

THE U-BOAT THREAT

IN THE FIRST WORLD WAR, U-boats spent little of their time beneath the waves. Diving was a complicated manoeuvre generally reserved for firing a torpedo or for making an escape. To avoid burning up their air supply, submerged submarines ran on electric motors, powered by a series of huge rechargeable batteries, rather than the diesel engines used on the surface. This slowed them down and they could only dive for limited periods.

In 1914, the German navy was equipped with two basic types of submarine: small, coastal *UBI* class craft and longer-range "overseas" patrol boats of the *U5* and *U19* classes, known as the Mittel-U type. The former were capable of a top speed of just 5 knots and had two 450-mm (17-in) torpedo tubes and a crew of 14. The latter had a surface speed of 14 knots (8 knots when submerged) and they carried four torpedo tubes, one 51-mm (2-in) gun and a crew of 28. Wartime development resulted in the addition of the minelayer as a third category of submarine.

In the torpedo room

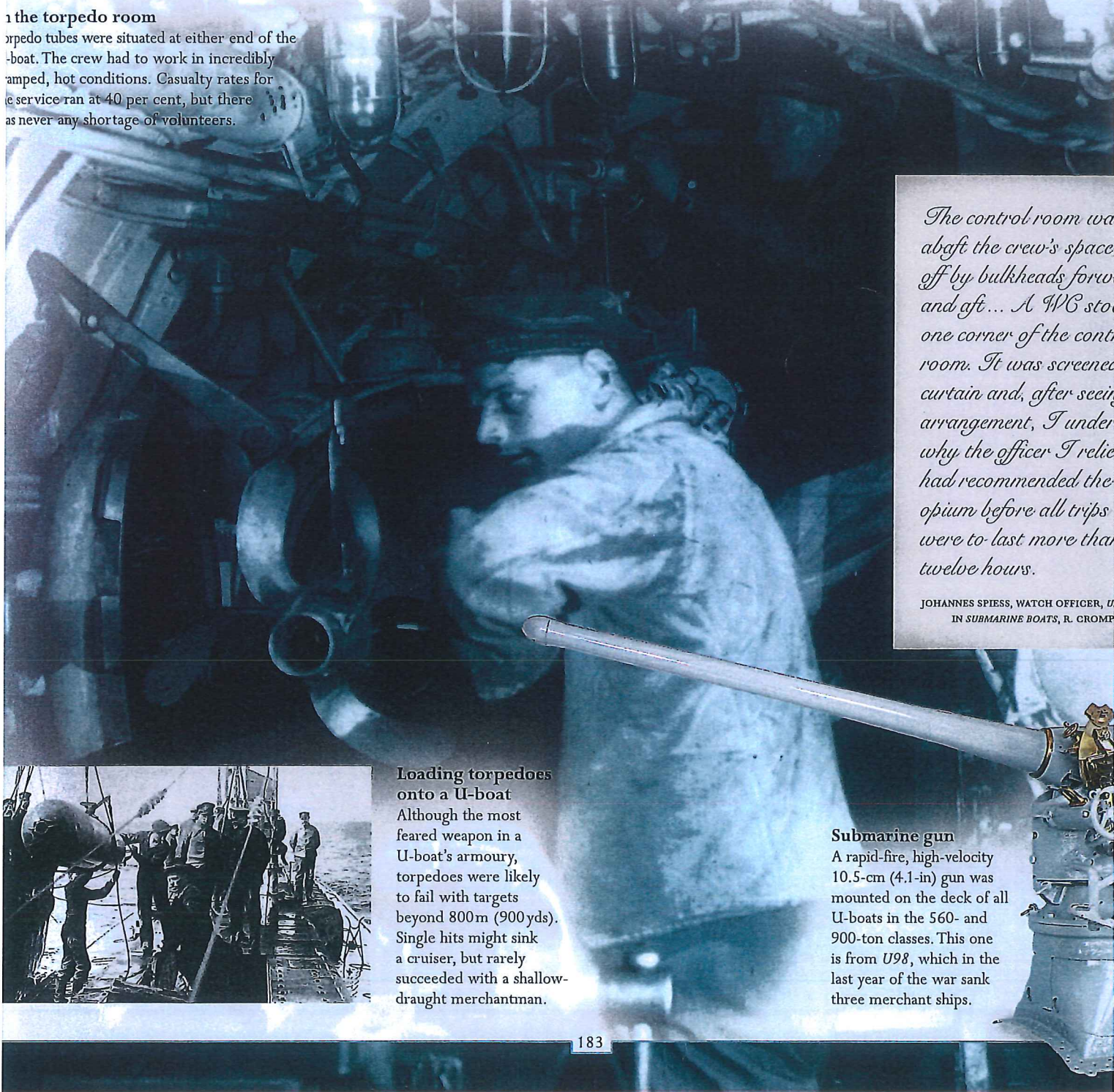
Torpedo tubes were situated at either end of the U-boat. The crew had to work in incredibly cramped, hot conditions. Casualty rates for the service ran at 40 per cent, but there was never any shortage of volunteers.

The improvement in the fleet was such that by the end of the war German coastal submarines were built to roughly the same specification as the patrol submarines of 1914. In the later stages of the war, patrol vessels were able to reach North American waters.

Torpedoes brought about some of the most notorious Allied shipping losses of the war, including the sinking of the Cunard liner *Lusitania* in 1915. However, they were expensive and against merchantmen the most practical method was sinking by gunfire or boarding the ship and placing charges to scuttle it. In response, the British used Q ships, well-armed ships disguised as merchantmen, to lure U-boats into making an attack. Following the resumption of unrestricted submarine warfare in 1917, the U-boats came close to breaking the Allies, but Britain was able to call on enough shipping, despite its increasing losses.



Propaganda
This German poster from 1917, depicting U-boats are out



The control room was abft the crew's space, off by bulkheads forward and aft... A WC stood in one corner of the control room. It was screened by a curtain and, after seeing the arrangement, I understood why the officer I relieved had recommended the opium before all trips were to last more than twelve hours.

JOHANNES SPIESS, WATCH OFFICER, U-BOAT
IN SUBMARINE BOATS, R. CROMPTON



Loading torpedoes onto a U-boat

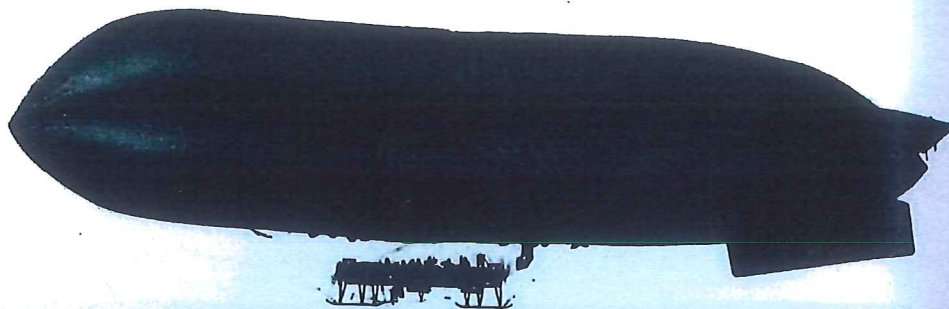
Although the most feared weapon in a U-boat's armoury, torpedoes were likely to fail with targets beyond 800m (900yds). Single hits might sink a cruiser, but rarely succeeded with a shallow-draught merchantman.

Submarine gun

A rapid-fire, high-velocity 10.5-cm (4.1-in) gun was mounted on the deck of all U-boats in the 560- and 900-ton classes. This one is from *U98*, which in the last year of the war sank three merchant ships.

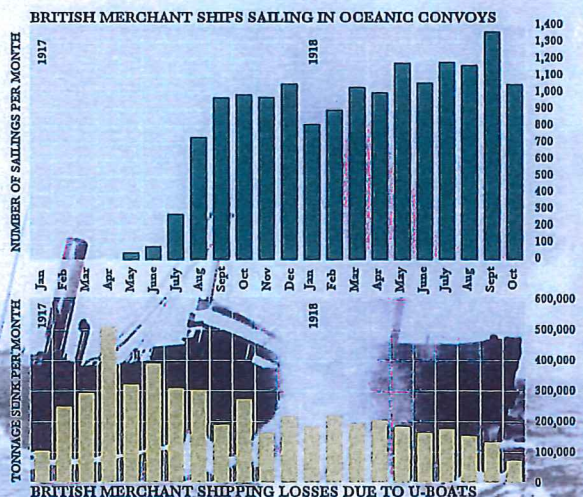
An ideal convoy
A well-protected convoy sails with an escort of dazzle-painted warships and an RNAS (Royal Naval Air Service) airship.

In the course of 1918 only two merchantmen were sunk by U-boats when their convoy had both sea and air escorts.



CONVOYS AND REDUCED SHIPPING LOSSES

BY THE END OF 1917 a total of 26,404 ships had sailed in convoys at a cost of 147 of their number. As a result the volume of British imports in 1917 increased from 1916 levels despite an 8 per cent loss of shipping capacity. The basic system that was to curb the U-boat threat was in place by November 1917 but it accounted for only half of all shipping movements. By October 1918 convoys accounted for 90 per cent of all sailings. In the course of 1918 U-boats sank a total of just 134 escorted merchantmen.



The key to British survival into autumn 1917 was neutral shipping. With the start of the unrestricted campaign, neutral shipping mainly confined itself to harbour in the hope that American pressure would force the Germans to moderate their new aggressive policy. Neutral sailings to and from British ports in February and March fell to 37 per cent of the January 1917 level. By July, however, neutral sailings had recovered to four-fifths of the January level. The neutrals obviously needed to continue to trade and Britain and the United States subjected them to intense political and economic pressure, while offering lucrative financial inducements to do so. These measures saw Britain through the critical months of 1917, but its long-term survival was ensured only by a comprehensive convoy system.

In the first 27 months of war, in which time no single month saw British losses exceed 150,000 tons, the Admiralty consistently refused to sanction the general introduction of convoys. It did so on the grounds that that there were not enough warships to provide escorts and that the sheer numbers of

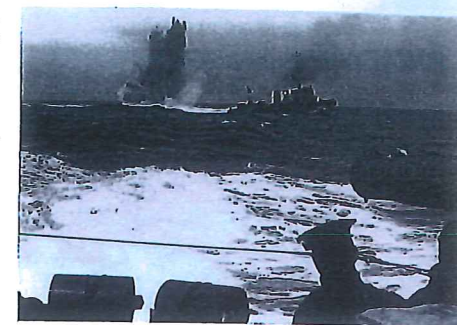
sailings to and from British ports, and the congestion caused by holding ships in harbour, rendered convoys impossible. In spite of these arguments, rising losses forced the Admiralty to accept the principle of sailing merchantmen under warship protection on three routes even before April 1917. A convoy system was introduced on the route to and from the Hook of Holland in July 1916 and on the Scandinavian route in January 1917. On February 10, at French insistence, the Admiralty also began sailing convoys of colliers to France at night.

Only three ships were lost in the first year of the Dutch "Beef Run", and losses on the French coal routes were reduced to just five out of a total of 2,583 sailings by escorted colliers in March and April 1917. The Admiralty nevertheless refused to consider the introduction of oceanic convoys even as losses rose alarmingly after February 1917. Prime minister Lloyd George was to claim that it was his intervention in April 1917 that forced the Admiralty to accept convoys; the Admiralty claimed that by then it had already come round to the idea.

CONVOYS PROVE THEIR WORTH

The first oceanic convoy of 17 merchantmen sailed from Gibraltar on May 10. It arrived in British waters without loss two days earlier than ships sailing independently might have been expected to do. On May 24 a convoy sailed from Hampton Roads, Virginia and arrived in Britain on June 10, just one straggler having been lost. In June four convoys arrived in British waters and July saw the start of regular convoy sailings from North America. In August regular convoys were instituted on the homeward South American and Gibraltar routes. Nonetheless the convoy system had its failings. Because homeward convoys were dispersed in the Channel and Irish Sea, unnecessary losses were incurred in home waters. In the first three months of oceanic convoys no attempt was made to escort outward shipping, and here losses continued on the scale of previous months. Losses of unescorted shipping also continued to be heavy.

Camouflaged convoy
The dazzle painting of individual merchant ships may have enhanced the success of the convoy system introduced in 1917.

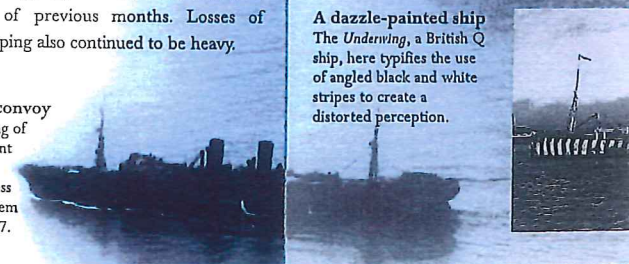


Better reconnaissance and more effective U-boats and depth charges claimed 46 U-boats against the 42 commissioned between August and January 1918. In this six-month period both the number of U-boats at sea and sinkings per boat declined by 27 per cent. The German Navy, however, still believed it was sinking merchant ships at a rate that would bring about Britain's defeat. In reality, less shipping was sunk in 1918 than in the first four months of the unrestricted campaign. The decline of the rate of sinkings through 1918 was primarily the result of the convoy system.

CAMOUFLAGE

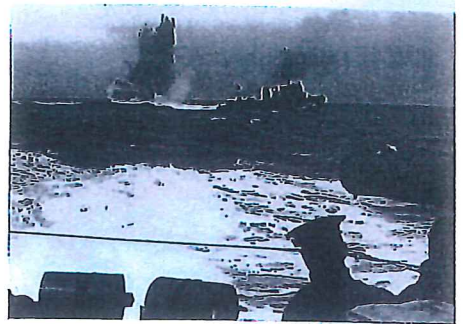
THE FIRST SUGGESTIONS FOR SHIP CAMOUFLAGE came in the form of a question against the backdrop of sea, sky and land. The idea was to deceive conventional craft. Unfortunately a ship as a silhouette. Then the new idea of creating an optical illusion that made it very difficult to see. The painting of the entire British merchant fleet

A dazzle-painted ship
The *Underwing*, a British Q-ship, here typifies the use of angled black and white stripes to create a distorted perception.





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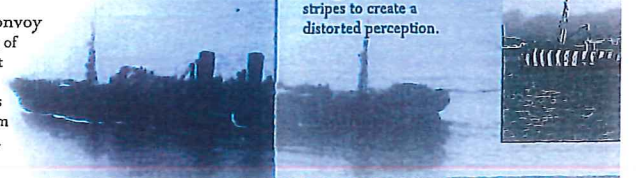
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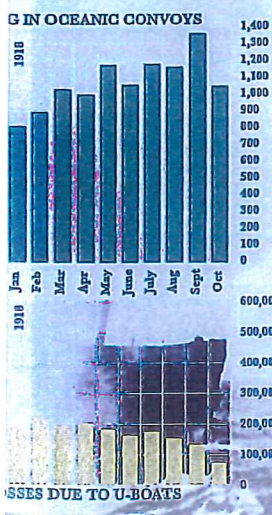


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SHIPPING LOSSES



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