the order of "action stations," that came from the periscope position, but he knew well the only possible order that could send men rushing past him to man the bow tubes. He pulled his sea-boots on as he sat up, then jumped down and covered the distance aft to the periscope in half a dozen swift strides. The First Lieutenant, his face alight with suppressed emotions, stepped clear and spoke: "Fritz – bow-on, I think – big one" – then dashed forward to superintend the men at the bow tubes. All along the boat a clatter and ring of metal on metal told of preparation for firing. Amidships a hiss and splutter of air showed that the beam tubes were flooding, till a spurt of water coincided with a sharp cry of "Tubes full, sir!" The Captain spoke into the voice-pipe at his side, and the ticking sound from the main motors rose to a steady hum. He lowered the periscope till the eyepiece was level with the deck, and stood drumming his fingers against the hoisting wires. The matter of seeing the tubes cleared away and of keeping the boat's trim right lay now with his officers. His head was to be concerned only with the attack and the shot. He alone would be to blame for a miss now, and he had too well-trained a staff for him to need to worry over any diving details during an attack. His brain was working outside the boat in the early sunshine, where a big and confident U-boat was bound out for her station in the Irish Sea. The enemy was heading straight at him, and he himself was crossing her bow from port to starboard, heading north. To get his bow tubes to bear meant a quick rush to the north to get to a fair range, and then a turn to port till his head was south and the enemy ran across his sights. He was, in view of the glassy state of the sea, keeping his periscope out of sight as long as possible, and intended to keep the instrument lowered till, on his estimate of the U-boat's course and speed (gauged in his first rapid glance) and his submarine sixth sense, he had turned inwards from a point on his target's starboard bow. In sixty-five seconds from the first sighting of the enemy, peace and quiet reigned again in the E boat. Except for the occasional slight hiss and gurgle as a tube-vent was tested, there was no sign to tell that the whole boat was on a tiptoe of expectant emotion. Three minutes from his first order to increase speed he starboarded his helm and – still with his periscope lowered – began his turn through west to south. His hands fidgeted now on the taut hoisting wires before him, and every nerve in his body cried for a glance at the enemy just to check his mental estimate. His first glance when his turn was half through would show him whether he had judged rightly, or whether he had made a miscalculation which would be heavy on his soul till the end of his days. But his nerves were well in hand and his will strong; the repeater of the gyroscopic compass had ticked slowly round under his gaze until it showed 275° – a trifle north of west. Then the periscope rose with a sigh and a creak of straining wires. He stooped and pressed his eye to the instrument as it rose, waiting for the very earliest glimpse of the upper world. All along the boat the men leaned from their stations to watch, for they knew exactly what depended on the quick decision based on that first glimpse he had taken. To his eye the green flickering circle lightened, paled, and then changed to a clear pale-blue sky and a sparkling stretch of sea. He had hoisted the periscope trained to south-west by south, and his heart gave a jump in gratitude to the training that had given him brains to judge rightly. The U-boat – very near and big – with a little foaming line falling away from her bows, was sailing slowly across the periscope, and he winced as he saw on her bridge the little group of figures that seemed to be looking straight at his face. Instantly he lowered the periscope and forced himself – for he felt that he ought to whisper, in fear of his enemy hearing – to shout the order to "stand by bow tubes." A few seconds later he spoke again as the periscope rose – "Midships – steady on one-eight-five – stop starboard."

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